This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

CYCLOPÆDIA OF INDIA

AND OF

EASTERN AND SOUTHERN ASIA,

Commercial, Industrial and Scientific:

PRODUCTS OF THE

MINERAL, VEGETABLE AND ANIMAL KINGDOMS,
USEFUL ARTS AND MANUFACTURES;

NEW YORK

EDITED BY

EDWARD BALFOUR, L. R. C. S. E.,

INSPECTOR GENERAL OF HOSPITALS, MADRAS MEDICAL DEPARTMENT,
FELLOW OF THE UNIVERSITY OF MADRAS,
CORRESPONDING MEMBER OF THE IMPERIAL GEOLOGICAL INSTITUTE, VIENNA.

SECOND EDITION.

VOL. IV.

MADRAS:
PRINTED AT THE SCOTTISH, AND LAWRENCE PRESSES.
1873.

Copyright.

3336
A
10
1883
NEW-YORK

N

N, the fourteenth letter of the English alphabet, is a nasal consonant, and its sound is obtained by placing the tongue against the palate and expelling the breath through the nostrils. Its principal sound is that heard in bun, done, moon; but when followed by *g* or *k*, it takes other sounds as in singer, finger, brink. When final after m, it is silent, condemn. In the Nagari alphabet there are four symbols for *n*, the sounds of all of which occur in the English, although not represented in it by separate letters, chiefly caused by the preceding or following letter. There is an *n* in the Tamil tongue with a dental nasal sound, and in Hindustani, Guzerathi and Mahrati, there is a nasal, usually a final, although sometimes a medial, which is scarcely sounded, although it gives a nasal sound to the preceding vowel.

NA also Sna, TIB. A wild sheep of Ladak. Vigne calls it of the size of an ordinary sheep, of a dull brownish gray colour with curved, smooth, and four sided horns. It is called by de Koros, a large sheep-like deer. Major Cunningham supposes it the same as the Nahur of Nepal, the Ovis nahur.

NAA, a very hard, fine, close-grained, and very ponderous Ceylon wood.

NAAD, a district. See Korambar, Nad.

NAAF, a river of Chittagong.

NAAKUI-MIN, TAM. Pleuronectes solea.

NAAT or Nat, TAM. Anything relating to a locality or district. See Nad.

NAAT CARDASI, TAM, Country paper.

NABALUS BUNGARUS, see Naia.

NABALUS CURTA, see Naia.

NABAR. HIND. Ribes leptostachyum.

NABATÆI, the ancient people of Petra in Arabia.

NABATI. HIND. Pale brown color, like sugar.

NABHA territory, Cis-Sutlej, has an area of 863 sq. m., a population of 276,000 souls, and a revenue of four lakhs. The chief is of the same stock as the maharajahs of Patiala and Jheend, but is the elder branch of the family. The family behaved ill in the Sikh war of 1845-6 but did well in the revolt of 1857 and were rewarded by a grant of land out of the Jhujjur territory.

NABHA JI, see Bhakta mala.

NABHAT. PERS. Candy.

NABHAY. Odina wodier.

NABLOOS or Naplouse, as the French write it, is the Arabic attempt to pronounce the Greek name Neapolis, the "new city," the title given to the old Canaanite town of Shechem when it was restored or rebuilt, probably during Vespasian's reign.

NABON, see Fars.

NABONASSAR. A prince of Babylon, under whose reign astronomical studies were much advanced in Chaldea. The first day of the era which he established was Wednesday the 26th February 747 B. C. He is known to the Arabs and in mahomedan literature as Bukht oon Nasr. The era of Nabonassar, 1st king of the Chaldæans falls on Wednesday 26th February A. A. C. 747. Its year was of 365 days, without any intercalary day on the 4th year. The Arabic name is not very dissimilar to that used by the Hebrews, but Bakht-un-nasr is that by which the Arabs, Turks and Persians designate this king of the Assyrians and Babylon. But Oriental historians, and particularly the Persians also style him Raham, also Gudarz. *D'Herbelot, tome* 3, *p.* 1 ; *Mignan's Travels, p.* 254. See Sennacherib ; Nineveh.

NABOPOLASSAR, the father of Nebuchadnezzar, became the Assyrian satrap of Babylon, in the 123rd year of Nabonassar. Sardanapalus, king of Assyria, commanded him to march against the Medes who had revolted, but he allied himself with Cyaxares, and marched with him against Nineveh, and Babylon became independent on the destruction of Nineveh in B.C. 606.—*Bunsen.*

NA-BUG-NYAH, see Kashmir.

NACCINOLE, also Aveline, IT. Hazel Nut.

NA'CHAN-GAON, a town in the Huzur tahsil of the Wardha district, lying two miles to the south of the Pulgaon railway station, and about twenty-one miles from Wardha. It is said to be very old, and parts of the wall which formerly surrounded it still exist.

NACHASH, see Serpent.

NACHCHU TEL. Utricularia fasciculata, and U. Stellaris *L.*—*R.* i. 143 ; *Cor.* 180.

NACHEZ, see Hindoo.

NACH'H, HIND. A dance, also written Nautch.

NACHNI, HIND. A dancing girl.

NACHRAVALI, TAM. the Asees, HIND. is a form of hindu benediction, only bestowed by women and priests: it is performed by clasping both hands over the person's head, and waving over him a piece of silver or other valuable which is bestowed in charity. The Tamil people similarly wave a fowl or sheep's head around a sick man. This is a very ancient ceremony, and is called *Nachravali*. Col. Tod frequently had a large salver filled with silver coin waved over his head, which was handed for distribution amongst his attendants. It is most appropriate from the ladies from whom also he had this performed by their proxies, the family priest or female attendants. It is also a mahomedan rite.—*Tod's Rajasthan Vol. i. p.* 618. See Bulain Lena. Sacrifice.

NACHU Tel. Lemna orbiculata, also Blyxa octandra, *Rich.*—Vallisneria octandra, *R.* iii. 752; *Cor.* 165. Also applied generally to small aquatic plants.

NACRE, Fr. Mother of Pearl. See Molluscs, Mother o' Pearl.

NACSHATRA, Hind. The Tyajya (wrongly spelt Thyajum and Thyagum); that portion of a Nacshatra, which is deemed unlucky, is called Varjya, and the period of its duration is the Tyajya.—It is called Devi when it occurs at day time, and Ravi when at night. It is therefore an astrological element: but is nevertheless registered every day in the Ephemerides; where the instant of its commencement is registered. Its mean duration is about 4 guddia (1h 36′ European time), so that the beginning being known, the end may be supported, with sufficient accuracy for practical purposes, without actual computation.

NAD, Can. A territorial division.

NADANAR KARU, an agricultural tribe, of Mysore, who pretend to be pure sudras.

NADA UMDALUM, a district midway between Madura and the Pulitaver country.

NADAUN, see Jawala mukhi.

NADDI, Hind., a river, a streamlet.

NADHYA-DESA, see Inscriptions.

NADI or NARI, Beng. A caste who make ornaments of lak for mahommedan women.

NADIR SHAH, a native of Khorasan. His name was Tamas Kuli Khan. His country had been conquered in 1722 by the Ghilji, he freed his country from the Ghilji, expelled the Turks and Russians from their possessions and at the request of the people resumed the throne which he had bestowed on Thamasp, son of Shah Hussain the Sufi monarch of Persia. In 1738, he commenced the seige of Candahar, but on the emperor of Delhi refusing to restore some fugitives, he crossed the Indus with 65,000 veteran soldiers; the emperor however made his submission and Nadir Shah, in March 1739, entered the palace of Delhi with him. On the following night a false report was raised, that Nadir Shah had been murdered, on which the people of Delhi rose and murdered nearly 1000 of his soldiers. Nadir Shah on learning this, in the morning ordered a general massacre of the people. In this, 8,000 were slain, and the city was pillaged for fifty-eight days and he returned to his country with immense plunder: Nadir Shah's plunder destroyed the Mogul empire. The Mahrattas, the nabob of the Carnatic, the Asof Jahi family of Hyderabad, the subadars of Bengal and Oudh, and the Jat of Bhurtpore, all declared for independence and set the imperial power at defiance. In the fifty-eight days that he remained, Nadir demolished, burnt, and ransacked all Delhi, and undid the doings of several hundred years. The amount of booty that he is said to have carried off is, by the highest computation, seventy crore, and by the lowest thirty-two, Among it was the throne representing the tail of a peacock displayed, composed of precious stones, which still adorns the audience chamber in the palace at Teheran. Nadir Shah's route into India was the ordinary one, by Attock and Lahore, and he returned, as appears by Abdul Karim and M. Otter, by nearly the same route; save that instead of crossing the Indus at Attock, he went higher up, and passed the borders of Sewad, in his way to Jalalabad and Kabul. Ahmed, styled khan or shah, king of the Abdalla accompanied Nadir Shah to India in 1739. In 1747, Ahmed with an army of 15,000 men overran the Panjab, but at Sirhind he was met and defeated by Ahmed Shah, the son of the emperor of Delhi Mahomed Shah, and he returned to Afghanistan. In 1741, he returned to India, and Lahore and Multan were ceded to him. He, a third time, invaded India, took and plundered Delhi, but left for his native country, pestilence occurring amongst his troops. He had displaced Ghazi-ud-din from the post of vizier of the emperor, and on his withdrawal, Ghazi-ud-din obtained the aid of the Mahrattas, who advanced on and captured Delhi, re-instated Ghazi-ud-din; Raghoba, the commander of the Mahrattas, then marched on Lahore, defeated Timur, son of Ahmed, and wrested Lahore and Multan from the Abdalla. Ghazi-ud-din assasinated the emperor Alamgir in 1759; but in September, Ahmed had again crossed the Indus and invaded India. In 1760, he overtook the Mahratta chiefs and defeated them one after another. Sada Siva Rao, Bhao, who had replaced Raghoba, marched to meet Ahmed. His army was composed of Mahrattas, Rajput cavalry and the Jaundar Surj Mull, the whole numbering about 270,000. Surj Mull advised Sada Siva Rao, Bhao to harass Ahmed. This advice was not followed, and the Jat and Rajpoot armies consequently withdrew. The Bhao occupied Delhi, and came in contact at Paniput, with Ahmed's army of 38,000 foot, 49,000 cavalry, besides the Rohilla and Oudh auxillaries. Several indecisive encounters ensued, but, on the 7th January 1761, an obstinate battle was fought. The result continued doubtful until the Bhao fled from the field, leaving his troops in disorder, and Ahmed's victory was complete and about 200,000 of the Mahratta army fell. Wiswas Rao, the son of the Peshwa was slain and after the battle, Junkaji Sindhia and Ibrahim Khan Gardi were put to death. This completely broke the Mahratta imperial power. When Nadir Shah proceeded to establish his authority in Sindh, he found the ancestor ot the Bahawulpoor family, a man of reputation in his native districts of Shikarpoor. The Shah made him the deputy of the upper third of the province; but, becoming suspicious of the whole clan, he resolved on removing it to Ghuznee. The tribe then migrated np the Sutlej, and seized lands by force. The Daoodpotra are so called from Daood (David) the first of the family who acquired a name. They fabulously trace their origin to the kaliph Abbas; but they may be regarded as Sindhian Baluchi, or as Baluch changed by a long residence in Sindh. In establishing themselves on the Sutlej, they reduced the remains of the ancient Lungga and Johyya to further insignificance; but they introduced the Sindhian system of canals of irrigation, and both banks of the river below Pakputhun bear witness to their original industry and love of agriculture. One of Nadir Shah's features of policy was the colonization of the countries he conquered, and in pursuance thereof he encouraged settlement in Afghanistan by the various tribes of the vast Persian empire. At the time of his death numbers, under such intention, had reached Meshed, and were subsequently invited to come by Ahmed Shah, Durani; a large Persian force escorting treasure from India at that critical period, were also induced to enter the employ of the new Affghan sovereign, and renounce their native country. Hence, at Kabul, at this day, are found, Juanshir, Kurd, Rika, Afshar, Baktiari, Shah Sewan, Talish, Baiyat, in short, representatives of every Persian tribe. Under Ahmed Shah, and his successors, they formed the principal portion of the ghulam khana, or household troops.

Nadir Shah entered Delhi on the 9th March 1739, and in returning from India, retained all the west of the Indus at Attock. He was assassinated in his tent at Meshid in Khorassan, by three of his officers, on 8th June A.D. 1747. The fate of the Nadir has been thus recorded, doubtless by some moollah,

Nadir biduzakh raft.
" Nadir is gone to the abyss of hell."

These letters give 1161, the year of the Hijra which corresponds with A.D. 1747, in which Nadir was put to death. The Roman system of using letters to indicate figures, is followed by all mahomedans; the death of the worthy Kureem Khan, Send, is commemorated in the sentence;

Ei va'e Kureem Khan moord.
" Woe and alas! Kureem Khan is dead."

The numeral values of the letters composing these few words, being added up, give 1193, the year of the Hijra, corresponding with A.D. 1779, in which this good king died. Ouseley mentions that one of the attendants who at a levee presented to him pipes and coffee, was a grandson or great grandson of the mighty Nadir Shah.—*Tr. of a Hind., Vol.* ii. *p.* 320; *Rennells Memoir, p.* 112; *Cunningham's History of the Sikhs, p.* 121; *Masson's Journey's, Vol.* ii, *p.* 297; *Burnes; Ouseley's Travels, Vol.* ii. *p.* 222. See Afghan, India, Iran, Kaffir, Kandahar, Kazzilbash.

NADOONG-GASS, Singh. Dalbergia mooniana.—*Thw.*

NADULEE, Hind. A stone engraved with a verse of the koran, and suspended as a charm round the necks of children.—*Herklots.*

NAEK. A Tamil race who have adopted brahminism, they have few lands and are largely employed as farm servants.

NAEK, or Naidu, a term in use by a class of the Tiling sudra, as an honorific distinction.

NAEK, in the British Indian Army a rank equivalent to a corporal.

NÆ-MEN, Burm. Eurycles Amboinensis. —*Sal.*

NAET or Nao-ait, a mahomedan race in the peninsula of India.

NA-FARMAN, Hind. Delphinium ajacis.

NA-FARMANI, Hind. A blue colour from the flower of Cheiranthus annuum. Lilac, mauve.

NAFIEL, Arab. Galbanum officinale. *Don.*

NAFR, Pers. Hind. A servant. In the west of Bengal the Nafr and his offspring are slaves for ever and are transferable and saleable. In Purneya the Nafr is sometimes a domestic slave, sometimes an agricultural slave. In the native cavalry of India the term is applied to a horsekeeper or groom, also, though rarely, to a person who is hired to ride a horse, equivalent to assami.

NAF-TALNA, Hind. Lit. shifting of the navel, a disease.

NAG, Hind., a serpent, See Naga; Takshak.

NAG, Hind. Pyrus communis, pear tree, see Naspati.

NAGA, a powerful Scythic race who appear to have invaded India about six centuries before Christ and occupied it prior to the appearance of the Aryans. In the mythology of India they are described as true snakes. In the Persepolitan inscription, Xerxes calls himself Nagua or Nuka, the Greeks anax, and some writers have surmised that this may the true meaning of the Naga dynasties of Kashmir and Magadha. The Naga race seem to have ruled in Magadha until dispossessed by the Aryan Pandava; the Mannipur rulers were also of that Scythic race and most of the Mannipur people continued to worship snakes till the beginning of the 19th century, as is still the custom amongst Aryan and non-Aryan tribes throughout the Peninsula of India. Naga and Takshac are Sanscrit names for a snake or serpent, the emblem of Boodha or Mercury. The Naga race are said to have occupied Ceylon on the northern and western coasts before the Christian era, and to have worshipped snakes. Strabo calls the people of Phrygia and the Hellespont the Ophio or serpent races, and the snake tribe was, till recently, one of the greatest of the tribes of N. American Indians. The Naga race extended their power over the country of Magadha in Bahar, and ruled there for ten generations. The brahmanical body being the chief source of learning, endeavour to deduce all descents from their ancient books, and Arjuna is said to be the ancestor of the Naga, by Ulupi. Colonel Tod is of opinion that the Naga or Takshak were buddhists. He considers the Ay of the Tatars, the Yu of the Chinese, and the Ayu of the Poorans, to indicate the great Indu (Lunar) progenitor of the three races. Boodha (Mercury), the son of Indu (the moon), became the patriarchal and spiritual leader; as Fo in China; Woden and Teutates, of the tribes migrating to Europe. Hence he believes the religion of Budha must have been coeval with the existence of the Naga nations; that it was brought to India Proper by them, and guided them until the schism of Krishna and the Surya worshippers of Bal, in time depressed them: When the Boodha religion was modified into its present mild form, the Naga race were so numerous in Ceylon that it was called Nagadwipo, the island of Snakes, as Rhodes and Cyprus received the ancient designation of Ophiusa, from their being the residence of the Ophites who introduced snake worship into Greece. According to Byrant, Eubœa is from Oubaia and means serpent island. The books of the hindoos and the thoughts of the people are not without grand conceptions of a father of all and of a future state. But along with this there have ever been atheistic views, a prevalence of nature worship, worship of creatures, like the snake, and polytheism mixed with that first worship of the All-Good,—a reverence of parents,—a spirit worship, a hero worship and a pure monotheism. Of the religion of the ancient races who dwelt in India, prior to the advent of the Aryans, little or nothing is known. They are alluded to in ancient books, as the Naga, Rakshasa, Dasya, Asura. The whole of the Scythian race are mythically descended from a being half-snake and half-woman who bore three sons to Heracles (Herod, IV., 9, 10), the meaning of which probably is that the ancestral pair were of two races and the offspring, took the snake as their emblem, similarly to the Numri or Lumri Baluch of the present day, who are foxes and the Cuch'hwaha rajputs who are tortoises. The snake nation seem to have made extensive conquests and to have spread into North America. The Abbe Domenech mentions an Indian race in America, who traced their origin from the snakes of Scythia; the serpents who invaded the kingdom of the Lydians just before the downfall of Cræsus, were probably the Scythian Naga (*Herod*) race and people of this race seem to have early entered India and to have been ruling there when the Aryans arrived. The dynasty of Maghada or Behar in the time of the Pandava were of the Naga race and they held sway there, for ten generations. A branch of them, the Nagbunsee chieftains of Ramgurh Sirgooja, have the lunettes of their serpent ancestor engraved on their signets in token of their lineage. Whence the Scythic Naga came, whether they preceded or followed the Vedic Aryans, into India, or whether they came from the N.E. whilst the Aryan race advanced from the N.W. is not known. But they seem to have come in contact in the lands where the Jumna joins the Ganges at a time when the Aryans were divided as to the object of their worship between Indra, Siva and Vishnu. One of the opening scenes of the Mahabharata describes the destruction of the forest of Khanduva and a great sacrifice of serpents; and though the application of the term Nag or Naga has come to be taken literally, there can be no doubt that the descriptions in the Mahabharata, and as to Krishna's exploits against snakes, relate to the opposing Naga race. In India, the term Nag or Naga, is applied to the cobra serpent, and the race who were so designated, are believed to have paid their devotions to that reptile. There seems no reason to doubt that the Naga rulers of India, were a Scythic or Turanian race, a body of them have preserved their independence, in Munnipur, up to the present day, and until the beginning of the 18th century hinduism had not made any progress amongst them. The Vedic deities, Indra, god of the firmament, Varuna, god of the waters, Yama, the judge of the dead, Agni, god of fire, Surya, the sun, Soma or Chandra, the moon, Vayu, the god of winds, the Marut, the Aditya, were mere personifications of the powers of nature, which were invoked for aid or their wrath deprecated. The Ayrans appear not to have had idols nor temples but they sacrificed often, the elements being clarified butter, curds, wines or spirits, cakes and parched grain, thrown into the fire: also, the roasted ox is named as an offering to Indra, and a horse was occasionally sacrificed to Indra or the sun. These sacrificial rites seem to have been connected with their meals and probably were libations and first offerings, to the gods. Up to the present day, every morning, when performing early worship, a water libation is poured from the denkna or sacrificial spoon, the Aryan brahmin visits his temple and makes offerings to his gods, every hindoo in India every Saturday, offers to the village deity, flowers, cocoanuts, and at least once a month, the helot races make offering of cakes, and on great occasions, the non-hindoos take rice and flour, saffron, vermilion to the village deities, the Ai, Amma and Amman, and all worship the snake.—*Herod, IV.* 9-10; *Wilson ; Sonnerat's Voyage, p.* 162.

NAGA, Hind. A class of hindoo mendicants who go naked and carry arms; they are now almost extinct; but they used to form sometimes mercenary bands in the service of hindoo princes. All hindoo sects have followers to whom this designation is applied. The Naga in all essential points, are of the same description as the Viragi or Sanyasi, but in their zeal, they used to leave off every kind of covering and go naked. They are the most worthless and profligate members of the hindoo religion. They always travel with weapons, usually a matchlock, a sword, and shield, and sanguiary conflicts have occurred between the hindoo Naga mendicants of opposite sects. The Saiva Naga are very numerous in many parts of India, they are the particular opponents of the Viragi Naga, and were no doubt the leading actors in the bloody fray at Haridwar, in 1790, which excluded the Vaishnava from the great fair there, until the country came under the sway of the British. On that occasion 18,000 Viragi were left dead on the field. A party of them attacked Colonel Goddard's troops in their march between Dorawal and Herapur, and on a critical occasion 6,000 of them aided Sindhia. The Saiva Sanyasi smear their bodies with ashes, allow their hair, beards and whiskers to grow and wear the projecting braid of hair called the jata; like the Viragi Naga, they used to carry arms, and wander about in bodies soliciting alms or levying contributions. The Saiva Naga are generally the refuse of the Dandi and Atit orders, or men who have no inclination for a life of study or business. When weary of the vagrant and violent habits of the Naga, they re-enter one of the better disposed classes, which they had originally quitted. The term Naga is also applied to a class of the Dadu Panthi hindoo sect, they carry arms and serve hindoo princes making good soldiers. A sect of the Gosain are likewise termed Naga, because they perform their ablutions (Sth'nanam) in a state of nudity. The Gosain profess asceticism, but well informed hindoos believe that almost all of them originally adopt the tenets of the sect, with the object of securing a living without labour, and that few, not more than one in a hundred, live as celebates, and the personal appearance of these men, sleek, with well covered muscles, supports this view. They wander to very distant places, begging for their math or monastery and have very scanty clothing, only a small strip of cloth between their thighs. Immoralities when detected are punished by fine. The ascetic Gosain can withdraw from the monastery on payment of a fine, can marry and engage in business. Only the brahman, Kshetrya and Vesya are admitted as gosains, the head of the math is styled mahant.

NAGA, a race, or races, occupying the mountains bounding to the south, the valley of Assam, from lat. 25° N., and long. 93° E. to lat. 26° 40', and long. 95° 30'. But Naga is a term applied by Europeans to forty or fifty tribes who occupy the space between the Khassya hills on the west, the Singpo on the east, Assam on the north and Munipur on the south. They do not call themselves Naga, but each tribe is split up into numerous clans and each is called after its village. The Naga, Mikir, Kachari, Garo and Kassia are the five races, in whose possession chiefly are the broad highlands of the Assam chain extending from the N.E. near the head of the Kynduayn and Namrup, on one side, along the valley of the Brahmaputra to its southern bend round the western extremity of the chain, and on the other side, south-westerly, along the valley of the Burak and Surmu, these highlands are thus embraced by the valleys of the Brahmaputra and its affluents on all sides but the S. E., where they slope to the Kynduayn. The Naga dialects are :—

Namsang,
Muthun,
Joboka,
Mulung,
Tablong,
Tengsa,
Nogaung,
Khari,
Angami,
Mozame Angami.

On the west, the Naga march and intermix with the Rang-tsa, a branch of the Kachari or Bodo. The term Naga is supposed derived from the Hindi, Nanga, naked, because they use little clothing, and that is manufactured and dyed by their women. They come in contact with the Mikir, Kuki and Cachari; the Naga villages of from 20 to 100 houses are fixed, and they crop and leave fallow their lands. They inter their dead at the threshold of their doors. The Naga race are described as simple, social, and peaceful, unless when blood has to be avenged and then he is treacherous and cruel. Semeo is the name of their god of riches, Rupiaba, a malignant deity, with one eye in the centre of his forehead, and Kangaba, is a blind, malicious deity. The Naga lie north of Munipur and its dependencies. The Angami Naga are a rude pagan tribe on the range of hills in upper Assam, on the eastern frontier of the Mikir and Cachari. They speak one of the Naga dialects. On the southern Assam frontier we have the numerous Naga and Singpo dialects, the Mikir and Angami, the languages of the Khassia and Jaintia hillmen, the Boro in Cachar, and the Garo in the hills of that name. The Kooki occupy parts of Tipperah and Chittagong, and the Mug race are in Arrakan and Chittagong. The Naga, Dhimali, Hayu, Kuswar, Kiranti, Limbu, Chepang and Bhramu tongues, of which the first is Indo-Chinese, and the rest Himalayan, all belong to the pronomenalized class of languages. The mountain range which bounds Assam on the south is known by a great diversity of names in different parts of its course, according to the different tribes by whom it is inhabited.

The Khassia hills rise abruptly on the south from the plains of Silhet to the height of about 4,000 feet, and thence more gradually to 6,000 feet. The culminating point is Chillong hill, the elevation of which is about 6,600 feet.

To the westward of the Khassia hills lie the Garo hills which are lower, the maximum elevation being probably nowhere more than three or four thousand feet. To the east, beyond Jyntea or Jaintia, which is similar in general character to Khassia, there appears to be a considerable depression in the range, a large river with an open valley penetrating far to the north. To the east of Cachar, again, there are lofty hills, inhabited by Naga tribes, but quite unexplored, except in one place, where they were crossed by Griffith in travelling from upper Assam to the Hukum valley, on a tributary of the Irawadi. The country occupied by the Angami Naga, south of Now-gong, is bounded on the north by the Dhunseeree river, on the south by a high range of mountains, forming the boundary between the Muneepoor territory and Now-gong, Poplongmaee being the most southern Angami Naga village within the district. The western boundary extends as far as Hosang Hajoo. The limit of the eastern boundary is still undefined and unexplored; but the Deeyong river on the north-east separates the Lotah Naga in the Seebsagur district from the Angami Naga. From a tubular statement it appears, that thirty-two villages contained 6,899 houses which, at four persons to each house, would give a population of 2,756 persons. The Rengma Naga are evidently descended from the Angami Naga; it is said that, in consequence of oppression and feuds in their own tribe, they emigrated to the high hills occupied by the Tokophen Naga; but further dissensions and attacks from the Lotah and Angami Naga compelled them to take refuge on their present low hills in the vicinity of the Mikir; the Rengma Naga appear degenerating. In physiognomy they differ but little from the Cachar tribes, and many have married Cachari and Assamese wives. The villages are small, and they have but few domestic animals. Like other hill tribes, they acknowledge the power of a plurality of gods; and sacrifices of cows, pigs and fowls are offered on all occasions. The Rengma Naga, like the Angami Naga, inter their dead, and place the spear and shield of the deceased in the grave; a few sticks with some eggs and grains are laid upon it, and the funeral ceremonies conclude with lamentations and feasting,

In the Report of the British Association for 1845, Dr. Latham remarks that the distinction between the languages of Thibet and China, as exhibited by Klaproth, must be only provisional: over and above the grammatical analogy there is an absolute glossarial affinity. Of the languages of the trans-gangetic peninsula the same may be asserted. Where languages are monosyllabic slight changes make palpable differences. The vocabularies of Mr. Brown, for more than a score of the Burmese and Siamese tongues, have provided us with data for ethnographical comparisons. By dealing with these collectively, we find in one dialect words which had been lost in others. The Chinese, Thibetan, Bhootan, Burmese, Siamese and all the so-called monosyllabic languages hitherto known, are allied to each other. The general affinities of the Indo-Chinese tongues are remarkable. With Marsden's and Sir Stamford Raffles' tables on the one side, and those of Brown and Klaproth on the other, it can be shown that a vast number of Malay roots are monosyllabic. The Malay languages are monosyllabic ones, with the superaddition of inflections evolved out of composition, and euphonic processes highly developed. Dr. Latham is of opinion that the nations on the borders of British India, in the north-west, the north-east and east, form an ethnological group which contains the Tibetans, the Nepal tribes, several populations of the Sub-Himalayan range, the Burmese, the Siamese, the Natives of Pegu, the Cambojians, the Cochin Chinese and the Chinese, in populations which cover perhaps one-fifth of Asia. Their countries are mostly inland, and mountainous, but contain the watersheds of mighty rivers, the Indus, the Brahmaputra, the Irawadi and the Yellow river. The complexion and features of these peoples is that to which the term Mongolian has been applied. Though wild paganism and mahomedanism exist, the majority are of the buddhist religion, but all speak a language the least developed of all the forms of human speech, being generally monosyllabic and with little power of grammatical inflexions. These people are arranged under four great political powers, the British, the Burmese, the Siamese and Chinese. Ethnologically they are capable of being classed in three considerable sub-groups. The first of these is the Bhot or Bot, which is used in compound words as Bult in Bultistan, as But in Butan, Bet in Tibet, and in the tribes known as Bhutia and Bootia, and comprises the Little Tibetans, the natives of Ladak, the Tibetans of Tibet Proper and the closely allied tribes of Butan. The Bhot area is bounded on the South by India and Cashmir, on the North by Chinese Tartary, and on the West by Little Bokhara and Kafiristan. Amongst the Bhot populations may be mentioned the mahomedan Bhot of Bultistan or Little Tibet, of Rongdo, Skardo, Parkuta and Khartakshi, of Shigar, Chorbad, &c., the buddhist Bot of Ladak, Hungrung and Kunawar, the Bhot of the Chinese Empire; the Tibetans of Rudok, Garo, Goga, &c., of Lhasa and Tishu Lumbu, the Sifan, the Lhopa of Butan, the Tak, the Bhot of Garwal, Kumaon and Nepal, the Chepang and probably the Rhondur, the Chak and Drok, the Hor and the Kolo. Further east are the Kocch, the Dhimal and Bodo, arranged into the Western Bodo of Sikkim and the Butan frontier, and the Eastern Bodo or Burro of Assam and Cachar,—the Garo, the Kasia, the Mikir. On the south are the hill tribes of Assam, the Aka, Dofla, Abor, Miri and Bor Abor tribes, the Mishmi, Muttuck, Singhpo and Jili, with the Naga in Assam. The color of the Bhot and buddhist populations are of various shades of white, yellow and brown; while that of the pagan races is various hues of black.

The Naga do not consume milk, and cattle are not used for tilling the ground, but are kept chiefly for sacrifices and feasts. They have many pigs and fowls, and eat every kind of flesh. That of the elephant is highly esteemed and a dead elephant is a glorious prize for a whole village. It is also said that they are not averse to tiger's flesh. Their houses, are gable-ended, and about thirty or forty long by twelve or sixteen feet wide. Each house is divided off into one or two rooms; the pigs, fowls, wife, and children, are all huddled together, with the grain in large bamboo baskets five feet high and four in diameter, in the same room. In one corner is seen a trough filled with some kind of fermented liquor made of rice, which was thick and white and most offensive to the sense of smell. In this trough they dip their wooden cups or gourd bottles, and all the morning the Naga lounge about in the sun in their little courtyards, and seated upon a high stone commanding some extensive view, sip this abominable beverage. The Naga of Mozo-mah manufacture a strong thick cloth well adopted for their changeable and cold climate, it is made of the bark of the stalks of the nettle plant, is of a brown colour with black red stripes, or quite plain, and is generally used by the Naga as chadder or sheet covering thrown over the body. The climate is not favourable to the growth of cotton, but they procure abundance from Sumokhoo-Ting. In a large building called Rangkee or the Dakachang, all the boys of the village reside, until they are married. The building is about sixty feet long, and twenty high, with gable ends. The inside of the house consists of one large room, in the centre of which a wood fire was burning on the ground, and wooden stools were arranged in rows for the boys to sleep upon. At one end, a small room is partitioned off for the accommodation of an elderly man, who is superintendent of the establishment. The Hilokee (a building of similar dimensions and construction with the Rangkee), is devoted entirely to the use or residence of the girls of the village, who live in it altogether, in the same manner as the boys, until the day of their marriage. The damsels are all decently attired, a large sheet with coloured stripes is worn round the waist, extending to the knees, a blue cloth is folded over the breast under the the arms; a profusion of glass bead necklaces adorned their necks with a number of brass ear-rings of all sizes. An old woman superintends the establishment, and the utmost order prevails in both the Rangkee and the Hilokee. The boys and girls take their meals with their parents, work for them during the day, and at night retire to their respective asylums; all the youths see the girls during the day without the smallest restraint, and they select their own wives, and are married by the consent of their parents. Mr. Butler relates that "in the afternoon, the chief came down to our camp with all the unmarried girls of the village. Line having been formed, and the camp assembled, two damsels stepped out in front of the party, and danced with a peculiar kind of hop-step on one leg alternately, different from anything I have ever seen, in excellent time, to a song and clapping of hands by the young men. In stature the Naga women are short and athletic, with flat noses, small sharp eyes, the upper front teeth projecting a little; and the hair cut short whilst single, but when married, the hair is allowed to grow long. They are coarse and plain, which is not to be wondered at, as they perform all manner of drudgery in the field, supply the house with water and fuel, and make whatever clothing is required by the family. The Naga he adds eat dogs, rats, elephants, tigers, rhinoceroses, cows, pigs and fowls; but, strange to say they have no ducks.

The Kooki race, now inhabitants of Northern Cachar, in the Nowgong district, aver that they (the Kooki) emigrated from Tipparah to Northern Cachar, in the reign of Kishen Chunder, about

A. D. 1800, and in the years 1828, 1829, Gobind Chunder, rajah of Cachar, employed them to wage war with Tooleeram Senaputtee. In the year 1846-47, several colonies of new Kooki immigrated from Tipparah, via the bed of the Barah river, and joined their brethren in Northern Cachar. The number of tribes, and the total population of all classes residing in Northern Cachar, is estimated by the following table at 21,345 souls, reckoning five to each house.

Names of Clans.	Number of Houses.	Total of each Clan.
Hozae Cachari.............	234	1,170
Hill Cachari.................	788	3,040
Mikir	364	1,820
Old Kooki....................	667	3,335
New Kooki	1,515	7,575
Naga...........................	701	3,505

They live in the most friendly terms with the Kachang Naga and Mikir tribes, and are greatly respected by them for their known martial character. The marauding Angami Naga look on the Kooki with awe or respect and have, in consequence, never dared to attack them. In the Tipparah district there are innumerable tribes or clans of Kooki under the rule of hereditary rajahs or chiefs. In Northern Cachar the principal old clans are four in number, viz.: Khelemah, Ranthoe, Bete, Lamkron, and with the last colony several rajahs or chiefs had arrived, whom all the Kooki seem to respect. They are divided into three clans, with 41 villages and 1,515 houses, as follows:—

Jangsen clan..	28 ..	907
Taddaee „	12 ...	556
Shingshoon	1 ..	52

If a woman leave her husband, and is guilty of adultery, the injured husband, invites the members of the council to visit him at his house, places a jug of liquor before them, and states his complaint. The faithless woman is not taken back by her injured husband, but is permitted to remain with the defendant.

The dress of the Angami Naga consists of a blue or black kilt, prettily ornamented with cowrie shells: and a coarse brown cloth made of the bark of the nettle-plant is loosely thrown over the shoulders. The warrior wears a collar round the neck, reaching to the waist, made of goat's-hair, dyed red, intermixed with long flowing locks of hair of the persons he has killed, and ornamented with cowrie shells. No one is entitled to wear these insignia of honour, unless he has killed many of his enemies, and brought home their heads. Every Angami village has a polity of its own. Their government is decidedly democratic. The crime of murder cannot be expiated; the relations of the murdered person instantly, if possible, spear the murderer, without reference to the council of elders, unless the delinquent take refuge in another village, when he may escape for years, but he is never safe. Years after the deed has been committed he may be surprised and killed, for revenge is considered a sacred duty never to be neglected or forgotten. Adultery is also an offence that admits of no compromise. If a man's wife is seduced, the injured husband will surely spear the seducer on the first opportunity. The Angami Naga imagine there are many gods, or good and evil spirits, residing in their hills. To one, they offer up sacrifices of cows and mithun; to another, dogs; and to a third, cocks and spirituous liquor. At sixteen years of age a youth puts on ivory armlets, or else wooden, or red-coloured cane collars, round his neck. He suspends the conch shells with a black thread, puts brass earrings into his ears, and wears the black kilt; and if a man has killed another in war, he wears three or four rows of cowries round the kilt, and ties up his hair with a cotton band. If a man has killed another in war, he is entitled to wear one feather of the dhune's bird stuck in his hair, and one feather is added for every man he has killed, and these feathers are also fastened to their shields. They also use coloured plaited cane leggings, wear the war sword, spear, shield, and choonga or tube for carrying panjies. They also attach to the top of the shield two pieces of wood in the shape of buffalo horns, with locks of hair of human beings killed in action hanging from the centre. Before they set out on a war expedition, all assemble together and decide on the village to be attacked, and the chief appointed to command the party consults the usual omens, which proving propitious, a fowl is killed and cooked, and all partake of it. They then provide themselves with spears, shields, and a panjie choonga, and cooking two days food wrap it up in leaves in baskets with some meat, and set out for the village to be attacked, near which they lie in ambush during the night till the break of day, when they rush in upon it with a great noise, and spear the first they meet with, and afterwards cut off the head, hands, and feet, of their enemies, roll them up in a cloth, and return home. They then take the skulls to each house in the village and throw rice and spirits over them, and tell the skulls to call their relatives. The man who has cut off the head keeps it under his bedstead five days: during that time the warriors eat no food prepared by women, and do not cook in their accustomed cooking pot. After the fifth day, however, the heads or skulls are buried, and a great feast is given of pigs and cows, after which they bathe and return to their avocations. They do not go out singly on inroads, but in bodies. A Naga can never give up his revenge: he must avenge the death of a relative in some way or other, either by stealth or surprise; kill one or two in return, and carry off their heads, panjying the road after their retreat to prevent their being pursued. When a respectable man dies in the village, the inhabitants do not quit it for three days, and keep the body in the house, after which they kill cows and pigs, and give a feast of rice and spirits to the whole community. The body is then conveyed to the burying-ground, where it is interred, and a stone tomb is built over the grave, three or four feet high, and all the men, being dressed in their war habiliments, make a great noise, and jump about, and say, "What spirit has come and killed our friend? Where have you fled to?" They then place on the grave all the articles of dress worn by the deceased, as well as his arms, his sword, spear, shields, panjie tube, wearing apparel, bamboo spirit-cup, spirit-gourd bottle, waistband, shells worn round the neck and arms, red cane armlets, cane bands worn on the legs, and coloured cane leggings and dhunes feathers worn in the head. Such is the custom on the death of men; but if a woman die, her petticoat waistband, cloth tied over the breasts, brass ornaments worn on the arms, and necklaces and spirit-gourd bottle, shuttle for weaving, spinning stick for cotton, cotton thread, dhan grain, pestle and mortar for cleaning rice, are all placed on her grave. The skulls of pigs and cows are likewise stuck upon sticks at one end of the grave in memory of the hospitality exercised by the deceased. A woman may live with a man without being married, and then go to another; but she gives up her progeny, and the children remain with the father. If a Naga divorce his wife for any fault, she does not return to her parents, but resides in a house by herself, and she can marry again. If a man commit adultery his head is cut off. If a chief is caught in the fact, he is killed. When the Angami Naga have nothing to do, they sit about on the tombs in groups, and pass the day in drinking spirits and gossipping, and forming plans for hostile inroads on their neighbours. The Naga sink pits in the jungles six or seven feet deep, and fill them with panjies, that if any animal should fall into the pit it would be killed. The surface of the pit is covered over with branches and leaves of trees, and the new earth taken out. Their mode of taking oaths is singular. When they swear to keep the peace, or to perform any promise, they place the barrel of a gun or a spear between their teeth, signifying by this ceremony that, if they do not act up to their agreement, they are prepared to fall by either of the two weapons. Another simple but equally binding oath is, for two parties to take hold of the ends of a piece of spear-iron, and to have it cut into two pieces, leaving a bit in the hand of each party; but the most sacred oath, it is said, is for each party to take a fowl, one by the head and the other by the legs, and in this manner to pull it asunder, intimating that treachery or breach of agreement would merit the same treatment. They likewise erect a large stone as a monument on the occasion of taking an oath, and say that, "as long as this stone stands on the earth, no differences shall occur between us." The only weapons used by the Angami Naga are a spear and dao, a short sword or hand-bill. Amongst the Naga it is considered a point of honour to recover the skulls of their friends. It is also totally incompatible with Naga honour to forego taking revenge, and it is incumbent on him to ransom or recover the skull of a relative murdered or captured in war. —*Buttler's Travels and Adventures in Assam, pp.* 47—158*; Wilson; Latham; Mr. Hodgson No.* 6 *of* 1865, *of Beng. As. S. oc. Journ.*; *Tod's Rajasthan, Vol., p.* 57. *Latham's Desc. Ethn.; Latham in Report British Association.* See Mozome; Kuki; India.

NAGA. Beng. Cyperus pertennis.

NAGA, also Nag, Hind. The term by which, in the Hindi tongue, the Naja snake is designated. It is the venemous snake known to Europeans as the cobra, also cobra di capello, the term cobra, being the ordinary name by which Europeans in India designate the Naja genus of venemous Colubrine snakes of the family Elapidæ. There is only one species, the Naja tripudians, *Merr.*, which has a moderate body with rather short tail. It has a small or moderate eye with a round pupil, a poison fang in front of the maxillary, which is but little moveable or erectile, and only one tooth behind. The anterior ribs are elongate and erectile, and the skin of the neck is dilatable. When the cobra rises in play, or for amusement, it spreads out the skin of the neck, from which it gets the Spanish name of "Cobra di Capello," in English the "Hooded Snake." Its bite is certain death. It is said that the poison can be combatted by injecting potash into the veins, but, owing to the rapidity of the poisons action, this, even if true, is valueless. Notwithstanding this, the natives of Ceylon do not kill the cobra when caught, but enclose it in a mat bag with some boiled rice for food, and place it thus in a flowing stream. In Guzerat the hindoos do not kill this or any other snake. There are two varieties of the Naga tripudians; *(a.)* The spectacled or Bin-ocellate cobra, has its neck, on the steel brown skin, marked with a white, black edged ⊂ or < enclosing at either extremity a black ocellus. It is only seen when the hood is expanded. It is found in

Southern India and in Burmah? It grows to 5½ feet. (*b.*) The monocellate or one marked cobra, has a plain white ocellus, with black centre, and margin, and grows to 4½ feet in length. It is the cobra of Central India and Burmah. The cobra is worshipped by all the races following hinduism and by nearly all the non-Aryan races in British India, and its form, as an idol, with one, three or nine heads, in stone or brass, may, in India, be everywhere seen. It is generally bending over the idol of the lingam. The cobra sometimes swims out to sea. The Indian genera and species of the family Elapidæ are as under:

Hamadryas elaps, *Schl.*, Andamans.
Naja tripudians, *Merr.*, Bengal, Pegu, Tenasserim.
Syn., N. lutescens, *Lour.*
N. kaonthia, *Lesson.*
N. sputatrix, *Rein.*
N. atra, *Cantor.*
Syn., N. larvata, *Cantor.*
Var *a* with spectacles.
b without spectacles.
Bungarus cæruleus, *Sch.*, Calcutta, Pegu.
tropidonotus, *Sch.*
ceylonicus, *Gunth.*, Ceylon.
Xenureleps bungaroides, *Cantor.*, Cherrapunji.
Megæroplus flaviceps, *Rein.*, Mergui, Penang.
Elaps McLellandii, *Rein.*, Assam, Pegu.
melanurus, *Cantor.*, Pegu, Tenasserim.
intestinalis, *Laur.*, Singapore.
Callophis bivirgatus, *Boie.* Malay peninsula.
intestinalis, *Laur.*, Malay peninsula.
gracilis, *Gray.* Penang, Singapore.
McClellandii, *Reinh.*, Himalaya, Nepal.
annularis, *Gthr.*, Assam.
trimaculatus, *Daud.*, Tenasserim, Bengal.
maculiceps, *Gthr.*, Malay peninsula.
nigrescens, *Gthr.*, Neilgherries.

NAGA or Sesh Naga, see Indra, Naga-droog.

NAGA Batta Deva, see Inscriptions.

NAGABALI, Tel. Chavica betle, *Mig.—Rox. W. J.*

NAGA BULLA, Sans. Webera tetranda.

NAGA CESARA, Sans. Mesua ferrea.

NAGA-CHAUTI, see Serpent. Snake.

NAGADANA, Hind. Artemisia vulgaris, *L.*

NAGA-DANTE, or Nela-amida. Tel. Jatropha glauca.

NAGA DANTI CHETTU, Tel. Tiaridium Indicum, *Lem.*—Heliotropium In. *R.* 1 454. —*Rheede*, x. 48. W. 456.

NAGADI have a complexion invariably of the deepest black, their hair thick and curly, their features brutish, their forms diminutive *Campbell* p. 23.

NAGA DONDA, Tel. Bryonia rostrata, *Rottl.— W. & A.* 1080—B. pilosa, *R.* iii. 726.

NAGA DROOG. Colonel Tod shows, in the annals of Marwar, that the Rahtor race conquered Nagore, or Naga-droog, (the Serpent's castle), from the Mohil, who held fourteen hundred and forty villages so late as the fifteenth century. So many of the colonies of Agnicula bestowed the name of serpent on their settlements, that he was convinced all were of the Tak, Takshac, or Nagvansa race from Sacadwipa, who, six centuries anterior to Vicramaditya, under their leader Sehesnaga, conquered India, and whose era must be the limit of Agnicula antiquity.—*Tod's Rajasthan, Vol.* ii. *p.* 445.

NAGADSAKA, see Bhattiya.

NAGA GILI GICHCHA, Tel. Crotalaria trifoliastrum, *Willd.—R,* iii. 277—*W.* and *A.* 597; *Ic.* 421—C. verrucosa, *W.* and *A.* 578 —*R.* iii. 273.

NAGA GOLUGU, Tel. Murraya exotica, *L.—R.* ii. 374.—*W.* and *A.* 335; *Ic.* 96.

NAGAHA, Singh. Mesua ferrea, *Linn. D.C.*

NAGA-KESARA, Sans., also Naga kesara chettu, Tel. Mesua ferrea.—*Linn D.C.*

NAGA KESARA CHETTU, or Gajapushpamu, Tel. Mesua roxburghii, *R W. Ill.* i., 127; *Ic.* 118-961.—*R.* ii. 605.

NAGA-KULI. Battisa-S'iralen is a town in Sattara collectorate in lat. 16° 57', N. long. 74° 15', famous as a place of serpent-worship. Here, at the present day, the snakes called Nagakuli, said to be not very poisonous, are actually caught on the day of the Nagapanchami, and kept either in earthern pots or covered bamboo baskets. They are fed with milk and edibles, and worshipped in other respects, like the snake images and drawings of snakes. The day after the Naga-panchami, they are taken back to the jungles and set free. There is at this town a curious tradition in connection with the Gorakha-chincha tree (Adansonia digitata) or the tamarind of Gorakha. Tradition ascribes this tree to be the result of a miracle performed by a saint called Gorakhanatha or Gorakshanatha.

NAGAKUNNY, Tam. A Tinnevelly wood of a whitish brown colour, used for building in general.—*Colonel Frith.*

NAGALAM, Tel. Jatropha curcas.

NAGALI DUMPA, or Tiragali pendalam, Tel. Dioscorea, *sp.*

NAGA MALLE, Tel. Rhinacanthus communis, *Nees.— W. Ic.* 464—Justicia nasuta. *R.* i. 120—*Rheede* ix. 69., also Jasminum latifolium, *R. var.*

NAGA-LEKA-BALJIWANLU. The Chippegiree or Nagaleka baljee wanloo are worshippers of Siva, in the form of a cobra.

The Siva Chippaga wanloo, are worshippers of Siva, they are found in the Bellary collectorate of the Madras Ceded Districts.

NAGA-MANIPURI, see India.

NAGAMA VALLE, Maleal. Bauhinia anguina.—*Roxb.*

NAGA-MOOTHA, Hind. Cyperus rotundus.

NAGA-MUGHATI, Tam. Calonyction grandiflorum.—*Choisy.*

NAGA MULLI, Tel., Tam. Rhinacanthus communis.

NAGA MUSADA, also Naga Musadi, Tel. Strychnos colubrina.—*Linn.*

NAGA MUSHIN, or Tige mushini, Tel. Tiliacora acuminata, *Miers—Hook f* and *Th.* —Cocculus ac. *W.* and *A.* 44.—Menispermum ac. *R.* iii. 806-202; but, at 442, O'Sh. applies it to Strychnos colubrina; with more prebability it may be given to S. bicirrhosa, which is commonly called Tige mushti.

NAGANTAKA, Sans., from naga, a serpent, and antaka, the end. See Garuda or Guruda, Serpent.

NAGA-PANCHAMI, a festival much attended to by all the hindoo religionists of British India. The Naga serpent deity is worshipped by all hindoos on the Nagapanchami, held on the fifth lunar day of the month Sravan; offerings are then made to snakes, of milk, grain and other articles poured into holes. The crest and signature of the raja of Chota Nagpur is the head and hood of a snake called Nagsant. Nagapanchami is the fifth day of the first or bright half of the lunar month, named S'ravana, which generally corresponds with August and September of the Christian year. S'ravana is a month in which the hindoos generally have some vrata or ceremony to perform every day, and sometimes more than one festival occurs on one and the same day. The fifth day of the month is considered sacred to the Naga or serpent. On this day, early in the morning, each family brings an earthen representation of a serpent, or paints a family of five, seven, or nine serpents, with rubbed sandalwood or turmeric. If there be a temple of the Naga in the village, every one goes there to perform worship. The serpent goddess is worshipped in the Euphorbia antiquorum. The goddess mother of the serpents, and goddess presiding over them is Manasa, the object of love and devotion, and, as the name implies, an allegorical creation. Indeed, tree and serpent worship may be said to have originated partly, if not entirely, in the imagination of the people, and in figures of speech. The chief of the serpents is Ananta, eternity, literally endless, of which the universally acknowledged symbol is a coiled snake. Though represented as the support of Vishnu, while floating on the fathomless sea of chaos before creation (God in eternity,) he is, in the Puranas, described as having the form of Vishnu meaning perhaps, the eternity of Vishnu. The Canara district in the South of India may be said to be sacred to serpent-worship. In the Canarese districts generally, the Nagapanchami festival is celebrated, as in the Dekkan, on the fifth of the bright half of S'ravana. Sonnerat relates (Voyage p. 162) that "the term of Nagapoutche signifies office of the snake: women are commonly charged with this ceremony. On certain days of the year, he says when they choose to perform it, they go to the banks of those tanks where the arichi, and margosier grow; they carry under these trees a stone figure, representing a lingam, between two snakes: they bathe themselves, and, after ablution, they wash the lingam, and burn before it some pieces of wood particularly assigned for this sacrifice, throw flowers upon it, and ask of it riches, or numerous posterity and a long life to their husbands." A Singhalese does not kill a cobra, but encloses it in a wooden cage. A Naga temple, dedicated to the goddess Naga Tambiran, exists in the island of Nainatavoe, S. W. of Jaffna, in which consecrated serpents are reared by the pandarams and daily fed at the expense of the worshippers. Such temples are to be seen in many places in the south of India: there are several in the town of Madras, and one of great extent at Vasarapad a suburban village on its north, where crowds of brahman women come every Sunday morning to worship. The priests are the wild Yenadi. Amongst the Tartar races, who designated their septs after some beast, as the Naga or snake, the lungaha or wolf, the lumri or numri or fox, the sessu or hare, cutchwah or tortoise, &c., the sept reverenced the creature from which they took their name. Few subjects have more occupied the notice of the learned world than the mysteries of Ophite worship, which are to be traced wherever there existed a remnant of civilization, or indeed of humanity; among the savages of the savannahs of America, and the magi of Fars, with whom it was the type of evil, their Ahrimanes. The Naga, or serpent-genii of the Rajpoots, have a semi-human structure, precisely as Diodorus describes the snake-mother of the Scythæ, in whose country originated this serpent-worship, engrafted on the tenets of Zerdusht, of the Purans, of the priesthood of Egypt, and on the fables of early Greece. Dupuis, Volney, and other expounders of the mystery, have given an astronomical solution to what they deem a varied ramification of an ancient fable, of which that of Greece, "the dragon guarding the fruits of Hesperides," may be considered the most elegant version. Had these learned men seen those ancient sculptures in India, which represent "the fall," they might have changed their opinion. The traditions of the Jains or Budhists, (originating in the land of the Takyac, or Turkist'han) assert the creation of the human species in pairs, called joogal, who, fed of the ever-fructifying calpa vrisha, which possesses all the characters of the Tree of Life, like it bearing

> "Ambrosial fruit of vegetable gold;"

which was termed amrita, and rendered them immortal. A drawing brought by Col. Coombs, from a sculptured column in a cave temple in the south of India, represents the first pair at the foot of this ambrosial tree, and a serpent entwined among the heavily laden boughs, presenting to them some of the fruit from his mouth. The tempter appears to be at that part of his discourse, when

> " his words, replete with guile,
> " Into her heart too easy entrance won,
> " Fixed on the fruit she gazed."

This is a curious subject to be engraved on an ancient pagan temple; if Jain or Budhist, the interest would be considerably enhanced. The fifth of Sravan is the Nagpanchami, or day set apart for the propitiation of the chief of the reptile race, the Naga or serpent. On this festival, at Oodipoor, as well as throughout India, they strew particular plants about the threshold, to prevent the entrance of reptiles.

NAGAPATTANA, a town in the district of Tanjore, with a celebrated temple of Naga-natha: inside the temple near the idol of Naga-natha, there is a white ant hill to which large offerings are made in honor of the serpent-god.

NAGA-PUSING, Malay. The auris of a species of anisthiria? growing at Singapore, which display much irritability when warmth is applied.

NAGA and KHASIA HILLS. The mountain range which bounds Assam on the south is known by a great diversity of names in different parts of its course, according to the different tribes by whom it is inhabited.

The Khasia or Cossyah hills rise abruptly on the south from the plains of Silhet to the height of about 4,000 feet, and thence more gradually to 6,000 feet. The culminating point is Chillong hill, the elevation of which is about 6,600 feet.

To the westward of the Khasia hills lie the Garo hills, which are lower, the maximum elevation being probably no where more than three or four thousand feet. To the east, beyond Jyntea or Jaintia, which is similar in general character to Khasia, there appears to be a considerable depression in the range, a large river with an open valley penetrating far to the north. To the east of Cachar again there are lofty hills, inhabited by Naga tribes, and also quite unexplored, except in one place, where they were crossed by Griffith in travelling from upper Assam to the Hukum valley, on a tributary of the Irawadi. The Burak and Surmu rivers run in valleys of the Assam chain.

The Naga, Mikir, Kachari, Garo, and Khassya, are the five races in whose possession chiefly, are the broad lands of the Assam chain extending from the N. E. near Kynduayn and Namrup on one side, along the valley of the Brahmaputra to its southern bend round the western extremity of the chain; and, on the other side, south-westerly along the valley of the Burak and Surmu: these highlands are thus embraced by the valleys of the Brahmaputra and its affluents on all sides but the S. E., where they slope to the Kynduayn. The Garo are called by the villagers and upper hill people, Coonch Garo; though they themselves, if asked of what race they are, will answer, "Garo," and not give themselves other tribal appellation though there are many tribes of the Garo. A Garo is a stout, well-shaped man; hardy, and able to do much work; of a surly look; flat caffre-like nose; small eyes, generally blue or brown; forehead wrinkled, and over-hanging eye-brow; with large mouth, thick lips, and face round and short: their colour is of a light or deep brown. The women are short and squat, with masculine expression of face; in the features they differ little from the men. The dress of these people corresponds with their persons. They eat all manner of food, even dogs, frogs, snakes, and the blood of all animals. The last is baked over a slow fire, in hollow green bamboos, till it becomes of a nasty dirty green colour. They are fond of drinking to an excess. Liquor is put into the mouths of infants almost as soon as they are able to swallow. Their religion is a mixed hinduism and shamanism, they worship Mahadeva; and at Baunjaur, a pass in the hills, they worship the sun and moon. To ascertain which of the two they are to worship upon any particular occasion, their priest takes a cup of water, and some wheat: first calling the name of the sun, he drops a grain into the water; if it sink, they are then to worship the sun; and should it not sink, they then would drop another grain in the name of the moon, and so on till one of the grains sink. All religious ceremonies are preceded by a sacrifice to their god, of a bull, goat, hog, cock, or dog. Except milk they use everything. They live in houses raised from the ground on piles. The youngest daughter inherits. The woman marries the brother of her deceased husband; if he die, the next: if all, the father. The dead are kept four days, then burnt amidst feasting and drinking and the ashes buried on the spot. A small dish of bell metal with embossed figures, called a Deo-Kora is hung up as a household god and worshipped and sacrificed to: and the Garo believe that when the household are asleep, the Deo or figure of the Kora issues in search of food and returns to its Kora to rest. The Garo are under British control. They are classed as Che-anna (6 Annas) and Das Anna (10 Annas) but they consider themselves one and the same people. They use sharp bambu panji or stakes, four inches long as a means of opposing invasion. In a treaty in 1848, they consented to abstain from hanging human skulls in their houses. They build their houses on piles. The Marquis of Hastings' description, however, somewhat differs from the above. He says they are divided into many independent communities, or rather clans, acting together from a principal of common origin, but without any ostensible head of their league. With them all property and authority descends wholly in the female line. On the death of the mother, the bulk of the family possessions must be to the favourite daughter (if there be more than one,) who is designated as such, without regard to primogeniture, during the life-time of her parent. The widower has a stipend secured to him at the time of marriage. A moderate portion is given to each of the other sisters. A son receives nothing whatever, it being held among the Garo that a man can always maintain himself by labour. The woman acknowledged as chief in each of the clans is called Muhar. Her husband is termed Muharree. He is her representative in all concerns, but obtains no right in her property. The clan will interfere if they see the possessions of the Muhar in course of dissipation. If a daughter be the issue of the marriage, a son of the issue of the Muhar's father is sought in preference to become her husband; and in default of such a person, the son of the nearest female relation of the Muhar (he being of due age) would stand next for selection. The husbands to the sisters of a Muhar are called Lushkur, and it is a denomination to which a notion of rank is attached.

They have frequently made descents on the plains. A party of them, in May 1860, murdered sixteen natives of the plains in the North of the Mymensingh district, and afterwards mutilated the bodies. They confessed the crime and three were executed in their own villages before their own people. Their accomplices, in number some 20 men, were condemned to transportation for various periods. Their object was not so much plunder, as human heads to offer to their spirit of the mountains. The rajah of Nustung one of the Khassyah states subsequently undertook to aid in repressing these raids. The Garo hills, are a confused assemblage from 1,000 to 6,000 feet in height of estimated area, 4,347, square miles. Character of country, wild. The rock formation is supposed to be chiefly of gneiss, or stratified granite. The rajah of Nustung, one of the Cossyah states, is well nigh independent and the most powerful and influential of all the hill chiefs, not alone from his position but from his unusual popularity. He had conferred upon him, about the year 1868, the titles of Rajah Bahadoor in consideration of his uniform loyalty to the British, notwithstanding the strenuous efforts made to enlist him in the revolts of the hill tribes. The Nustung territory forms the South West portion of the Cossyah district, and borders on the Garo country; and its rajah entered into a convention with the British that, should it be at any time requisite to the latter power to move troops in the Garo hills from the eastward, they shall have a free passage through his territory. His turbulent and refractory neighbours are the Jynteah, Cossyah, Garo, Bhootanese, Naga, and Abor. Dr. Buchanan Hamilton says, the under bark of the Celtis orientalis tree, like that of the West India Celtis, consisting of numerous reticulated fibres, forms a kind of natural cloth, used by the Garo for covering their nakedness. ('Lin. Trans.,' xvii, p. 209). He also describes it in his report on Assam, as a kind of rug worn by the Garo in the cold weather, and serving them as a blanket by night. Captain Reynolds sent a specimen of it to the Agri-Horticultural Society; the Garo make several such cloths of different colours from various barks. The Garo who come to the plains, generally buy some small ends of cloths from the Bengalees, to attend the hauts (fairs) in, not as clothing to protect them from wind and weather." Mr. Hodgson, writing in the Bengal Asiatic Society's Journal, inclines to the opinion that the aborigines of the Sub-Himalaya, as far east as the Dhansri of Assam belong to the Thibetan stock and east of that river to the Chinese stock—except the Garo and other tribes occupying that portion of the hills between Assam and Sylhet; and that the aborigines of the tarai and forest skirting the entire Sub-Himalaya, inclusive of the greater part of the marginal circuit of the Assam valley, belong, like those last mentioned, to the Tamulian stock of aborigines of the plains of India generally. Mr. Robinson tells us that in the Assam valley and its mountain confines, are three classes of languages. One of Sanscrit origin and the others of two great classes, viz., those connected with the Thibetan and those deriving their origin from the Tai or Shyan stock. Of the Assamese proper, that is the language of the valley, eight-tenths of the language is identical with Bengali, and nearly four-fifths of the words in common use, are derivations from the Sanscrit. The country from time immemorial had been governed by rulers of Shyan origin, and the very small number of Tai words that can be traced to Tai origin is remarkable. The Thibetan and the Tai or Shyan languages, all approximate towards the Chinese colloquial system and more or less possess the characteristics of being originally monosyllabic and all intonated. The Tai or Shyan class are also destitute of inflections. The borders of the valley are remarkable for the numbers of its populations. Many of them are of that great Bhot family which we find extending from the west of Chinese Tartary eastwards. All the native populations here are more or less akin to the peoples of the Burmese empire, and seem to be remnants of Bhot tribes left behind in the pressure of the larger bodies to the south. Several writers have noticed the tribes in and near the Assam valley. Dr. W. W. Hunter, names those of them in the N. E. of Bengal as the Bodo; Dhimal; Kocch; Garo; Kachari; in the Eastern Frontier of Bengal are the Munipuri; Mithan Naga; Tablung Naga; Khari Naga; Angami Naga; Namasang Naga; Nowgong Naga; Tengsa Naga; Abor Miri; Sibsagor Miri; Deoria Chutia; Singhpo.

Dr. Latham observes that the nations on the borders of British India, in the northwest, the north east and east, form an ethnological group which contains the Tibetans, the Nepal tribes, several populations of the Sub-Himalayan range, the Burmese, the Siamese, the Natives of Pegu, the Cambojians, the Cochin Chinese and the Chinese, in populations which cover perhaps one fifth of Asia. Their countries are mostly inland, and mountainous, but contain the water-sheds of mighty rivers, the Indus, the Brahmaputra, the Irawadi and the Yellow river. The complexion and features of these peoples are those to which the term Mongolian has been applied. Though wild paganism and mahomedanism exist, the majority are of the buddhist religion, but all speak a language the least developed of all the forms of human speech, being monosyllabic and with little power of grammatical inflexions. These people are arranged under four great political powers, the British, the Burmese, the Siamese and Chinese. Ethnologically they are capable of being classed in three considerable sub-groups. The first of these is the Bhot or Bot, a term which is used in compound words as Bult in Bultistan,—But in Butan,—Bet in Tibet, and in the tribes known as Bhutia and Bootia, and comprises the four little Tibetans, the natives of Ladak, the Tibetans of Tibet Proper and the closely allied tribes of Butan. The Bhot area is bounded on the south by India, and Cashmir, on the North by Chinese Tartary and on the West by Little Bokhara and Kafiristan. Amongst the Bhot populations may be mentioned the mahomedan Bhot of Bultistan or Little Tibet, of Rongdo, Skardo, Parkuta, and Khartakshi, of Shigar, Chorbad, &c., the buddhist But of Ladak, Hungrung and Kunawar, the Bhut of the Chinese Empire; the Tibetans of Rudok, Garo, Goga, &c., of Lhasa and Tishu Lumbu, the Sifan, the Lhopa of Butan, the Tak, the Bhot of Garwal, Kumaon and Nepal, the Chepang and probably the Rhondur, the Chak and Drok, the Hor and the Kolo. Further East are the Kooch, the Dhimal and Bodo, arranged into the Western Bodo of Sikkim and the Butan frontier, and the Eastern Bodo or Borro of Assam and Cachar,—the Garo, the Kasia, the Mikir. On the South are the hill tribes of Assam, the Aka, Dofla, Abor, Miri and Bor Abor tribes, the Mishmi, Muttuck, Singhpo and Jili, with the Naga in Assam. The colors of Bhut and Buddhist populations are of various shades of white, yellow and brown; while that of the pagan races is various hues of black. *Latham's Desc. Ethn. Ben.A. Soc. Journal No. cci. March,* 1869.—*Cole Myth. Hind.*, p. 320; *Hasting's Private Journal, Vol., p.p.* 132, 316; *Royle Fib., Pl.* 317. *Buchanan, Hamilton, Linn. Tr.*, xvii, p. 209. See Khassya, Mikir, Kuki, Singhpo, India, Krishna, Hindoo, Serpent, Sikh.

NAGAR or Bednur, a town in the northern part of Mysore. It belonged to the ancient Chalukya dynasty. It is usually written Bednore but is also called Nagar. The Nagar district, in Mysore, is to the north of Coorg. It consists of table-topped hills, 4,000 to 5,000 feet in mean elevation, the Baba-buden hills are 5,700 feet, and some parts are 6,000 feet. Coffee is largely grown, its climate and vegetation appear to be identical with that of Malabar. For the most part it consists of rounded or table-topped hills, 4-5,000 feet in mean elevation, often cultivated to that height, and rising in some places to upwards of 6,000 feet, the portion called Baba-buden hills being said to be 5,700 feet. As with all other parts of the western chain the climate of the western parts is excessively humid; the rains at the town of Nagar (or Bednor) elevated 4,000 feet on a spur to the westward of the chain are said to last for nine months, during six of which they are so heavy that the inhabitants cannot leave their houses.—*Hooker & Thomson.* See Chalukya.

NAGAR, a river near Surkole in Bauleah district.

NAGAR, Hind., from Nagara, a town, any town as Nagar, Ahmednugger, Vizianagram.

NAGARA, Singh. A tribe of Guzerati brahmins.

NAGARA, harbour, is an inlet of the sea.

NAGARAHARA or Jalalabad, is the Nang-go-lo-ho-lo of the Chinese. Its capital was at Hidda, the Hi-lo of the Chinese, and it was the Nagara, or Dionysopolis of Ptolemy. From Lamghan, the Chinese pilgrim Hwen-Thsang proceeded for 100 li, or nearly 17 miles, to the south-east, and, after crossing a large river, reached the district of Nagarahara. Both the bearing and distance point to the Nagara of Ptolemy, which was to the south of the Kabul river, and in the immediate vicinity of Jalalabad. The natural boundaries of the district are the

Jagdalak Pass on the west, and the Khybar Pass on the east, with the Kabul river to the north, and the Safed Koh, or snowy mountains, to the south. Within these limits the direct measurements on the map are about 75 by 30 miles, which in actual road distance would be about the same as the numbers stated by Hwen-Thsang. The position of the capital would appear to have been at Begram, about two miles to the west of Jelalabad, and five or six miles to the W. N. W. of Hidda, which every inquirer has identified with the Hi-lo of the Chinese pilgrims. The town of Hilo was only four or five li, or about three-quarters of a mile, in circuit; but it was celebrated for its possession of the skull-bone of Buddha, which was deposited in a stupa, or solid round tower, and was only exhibited to pilgrims on payment of a piece of gold. Hidda is a small village, five miles to the south of Jalalabad; but it is well known for its large collection of buddhist stupas, tumuli, and caves which were explored by Masson. Similarly the skull-necklace of Siva is called simply the asthi-mala, or bone-necklace.' Nagarahara was identified by Lassen with the Nagara or Dionysopolis of Ptolemy, which was situated midway between Kabul and the Indus. The second name suggests the probability that it may be the same place as the Nysa of Arrian and Curtius. This name is perhaps also preserved in the Dinus or Dinuz of Abu Rihan, as he places it about midway between Kabul and Parashawar.—*Cunningham's Ancient Geography of India, p.* 44, 46.

NAGA-RAMA-KATTI. TEL. Calonyction grandiflorum. It has very large, pure white flowers is a native of the W. Indies but cultivated in India.—*Choisy.*

NAGARATRA, a hindoo sect who appear to belong both to the Vaishnava and Saiva creeds, some following the tenets of the Lingayata. —*Buchanan,* "*Journey from Madras through Mysore, Canara and Malabar.*

NAGARI, in lat, 13° 18′ N.; long. 79° 35′ E. in the Karnatic, a small village on the southern foot of the Nagari ghat bangalo is 406 feet above the sea.—*A. Schl.*

NAGARI GHAT, in lat. 13° 21′ N., long. 79° 35′ in the Karnatik, a pass in the eastern ghats. Top of the ghat is 558 feet.—*Schl., A.*

NAGARI, HIND. Relating to a town or city, applied, especially, to the alphabet of the sanscrit language; and its modifications in Hindi, Marathi, &c., sometimes with deva-(divine) prefixed as Devanagari. At the present day, the hindi tongue is written in Deva Nagari character, the Burmese in the Pali, the Tamil, Telugu, Canarese, Mahrati, Malealum, Bengali, Guzerati, Urya and others have each their own separate character.

NAGAR JAMIAN, HIND. Ficus reticulata.

NAGARJUNA CAVE, one of the Behar caves, in the neighbourhood of Rajagriha: the milkmaids cave and brahman girls cave have inscriptions, in the Lath character; they are about 200 B. C. and are the most ancient caves of India. The Nagarjuni cave and Haft Khaneh or Satghar group are situated in the southern arm of the hill at some little distance from the brahman girl and milkmaid's cave. Another group is the neighbouring Karna Chapara and Lomas Rishi caves. Nagarjuna cave, at Buddha Gaya, has numerous inscriptions in sanskrit; but requiring the aid of a Pali scholar to translate it. The date is Samvat 73 or 74 of the Gopala or Bhupala dynasty of Gaur, corresponding to 1197 A.D. or 1140? The character used in the inscriptions is the Gaur alphabet, the immediate parent of the modern Bengali, and like the Harsha. Amongst religions or divinities or sages mentioned is a salutation to Budda, Mahavira swami. Sahasrapa, the treasurer of the raja, is called a conscientous bodhisatwa. The kings or princes mentioned are Asoka Chandra Deva; his brother, Dasaratha Kumara, and Sri Mat Lakshamana ; Seva Deva. This inscription is of considerable importance, as, by its era of 73, it confirms Mr. Colebrooke's correction by a thousand years of Dr. Wilkin's date of the Gaya inscription translated by the latter. It is of great importance, also, as it distinctly shows the buddhist impression in those days of what Nibutti or Nirvana meant, namely—as expressed in the inscription—"the absorption of his (the writer's) soul in the Supreme Being," disposing of the question of buddhist atheism. The inscription shows that the buddhists had still a hold in India in the twelfth century. It was recorded by Sahasrapada, the treasurer of the raja Dasaratha Kumara. The princes are not met with in hindu history. In another, of date the 1st century B. C. the character used in the inscriptions, is No, 2 Lat.—Yajna Varma, Ananta Varma are mentioned. This remarkable inscription, found inscribed in a buddhist cave, records the consecration of the saiva images, Dheetapati and Devi. In the Budda Gaya vaulted cavern, or Nagarjuni, other inscriptions in the Sanskrit are of the date after Allahabad No. 2 and of the ninth or tenth century. The character used in the inscriptions is the Gaya ; and differs slightly from the Gujarat alphabet of Mr. Wathen, having many compound letters, and is therefore more modern than it. Yama is mentioned, also son of Ananta Varma. These inscriptions, in the same character as the preceding, only contain praises of the Varma princes, who, Mr. J. Prinsep thinks, were of the Gupta family. They are all in the Buddha cave of Nagarjuna.—*Vol.* v. *p.* 660 ;xvi. *p.* 595 ; See Burabur Caves, Inscriptions.

NAGARKOTE, see Kathi or Katti.

NAGAR MOTHA, or Nagar mothi, Hind. Cyperus juncifolius, also Cyperus longus, and C. rotundus, &c.

NAGA-RUNGA, also Swadoo Naringa, Sans. Orange.

NAGARU TIGE, Tel. Tephrosia racemosa, *W.* and *A.* 655.—Robinia rac. *R*, iii 329.

NAGASAKI, a chief sea-port town in Japan. The entrance to Nagasaki harbour is lovely. Porcelain made at Nagasaki is solid and at the same time elegant. It is a government monopoly. To procure a service for twelve persons, the permission of the authorities was required, and then, an ordinarily handsome one would cost at least £10. Exquisitely worked basket cups of the thin porcelain is bound by a fine net-work of cane or young bamboo, so neatly woven that the meshes are imperceptible. There are some grosser specimens of this workmanship, but the well-finished platting is inimitable. The origin of this beautiful texture was, no doubt, a protection to the fingers of tea-drinkers: and many are so well done, that they appear to have been painted on the cup. The French word, biblo, comprehends in its meaning anything, and all things which have no use, but still are curiosities or ornaments, and bought as such.—*Frere Antipodes, p.* 388. See Japan, Kiu-siu.

NAGA SAMPANGI, Tel.? Mesua ferrea.

NAGA SARA, Tel. Amphidonax karka.

NAGASSARIAM, *Rumph Amb.,* Mesua ferrea, *Linn. DC.*

NAGA SARA TIGE, Tel. From Kondavid, in Guntur with the following remarks, "Root a tuber, creeps on the ground, flowers in August and fruits in November."

NAGA TALI, Tel. According to Br. 1242, "a medicinal plant useful in snake bites," "Trichosanthes anguina."?

NAGATAMMA, see Hindoo.

NAGA TUMMA or Kasturi tumma, Tel. Vachellia Farnesiana, *W.* and *A.*

NAGA VALLI, or Tamala paku, Sans., Tel. Chavica betle, *Miq.*

NAGA VALLI, Sans. Canthium parviflorum, also Bauhinia scandens.

NAGAYCHE ALU, Tel. Cassia buds.

NAG BALA, Hind. Alysicarpus nummularifolius, also Alyssicarpus nummularia.

NAGA-BARYALA, Beng. Sida alba.

NAG-BEL, Hind. Chavica seriboo, *Miq.,* also Piper betel, and Bauhinia anguina.

NAG-BULA, Beng. Sida alba.

NAG CHAMPA, also Pyñaru, Mar., Can. Mesua ferrea.

NAGDAUN, Hind. Staphylea emodi, Abelia triflora, Viburnum fætens.

NAG DOWNA, Hind. Artemisia vulgaris, *L.*

NAG DOWNA, Hind.? Of Bombay Crinum asiaticum, in other districts, Crinum toxicarium, also Asparagus officinalis, also Artemisia vulgaris.—*Willd. Herb.*

NAGEESAR, Hind., a species of Garcinia; on the Calcutta side of India it is the Mesua ferra. Throughout his travels in India, Dr. Hooker was struck with the undue reliance placed on native names of plants, and information of kinds. It is a very prevalent, but erroneous impression, that savage and half-civilised people have an accurate knowledge of objects of natural history, and a uniform nomenclature for them.—*Hooker, Him. Jour. Vol.* ii, *p.* 328.

NAGEIA PUTRANJIVA, *Roxb.* Syn. of Putranjiva Roxburghii, *Wall.*

NAGEL, also Spiker, Ger. Nails.

NAGELN-BOOMEN, Dut. Cloves.

NAGELU BALA KURA, Tel. An amarantaceous plant so named by the Konda Doralu, probably a var. of Digera muricata.

NAGERKOT, not far from Nagerkote, is Joallamooky, a temple built over the subterraneous fire.—*Pennant's Hindoostan, Vol.* i, *p.* 36.

NAGERY, a village about 30 miles N. E. of Madras, in the Collectorate of North Arcot. It is built near a hill, the projecting point of which in lat. 13° 25′ N. is known to mariners as Nagery nose.

NAGESAR, Hind. Mesua ferrea.

NAGESH-ALU, Tel. Cassia Buds.

NAGGAN KOT, See India.

NAGHA-MUGHATI, also Valad ambu, Tam. Calonyction grandiflorum, *Choisy.*

NA GHEE, Burm. A timber of Tenasserim, of maximum girth 3 cubits, and maximum length 15 feet. When seasoned it floats in water. It is a tolerably good wood, used for mallets, but not durable enough to be recommended.—*Captain Dance.*

NAGHORI, Guz. A tribe of mohammadans in Guzerat, usually employed in driving carts and keeping cattle.

NAGILUM PALAM, Tam. Pomegranate.

NAGISHVORO, Uria. Of Ganjam and Gumsur, supposed to be Mesua ferrea? Its extreme height is 30 feet, circumference 3½ feet, and height from the ground to the intersection of the first branch, 9 feet. A medicine used for diarrhœa, rheumatism &c., is extracted from the flower. The flowers are also worn by the Oriyas and the rajahs stuff their pillows with them. The tree is tolerably common, but no use seems to be made of the wood. —*Captain Macdonald.*

NAGKESAR, Hind., Mesua ferrea, *Linn.* D.C. In hindoo mythology, the five arrows of Kama, the hindoo god of love, are each tipped with the blossom of a flower, which is devoted to, and supposed to preside over, a sense: the flowers are of a heating, inflaming quality; and are named, and well described, in the lines of the hymn by Sir William Jones, which paint Vasanta preparing the bow and shafts for his mischievous friend;

> "He bends the luscious cane, and twists the string
> With bees, how sweet! but, ah! how keen their sting!
> He with five flowrets tips their ruthless darts,
> Which through five senses pierce enraptur'd hearts:
> Strong Chumpa, rich in odorous gold;
> Warm Amer, nurs'd in heavenly mould;
> Dry Nagkeser, in silver smiling;
> Hot Kitticum, our sense beguiling;
> And last, to kindle fierce the scorching flame,
> Loveshaft, which gods bright Bela name"

The Chumpa, or Champa, more classically called Champaka, is the the Michelia champaca of European botanists: it is of two sorts, white and yellow, small, and in its foliage like an expanded rose-bud. Hindoo gardeners make, and expose in the shops, chaplets and long strings of the blossoms, with which the hindu women, on the supposition that its fragrance excites favourable sensations in the votaries of Kama, decorate their hair, and wear round their necks; its potency is, however, so great, that nerves unaccustomed to it can scarcely bear its odour within doors. Another flower commonly called mugri, or mogri, is of the same description, and may, perhaps, be one of these classically named in the hymn. The fragrance of the Chumpa is so very strong that bees refuse to extract honey from it a circumstance that could not escape the keen eye of the hindu poets; and they accordingly feign the Chumpa to be sadly mortified at this neglect. They have, however, afforded it consolation, dedicating it to Krishna, the black deity, as they, contrary to some European poetical naturalists, consider the union of yellow and black peculiarly beautiful. Krishna is mostly seen profusely decorated with garlands of flowers. The Chumpa is farther consoled by the preference it has obtained in bedecking the glossy locks of black haired damsels, as just noticed, also in the following stanza, literally translated from the Sanskrit:—That thou art not honoured by the ill-disposed bee, why, O Champaka! dost thou so heavily lament? The locks of lotos-eyed damsels, resembling the fresh dark clouds adorning the sky; let these embellish thee.—*As. Miscellany, Vol. II.* See Kama.

NAG-KESHUR, Beng. Mesua ferrea, *Linn.* also Mesua Roxburghii.

NAGKESHURA-JAMBA Beng. Hind. Syzygium zeylanicum.

NAGKESUR, Hind., flower buds of Calysaccion longifolium also of Mesua ferrea. The root of the Mesua ferrea tree is considered astringent and refrigerant: one tola is taken internally: is applied externally in cynanche.—*Genl. Med. Top. p.* 147.

NAGKESSUR, Guz., Cassia buds?

NAG-KUNDALA, see Siva.

NAGLA, Duk. Eleusine coracana. *Gært. Roxb.*

NAGLA RAGEE. See Graminaceæ, Ragi.

NAGLEIN, also Gewurz-Nelken, Ger. Cloves.

NAGLEIN, Ger., Cloves.

NAGNA, see Jain.

NAGODE and Oocheyra. Like Kotee, the state of Oocheyra was originally included as one of the feudatories of Punnah in the sunnud granted to raja Kishore Sing. The raja rendered good service during the mutinies, and was rewarded with the grant of a jaghire from the confiscated estate of Bijeeragogurh. He also received the right of adoption. The area of this petty state is 450 square miles, and the population 70,000; the revenues are rupees 72,400.

NAGORE, a small town on the Coromandel Coast, in lat. 10° 40′ N., 4 miles from Negapatam. It is a seaport town, in Tanjore, chiefly inhabited by mahomedans of the Labbi race.—*Horsburgh.*

NAGORE, a river near Bhuplah in Purneah.

NAGORKOTE, see Kathi.

NAGOUREE a river near Rampoor.

NAGPHANNI-KAND, Beng. Arum campanulatum.

NAG-PHENA, Beng. Hedge Prickly Pear, Opuntia Dillenii.

NAG-PHOOLEE, Beng. Heliotropium coramandelianum.

NAG-POOT, Hind. Bauhinia anguina.

NAGPORE, or Nagpur is the name of a town and a province in Central India, the Nagpore district now forming part of the Central Provinces. The Nagpur district is bounded on the north-west by a short stretch of the river Wardha, on the north by the districts of Chindwara and Seoni, and on the east by the district of Bhandara. A small portion of the Chanda district adjoins its extreme southern frontier, and throughout its whole length, from north-west to the south-east, it is bounded by the new district of Wardha. The early history of the last Nagpore ruling family is somewhat obscure, but its importance in Indian history may be said to date from Raghojee, who, as a leader of predatory expeditions, had, at the time of his death, in 1755, established the Mahratta supremacy over the country between the Nerbudda and the Godavery, from the Adjuntah hills eastward to the sea. On the death of Madhojee in 1788, the uncontrolled power devolved on Raghojee, who was then twenty-eight years of age. Raghojee died in 1816, and was succeeded by his only son Pursojee. This prince being incapacitated for government by a complication of diseases, a regency was formed under Madhojee Bhonsla, better known as Appa Sahib, Pursojee's cousin. In 1817 Pursojee died suddenly, having been murdered, as was afterwards discovered, by Appa Sahib. Soon after his accession, Appa Sahib made common cause with the peshwa, who was then inciting all the Mahrattas to unite against the English. After an unsuccessful attempt to regain his hold of Nagpore, he fled to Hindostan in February 1819. He died at Jodhpore in 1840. On the deposition of Appa Sahib, a grandson of Raghojee by his daughter was placed in power on 26th June 1818. In 1826, when the rajah attained his majority and was entrusted with the administration, a Treaty was made with him, by which he ceded for ever territories to pay the cost of the subsidiary force, and assigned lands as a guarantee for the payment of the troops which he was bound to maintain, and which were thenceforth to be under the control of the British government. Raghojee retained the administration of affairs till the day of his death, 11th December 1853. He died without a son, without any heir whatever, and without any adopted child, and it was determined to incorporate with the British territories the Nagpore state, which had, in 1818, been forfeited by the treachery and hostility of Appa Sahib, had been declared to belong to the British Government by right of conquest, had been conferred by free gift on Raghojee, his heirs and successors by the Treaty of 1826, and had now lapsed to the British Government by default of heirs. In 1855, the surviving widows of the late rajah adopted as their son and heir, Janojee Bhonsla, a collateral relation of the rajah in the female line. In consideration of the loyalty of the family during the rebellion of 1857, the title of Rajah Bahadoor of Deor, and the lands of Deor in the district of Sattara, were conferred in perpetuity on Janojee and his heirs, whether by blood or by adoption. The family receive pensions amounting at present to Rupees 2,33,000 a year. The zamindars with whom written engagements were contracted were those of Chutesgurh, Chanda, and Deogurh or Chindwara. The Chutesgurh zamindars, including the rajah of Bustar, with whom a separate Treaty had been concluded, and the rajahs of Kharond and Kakair, were twenty-seven in number, and paid an annual tribute of Rupees 1,28,032. In Chanda there were eighteen petty Gond zamindars, paying altogether a tribute of only Rupees 420. The Gond zamindars of Deogurh were fourteen in number, who usually paid only a trifling quit rent. Besides these there were thirty-two zamindars in the Wyn Gunga districts, who paid a total tribute of Rupees 1,41,594, but with whom no written engagements were formed. The Nágpore territory and the Saugor and Nerbudda territory have been formed into a separate administration under a chief Commissioner, to which have been added Sumbulpore and its dependences. The territories under the jurisdiction of the chief Commissioner are now known as the Central Provinces. The principal chiefs in the Central Provinces are the rajahs of Bustar, Kharond, and Mukrai, to all of whom the right of adoption has been conceded. The rajah of Bustar pays an annual tribute of Rupees 4,000. The Kharond chief pays Rupees 4,500. The revenues of Bustar and Kharond are respectively Rupees 25,870, and Rupees 29,878, and the population about 80,000 in each state.

Madhoji's sons were Bapuji, Parsoji, and Sabaji, contemporaries of the great Sivaji, and in his military service. Pursoji only was distinguished; and under Sahu Raja he was entrusted with an extensive military command and the collection of "chauth" in Berar. He died about the year A.D. 1709 and was succeeded by his son Kanhoji, who fixed his residence at Bham in Berar. Raghoji Bhonsla was the son of Bimbaji, the third son of Bapuji, the brother of Parsoji. Taking advantage of the difficulties in which the Peshwa found himself placed in 1744, Raghoji obtained for himself a sanad conferring on him the right of collecting all revenue and contributions from Lucknow, Patna, and Lower Bengal, including Behar, and vesting him with the sole authority to levy tribute from the whole territory from Berar to Cuttack. Bold and decisive in action, he was the perfect type of a Maratha leader. He saw in the troubles of other states only an opening for his own ambition; he did not wait even for a pretext for plunder and invasion. Though he was unscrupulous in his dealings with his neighbours, yet he was liked and admired by his countrymen, who even now look with pride to Raghoji Bhonsla, the first and greatest of the Nagpur house. With him occurred the great influx of Marathas, which resulted in the spread of the Kunbi and cognate Maratha tribes over the entire district. And in this there was deep policy, as the Bhonslas would be seen holding the Nagpur territory from the Gonds, and not subject to the paramount power at Puna, and thus deriving a position superior to that of other military chiefs of the Maratha empire, who owed their elevation to the Peshwa, and held their fiefs by his favour. Raghoji was succeeded in A.D. 1755, by his eldest son Janoji, though not without opposition from the other brother Mudhoji. After the death of Janoji, before Mudhoji with his youthful son Raghoji the late king's nephew and heir by adoption, could reach Nagpur, Sabaji, another brother of Janoji, had usurped the government. He was succeeded by his son Parsoji—a man blind, lame, and paralysed. Very soon after his accession the new raja became totally imbecile, and it was necessary to appoint a regent. A few days after his departure the Raja was found dead in his bed—poisoned, by his cousin Appa Sahib.

The Rev. Stephen Hislop of Nagpore, writing on the age of the coal strata in Western Bengal and Central India, observes that perhaps the most interesting part, in a section of the rocks of Central India, is the junction of the thick bedded sandstone above, with the laminated strata below. The latter, however various they may be in different localities as regards their lithologic and sometimes even their palæontologic features, may readily enough be distinguished by their relation to the superior beds, whose identity again is sufficiently attested by the iron bands which run through their mass. This ferruginous sandstone is well developed at the Mahadeva Hills, in the north of the province of Nagpore, in the vicinity of the city itself, and at Kota on the Pranhita, in the dominions of the Nizam. The subjoined sections represent the succession of the strata at these places respectively, as far as they are known:

1. *Mahadeva Hills.*

Massive sandstone with iron bands.	2000ft.
Carbonaceous and other shales with ferns, vertebraria, phyllotheca, &c.	15ft.
Sandstone.	25ft.
Green shale.	45ft.

85 feet.

2. *Near Nagpore City.*

Massive sandstone with iron bands.	50 to 100ft.
Laminated argillaceous sandstone with ferns, vertebraria, phyllotheca, &c.	15ft.
Sandstone.	30ft.
Green shale.	30ft.
Red shale.	40ft.
Crystalline limestone.	

75 feet.

3. *At Kota.*

Massive sandstone with iron bands.	50 to 500ft.
Argillaciouslimestone.	9ft.
Bituminous shales with fishes.	4ft.
Sandstone.	8ft.
Bituminous shales with argillacious limestone.	11ft.
Limestone.	23ft.
Clays with limestone.	25ft.
Red shale.	27ft.
Limestone.	

80 feet.

Immediately under the upper sandstone, laminated rocks are seen in all. In section 1st, the shales are bituminous and carbonaceous, while in section 2nd, they are of argillaceous sand. But they are of the same age, many species of fossils being common to both. Section 3rd, instead of having the limestone all collected in the lower part the section, as is the case at Nagpore and in many parts of the Nizam's country, has it interstratified with the shale; but the bituminous strata occupy the same position as in section 1st: choosing section 2nd, as being better known for comparison with it, instead of section 1st, gives us, in descending order sandstone and clay, red shale and limestone. It has been a question whether the fern-bearing coal shales and laminated sandstones of Nagpore are the same as the fish-producing bituminous shales of Kota. The Kota fishes that rewarded the researches of Drs. Walker and Bell were pronounced by Sir P. Egerton to be true Oolitic forms, and probably of the age of the Lias; between Nagpore and Chanda, the upper sandstone has the usual iron bands, and the lower laminated beds the common vegetable remains, there is a district with Mangali as the centre (sixty miles S. of Nagpore) where the superior sandstone is less ferruginous, and the inferior or laminated beds are coloured by iron of a deep brick red. In the latter strata the remains of reptiles, fishes and entomostraca predominate, while the few vegetables that are found, are generally very different from those occurring in other parts of the Nagpore territory. The skull of a Labyrinthodont, named Brachyops laticeps by Owen, might suggest for it a Triassic or even Carboniferous age, but the plentifulness of scales of lepidotoid fishes forbids us to assign a more ancient epoch than the Jurassic; and the conclusion is unavoidable, not that our laminated sandstone is older than the age we have attributed to it, but that in India any Labyrinthodont family has come down to a more recent period than in Europe.

The vegetable remains are Tæniopteris, Equisetum laterale, Tæniopteris magnifolia, Phylothecas, Knorria, Lepidodendron, Aphyllum, Aspidiara, Entomostraca belonging to the genus Estheria.

In the bituminous shales of the Mahadevas we have the following Bengal fossil plants: Tryzygia speciosa, Vertebraria indica, and a species of Phyllotheca, a fragment of which is figured by Dr. McCelland as Poacites minor. Geol. Surv. Tab. XVI. f. 4. In the carbonaceous shales of Umret, besides the Phyllotheca now alluded to, another stem, but unfurrowed, which seems to resemble McClelland's Poacites muricata Tab. XIV. f. 6. In the laminated sandstone of Kamptee, in addition to Vertebraria and the two Poacites as above, Tæniopteris, perhaps of the same species as at Rajmahal, and McClelland's Pecopteris affinis, Tab. XII. f. 11. *b*., which in Nagpore is a well marked species with a tripinnate frond.

In all these localities the genus Glossopteris abounds. Nagpore seems to have outstripped North Eastern India in Cyclopteris and several other vegetable remains, but is decidedly behind in regard to the Cycadaceæ. The only specimen procured is a small fragment from the sandstone of Kamptee, the leaflets of which are narrower than a minute blade of grass.

Though amongst the Cutch oolitic strata some are evidently marine, yet from what Mr. Hyslop had seen of those in the Deccan or those in Bengal, none of them in either of these districts exhibit the least evidence of having been deposited in the sea or ocean: all seem to be of fresh-water origin.

In Chanda and Berar, one of the great sources of doubt as to the extent of the coal deposits rose from the fact that the beds in the group of rocks in which the coal here occurs (known to Indian Geologists as the Barakur group) had invariably a tendency to exhibit very great variations both in thickness and quality within short distances. They are often of great thickness locally, but thin out and nearly disappear within short distances: this variation also being not only in the thickness, but also in the quality of the beds, so that what shows as a bed of good coal in one place may, within a few yards or a few hundred yards, pass into a shale without coal or even into a sandstone. Coal was found about fifteen miles north of Dumagudiam, near the junction of the Tal river near Lingala.

Mr. Medlicott is of opinion that the present limits of the coal measure fields in North India coincide approximately with the original limits of deposition and are not the result of faulting, or even mainly of denudation. All these successive beds (possibly with the exception of the Talchir) representing an enormous lapse of time, agree in one respect, that they seem to be purely fresh-water (fluviatile or fluviolacustrine) or estuarine deposits. The Ranigunj, the Jherria, the Bokaro, the Ramghur, and the Karunpura fields all belong to the drainage basin of the Damudah river.

Mr. W. T. Blanford reports that the coalbearing (Damoodah) beds of Korba extend for about forty miles to the eastward, as far as Rubkub in Udipur (Oodeypore). They also extend far to the south-east towards Gangpur, and to the northwards towards Sirguja, and in all probability are continuous, or nearly so, with the deposits of the same nature known to occur in these districts. Main Pat and the neighbouring hills, and all the country on the road from Main Pat through Chandargarh and Jashpur to Ranchi, consist of metamorphic rocks with the exception of a cap of trap and laterite on Main Pat.

Indications of the existence of coal seams were afforded by the occurrence of fragments of coal in the rivers, especially in the Mand, he found a few seams near Chitra, twelve miles west of Rabkub and nearly thirty east of Korba. Two or three are seen in the Mand about three to four miles east-north-east of Chitra, but they are only from a foot to 18 inches in thickness. In a small stream, the Koba Naddi, which runs south of Chitra, one seam about three feet in thickness is seen near the village of Tendumuri, more than a mile south-west of Chitra. It is nearly horizontal, having a very low irregular dip to the west or south-west. Part consists of fair coal, the remainder is shaley.

The only seam examined from which it is possible that a useful supply of fuel might be obtained, is exposed in the same stream rather nearer to Chitra, being about a mile from that village, close to the boundary of the village of Tendumuri, it appears to be of considerable thickness, perhaps 20 feet, and the lower portion appeared to be fair in places. The dip is about 15° to north-north-west. Lieutenant Sale, of the Chota Nagpur Topographical Survey found a seam of coal about four miles north-west of Rabkub in a small stream running into the Mand, and this may be the source of the blocks in the river bed.

Several coal localities have been lately found by the officers of the Topographical Survey and recorded in their maps. They are all north of Korba and Udipur. The rajah of Jashpur told that coal occurred in his territory in the Khurea country, twenty-four miles north-west of Jashpur Nagar, about one hundred miles or rather more west by south of Rancih.

The Rev. Stephen Hislop makes the following remarks on the age of the fossiliferous, thin-bedded sandstone and coal of the province of Nagpur.

Nagpur Circle.—If with a radius of 14 miles a circle be drawn around the city of Nagpur, it will include within its northern half Kampti, Bokhara, Silewada, Tondak'heiri, Babulkheda and Bharatnada; but it will leave out Arajmet, which lies 20 miles west of Nagpur, and Chorkheiri, which is 35 miles to the north-east, while Chanda is situated 85 miles to the south. At all these places the thin-bedded sandstone with vegetable remains is the same, as it presents the same appearance both palæontological and lithological.

Barkoi and Mahadeva Hills.—He ascertained that this thin-bedded sandstone is identical with the coal-shale at Little Barkoi near Umret, and at the base of the Mahadeva Hills, in the N. N. W. part of Nagpur province.

Kota on the Pranhita.—Under a great thickness of coarse iron-banded sandstone, developed in the neighbouring hills we have thin-bedded strata abounding, as at Mangali, in animal remains, including, Lepidotus deccanensis, L. longiceps, L. breviceps, and Æchmodus egertoni, in addition to those ganoid fishes obtained by the late Drs. Walker and Bell, Mr. Hislop procured from the same locality the exuviæ of insects and entomostraca. He inferred their contemporaneousness, and from the discovery of what appears to be a species of glossopteris at Kota, he was led to the conclusion that the rocks there are connected in age with those near Nagpur.

Rajmahal Hills.—The equivalents of the upper Rajmahal beds have been met with by Mr. H. B. Medlicott, on the Hurd river, a little south of the Nerbudda.

According to Dr. Oldham's views the age of the Indian coal-fields between the parallels of 20° and 25° N., is upper carboniferous of a rather later stage than that of the coal measures of Britain, and more closely allied to the "fern-coal" series of Silesia. Some doubts have been expressed as to the correctness of this view, at least of the age of the Silesian coal-fields, which are known to rest on limestones containing large Producti and other fossils of the carboniferous limestone. The following is a brief summary of the formation of the Indian Peninsula in ascending order as described by Dr. Oldham:—

1. Laurentain granitoid gneiss—highly metamorphic and traversed by innumerable trap dykes. This is the floor of all the other formations.
2. Quartzose, micaceous, and hornblendic rocks much contorted.
3. Lower Silurian, or Cambrian.—Sub-metamorphic schists and massive conglomerates of local rocks. These rocks occur in the eastern ghauts.
4. Devonian.—The Vindhyan series, principally sandstones, distributed into four groups.
5. Carboniferous—*(a.)* Mountain limestone of the salt range, classified as such from the fossils collected by Dr. Fleming.—*(b.)* The Talcheer series, sandstones of a peculiar character and colour, resting on a "boulder bed," or ancient shingle beach.—*(c.)* The coal-bearing rocks of India forming the coal-fields of Damuda, Nerbudda, &c.
6. Permian? or intermediate.—Beds with reptilian remains, representing in Dr. Oldham's opinion the physical break between the palæozoic and mesozoic periods of Europe. It is indicated here as doubtfully permian.
7. Triassic, upper and lower.—In this latter there are beds of limestone with ceratites (muschelkalk?)
8. Rhaetic Beds—with characteristic fossils.
9. Liassic Group—divided into an upper and lower series.
10. Jurassic Group—with cycadeæ. Divided into upper, middle and lower stages.
11. Cretaceous Series—with fine forms of ammonites and other shells.
12. Eocene.—*(a.)* Nummulitic limestones.—*(b).* Fresh water deposits of lakes, over and through which sheets of lava have been erupted.
13. Miocene.—Laterite, and other strata of several kinds.
14. Pliocene.—Ossiferous gravels, clays, &c.
15. Recent.—Gravels, clays, and mud of rivers, &c. It is impossible to go over the above great series of beds so truly representative as they are of the European system, and presenting often in minute detail a marked correspondence with the English sub-divisions and formations without being struck with the wonderful uniformity of nature's operations in ancient times over vast portions of the globe. The stratigraphical resemblances are also not less remarkable than the palæontological for the genera and some species of fossils of the triassic, liassic and cretaceous formations are identical with those of Europe.

The great drainage basin of the Godavery includes Nagpur, Bhandara, Wardah, Chanda and Sironcha. These districts have no considerable elevation, Nagpur and Bhandara are principally on gneissose rocks, with much trap in Nagpur. Wardah is almost entirely on trap rocks; Chanda and Sironcha have a very varied structure including more or less of all the formations that have been named. The crystalline and metamorphic rocks consist of gneiss of different varieties, often highly granitoid and form the substratum of the whole area, and are seen all around the border of the trappean rocks.

The Nagpore district has a population 634,121:

Europeans	2,462
Maratha, Kunbi and cognates	177,183
Kansar, Sipi, Sonar, Gurao, Beldar, Barhai, Koshti, Dhobi, Khatik, Nai, Bhoi, Dhimar, Banjrra, Madrassee, Bhamtya, and Rangari ..	118,019
Dher, Chamar, Mhang, Bhangi ..	114,407
Pardesi, Teli, Mali, Ahir, Pardhan, Barai	106,483
Bania, Ponwar, Marwari, Halwai, Kalal	17,118
Brahman	26,597
Rajput	3,458
Vidur (illegitimate brahmins) ..	5,094
Gossain	5,203
Gond with a few Kurku and Bhil ..	30,698
Mahomedan	27,371
Parsee	28

The language is a mixture of Hindi and

NAILS.

Spykers,	DUT.	Pregos,	PORT.
Clous,	FR.	Gwosdi,	RUS.
Nagel, Spiker,	GER.	Clavos,	SP.
Kila, Mekh,	GUZ. HIND.	Negangal,	TAM.
Chiodi, Chiovi, Aguti,	IT.	Gollu,	TEL.
Paku,	MALAY.		

Small metal spikes.—*McCulloch's Commercial Dictionary, p.* 811.

NAIMNATH, the 22nd Buddha. See Nimnath.

NAI MUNI, see Nepal.

NAINSUKH. A valley in kaghan famous for ghee, which is quite solid and cuts like cheese; about a dozen mules, laden with this commodity passed Dr. Cleghorn daily.—*Cleghorn Punjab Report p.* 178.

NAIPALA, see Nepal.

NAIPES, SP. Cards.

NAIR, a race on the Malabar Coast, following the hindoo religion and claiming to be of the sudra caste. The royal family of Travancore are of this race; the whole of the Nair race follow the rule of female descent, but as with other races also both there and in other parts of India, from this custom results the curious practice that a man's heirs are not his own, but his sister's children. In British India the Kasia, the Kooch and the Nair races, as also the artizans the Teer race and some of the Moplah mahomedans of Malabar have this custom; among the Buntar in Tulava, also, a man's property does not descend to his own children, but to those of his sister. Most of the people of Malabar, notwithstanding the same diversity of caste as in other provinces, all agree in the usage of transmitting property through females only. It is the custom in Travancore, among all the races except Ponan and the Namburi brahmins. The Nairs marry before they are ten years of age, but the husband never afterwards associates with his wife. Such a circumstance, indeed, would be considered as very indecent. He allows her oil, clothing, ornaments and food; but she lives in her mother's house, after her parents death, with her brothers, and cohabits with any person that she chooses, of an equal or higher rank than her own. If detected in associating with any low man she becomes an outcaste. It is no kind of reflection on a woman's character to say that she has formed the closest intimacy with many persons; on the contrary, Nair women are proud of reckoning among their favoured lovers many brahmins, rajas, or other persons, of high-birth. In consequence of this strange manner of propagating the species, no Nair knows his father; and every man looks upon his sister's children as his heirs. He, indeed, looks upon them with the same fondness that fathers in other parts of the world have for their own children; and he would be considered as an unnatural monster were he to show such signs of grief at the death of a child, which, from long cohabitation and love with its mother, he might suppose to be his own, as he did at the death of a child of his sister. A man's mother manages his family, and after her death his eldest sister assumes the direction. Brothers almost always live under the same roof;—but, if one of the family separate from the rest, he is always accompanied by his favorite sister. Even cousins, to the most remote degree of kindred, in the female line, generally live together in great harmony: for in this part of the country, love, jealousy, or distrust, never can disturb the peace of a Nair family. A man's movable property, after his death, is divided equally among the sons and daughters of all his sisters. His land estate is managed by the eldest male of the family, but each individual has a right to a share of the income. In case of the eldest male being unable, from infirmity or incapacity, to manage the affairs of the family, the next in rank does it in the name of his senior. Under these social rules it is not easy to see the inducement to the Nair to marry, as he has all the burthen without any of the enjoyments of wedded life. As Latham states, 'no Nair son knows his own father, and vice versa, no Nair father knows his own son. The property of the husband, descends to the children of his sisters. Picart quotes Oviedo as stating that the Nair women regard association with men to be an institution so holy that they believe virgins to be secluded from paradise, but this seems merely an excuse put forward by some one of the race, who has been ashamed of this social custom. A Nair writer observes that the Teyettee or Teeyer women, are notorious harlots and become the concubines of strangers of any caste or religion, and this without the least prejudice to their own caste or any loss of esteem in society; on the other hand, any such act proved against any females of the other castes, subjects the person to excommunication from caste, banishment from society, and all religious advantages. The Teeyer females of South Malabar however, do not, so readily as those of the North, yield themselves to this practice.

With the Nair, the Teeyer, and indeed all the other numerous castes of Malabar (including the Cochin and Travancore countries, these being indeed the most striking in this respect), reformation is much needed. It is, he says, very lamentable to find them dormant in their original state of depression and not seeking for reformation rather than growing blindly proud of their vain and different castes and privileges and ready to run any risk even that of hazarding their lives, only to preserve their castes.

Nair women. The customs are alluded to by Van Linschoten in the 16th, Fryer in the 17th, and Buchanan and Day in the 19th century. The Zamorin of Calicut is a Nair. Nairs are of 11 classes, the Villium are namburs and brahmans. The Nair people of the Malaya and Tulava country are frequently educated and good acccountants; they hold many public offices and compete for office employments with the brahmans. The Nairs are a good sized, well featured race, but rather dark. They serve as soldiers. The Nairs of Malabar were formerly accustomed to duelling. The practice was called Ankam, but hired champions were often substituted.

It may be mentioned, while noticing the customs of the Nair race, that among the Limboo tribe in N. E. India, near Darjeeling, the boys become the property of the father on his paying the mother a small sum of money, when the child is named, and enters his father's tribe, girls remain with the mother, and belong to their mothers tribe. Among the Batta of Sumatra, the succession to the chiefships does not go, in the first instance, to the son of the deceased, but to the nephew, by a sister, the same rule, with respect to the property in general, prevails also amongst the Malayas of that part of the island, and even in the neighbourhood of Padang.—*Tennent's Ceylon, Vol.* ii., *p.* 459; *Perry's Birds Eye View, Ch.* xiv., *p.* 84; *As. Researches, Vol.* v., *p.* 12; *Buchanan, Mysore, Vol.* ii. *p.* 412; *Beng. As. Soc. Journ. Vol.* ix. *p.* 834; *Buchanan Hamilton quoted in Journ. In Arch., Vol.* iii., *No.* 6., *June* 1849; *Lubbock, Origin of Civil, p.* 106; *Picart, Vol.* vi., *p.* 242; *Ibid. p.* 54; *p.* 75; *Wils., Gloss;* See India, Kuki, Kummalar, Korambar, Marumaka-Tayam, Polyandry.

NAIGUE, a non-commissioned rank in the native army equal to a corporal. See Naek.

NAINITAL, in lat. 29° 23′ 6; L. 79° 30′ 9; in Kamaon, a sanitarium in the outer ranges of the Himalaya. The cistern of the barometer at Dorett's Hotel, showed a height of 6,565 feet. —*Schlg.*

NAIRANJAR, the ancient name of a river, near the town of Gaya it is now called Phalgu, is opposite Gaya, and the name of Lilajan, or Nilajan, is restricted to the western branch, which joins the Mohani 5 miles above Gaya. The town was thinly peopled, but it contained about 1,000 families of brahmans. The city is still called Brahm-Gaya, to distinguish it from Bauddh-Gaya.—*Cunningham's Ancient Geography of India, p.* 45.

NAIRITTI or Niritti, the dread earth goddess, of whom terror and deprecation were the only worship, is all but certainly the evil goddess of the hill tribes to whom the Khonds till lately offered human victims. She seems thrust by fear, rather than adopted, into the Vedic pantheon—the germ of the bloody Kali and the murderess, Bhawani, in a day mercifully late, and to the Vedic men far away in the future. The Arians performed human sacrifices? In a legend, there is mention of a king so devoting his son. There are bonds alluded to in the Vedas, most probably, allegorical, but there is little doubt that the imagery is drawn from real human sacrifices, offered by the wild tribes in the neighbourhood to Nairitti, "with unfriendly looks," as she is expressly named in this Sakta. The legend may perhaps point to an earlier practice, which Viswamitra and his party set themselves against. A god named Nairita, of a fierce and evil nature, is said to have been worshipped by the Sakæ. See Brahminicide, Hindoo, India.

NAISO GATA, JAPAN. Grampus sieboldii.

NAI URUVI, TAM. Achyranthes aspera, *Linn.; Roxb.*

NAI VEDYA, HIND. Food offered to a hindoo god, a meat offering, belonging to the puja or worship of a hindoo deity.

NAI VELLA, TAM., also Nai-Veli. Gynandropsis pentaphylla, *DC.*, Cleome viscosa, *W. & A.*

NAJA BALLI, MAL. Bauhinia scandens, *Willd.*

NAJACEÆ, *Lindl.*, an order of plants comprising, 6 gen., 24 sp., viz.:—1 Caulinia; 4 Najas; 1 Ruppia; 1 Zamichellia; 13 Potamogeton; 4 Spathium.

NAJAF, according to some mahomedans, the place where Adam was buried: See Abu-kubays.

NAJI, BURM. Pterocarpus acerifolium: Pterocarpus subacerifolium.

NAJRAN, a town in the north of Yemen; it was once filled with christians, Dzu Nowas obtained possession of it by treachery, and gave it up to plunder. Large pits were dug in the neighbourhood and filled with burning fuel, and all who refused to abjure their faith, amounting to many thousands, were committed to the flames.

NAJUK, BENG. Mimosa pudica, *Linn., Roxb.;* Sensitive plant.

NAK, HIND. Pyrus communis.

NAKA BALLI, see Hindoo.

NAKAL, see Mahabharata.

NAKANDA, a kind of rice, of Kangra.

NAKA PUTA CHETTU, TEL. Rostellaria procumbens, *Nees.*

NAKARA, HIND., a drum; a kettle-drum; nakarah khanah, literally signifies the "kettle-drum house," from nakareh, a small brazen bodied drum; and khanah a house. But it is generally used to express an assemblage of military, or field musicians, whose instruments, are loud, harsh and disagreeable, long brazen trumpets, called Karrena, the sounds of which, may be compared to the braying of asses, and two Surna, in appearance not unlike clarionets, but sending forth notes such as might be expected from two discordant bag-pipes without a drone. The royal Nakarah Khanah, at Tehran, does not excite a more favourable opinion of the Persian field music. The Sihtara, the Kamancheh and other string-instruments; produce with good voices in chamber concerts, very soft and pleasing melody.—*Ouseley's Travels*, *Vol.* i.

NAKAREE, a river near Pittooreeah in Chota Nagpore.

NAKATIYA, Singh., an astrologer; the practice of astrology at the present day, in Ceylon, and the preparation of the ephemeris predicting the weather and other particulars of the forthcoming year, appears to have undergone little or no change since this custom of the inhabitants of India was described by Arrian and Strabo. But in latter times the brahmans and the buddhists have superadded to that occupation the casting of nativities and the composition of horoscopes for individuals, from which the Sophistæ described by Arrian abstained. It is practised alike by the highest and most humble castes of Singhalese and buddhist, from the Vellala or agricultural aristocracy, to the beaters of tom-toms, who have thus acquired the title of "Nakatiya" or astrologers. The attendance on particular ceremonies, however, called Bali, which are connected with divinition, belongs exclusively to the latter class. Amongst the mahomedans of British India, astrology is almost unheard of, though they keep their calender, or Jantri, and the hindoo Joshi calculates the ephemeris. The hindoos also have their calender or Panjangam, but they all practice divinition from books, of which the Chintamini pastakam is in use in the south of India.

NAKBEL, Hind. Boerhaavia diffusa.

NAK-CHIKARA. The leaves of a small plant found about Ajmeer, also imported from Delhi: are very hot, and a good sternutatory: three massee are given in pills, as a dose, in colic, which is said to be thus speedily relieved. —*Genl. Med. Top.*, *p.* 147.

NAKCHIKNI, Hind. Myriogyne minuta.

NAK CHILNI, Duk. Epicarpus orientalis, *Blume.*

NAKDOUN, Hind. Asparagus officinalis, *Willde.*

NAKED, the practice of appearing naked, is alluded to in Deut. xxviii, 48, in Job xxii, 6, and 24, 7, in Ezekiel xviii, 7 and 16, Matthew xxv, 36 and 44, and 2nd Corinth. xi 20 James, ii, 15. See Naga.

NAKERA CHETTU or Nakeru, Tel. Cordia myxa, *Linn.*

NAKHAE, a fabulous race, dwelling under the earth.—*Bishop Pallegoix; Bowring's Siam*, *Vol.* i, *p.* 40.

NAKHCHINKNI, Hind. Myriogyne minuta.

NAKHI, see Hindoo.

NAKHIS, religious ascetic mendicants, amongst the hindoos, who live by begging; they resemble the Urddha-bahu and Akas-mukhi.

NAKHL OOS SHAYTAN, Arab. The Devils date palm, a dwarf-giant of palms which grows near Zanzibar. It has no trunk, but the mid rib of each branch is thick as a man's thigh. Eccentric in foliage and frondage, it projects over the waves its gracefully curved arms, sometimes thirty and forty feet long.—*Black. Mag. March* 1858, *p.* 285.

NA-KHONG-VAT, a great temple in Cambodia, which seems to have been built in the tenth century. It is 600 feet in the base, and in the centre 180 feet high. Every angle of the roof, every entablature, every cornice bears the seven-headed serpent.—*Horsburgh.*

NAKHODA from Nao, a vessel, and Khoda, lord or master, a ship captain.

NAKHTAR, Hind. Cedrus deodara, Pinus longifolia; the generic name of pines among the Affghans, of which there are several kinds, perhaps fraom Nashtar a lancet, owing to the sharp points of its leaves.—*Cleghorn's Punjab Report*, *p.* 215.

NAKHTHAN, Hind. Faba vulgaris.

NAKHUD, Pers. Cicer arietinum, *Linn.*, Bengal gram.

NAKHUN, Hind. A kind of shell used as a drug. It is like a finger nail, hence the name.

NAKIRI GADDI or Nakka korra, Tel. Panicum helvolum, *L.*

NAKKA, Tel. Canis aureus. *Linn. Bly.* The jackall.

NAKKA DOSA or Dosa, Tel. Cucumis utillissimus, *R.* var. This variety is grown largely by the ryots in their grain fields.

NAKKA KORRA, Tel. Panicum helvolum, *L.*—P. glaucum. *R.* i, 284.

NAKKA NARAYANA, Tel. Indigofera, *sp.* This name was attached to a dried specimen from Kondavid, which was not I. trita.

NAKKA NARU, Tel. Indigofera trita, *L.*—*W. & A.* 636; *Ic.* 315-386.—*R.* iii, 371; I. cinerea, *R.* iii, 372—*Rheed*, ix. 36. also Poa kœnigii, *Kunth*, or Poa interrupta, *R.* i. 335.

NAKKA NEREDU, Tel. Flacourtia sapida, *Roxb. W. & A.*

NAKKA NEREDU, Tel. Flacourtia sapida, *R.* iii, 835; *Cor.* 69—*W. &* A. 104, *Ic.* 84. also applied to Ardisia solanacea.

NAKKA PASUPU or Konda pasupu, Tel. Curcuma, *sp.* Wild turmeric, C. montana or C. angustifolia.

NAKKA RENU, or Lakuchamu, Tel. Artocarpus lacoocha, *R.*

NAKKA TOKA GADDI, Tel. Poa *sp.* Fox-tail grass.

NAKKA TOKA PONNA, Tel. Uraria lagopoides, *D'C.—W. & A.* 689; also Hemionitis cordifolia, *R.* The name means "fox-tail plant" syn. Dhavani, W. 444.

NAKKAVIRI CHETTU, Tel. Cucumis, *sp.* Br. 473—where it is explained by Uruvaru, W. 163, "a sort of cucumber."

NAKKENA, Tel. Canthium didymum, *Gærtn.—R.* i, 535.—*W. &* A., 1301.

NAKKERU or Ura nakkeru, Tel. Cordia myxa, *L.—R.* i, 590.—*Rheede*, iv, 37, also Ximenia americana, *L.*

NAKL, Beng. Tree.

NAKL-KHWAJA—? Buchanania latifolia.

NAKL OOS SHAYTAN, Arab. The Devil's Date palm, a dwarf-giant of palms grows near Zanzibar. It has no trunk, but the mid rib of each branch is thick as a man's thigh. Eccentric in foliage and frondage, it projects over the waves its gracefully curved arms, sometimes thirty and forty feet long.—*Black. Mag., March* 1858, *p.* 285.

NAKO, see India, Kunawer.

NAKOOREE, a river and town in Almorah.

NAKRABAG, Hind. Hyena striata, *Zimmerman.*

NAKRIZE, Hind. Lawsonia inermis.

NAKSHAN, Hind. Faba vulgaris.

NAKSHATRA, a Lunar mansion. In hindoo astronomy there are 27, of 13° 20′ each,

Their names are :—

1 Aswini.
2 Bharani or Antakam.
3 Kritika or Agniya.
4 Rohini or Brahmam.
5 Mrigasiras.
6 Ardra, or Raudra.
7 Punarvasa, or Aditya.
8 Pushiya or Tishiya.
9 Aslesha or Sarpam.
10 Magha or Pitriyam.
11 Purva Phalguni.
12 Uttara Phalguni.
13 Hasta, or Arka.
14 Chaitra.
15 Swati.
16 Vaisakha.
17 Anuradha.
18 Jyeshtha.
19 Neriti or Mula.
20 Purva Asharha.
21 Uttara Asharha.
22 Sravana.
23 Sravishtha.
24 Satabhisha.
25 P. Bhadrapada.
26 U. Bhadrapada.
27 Revati or Paushna.

See Hindu; Surya.

NAKSHATRA-MALA, a garland of twenty-seven pearls, the number of the Nakshatra or lunar mansions.—*Hind. Theat, Vol.* ii. *p.* 66.

NAKSH-BANDI, Hind. A mohammadan fakeer or darvesh, characterized by carrying a lighted lamp in one hand and going about singing verses in honor of the prophet, &c., they derive their institution and name from Khaja Baha-ud-din of Naksh-band.

NAKSH-I-KEJEB, Sculptures in the mountains of Rahmat, near Persepolis.

NAKSH-I-RUSTOOM, the rocks on which the bas-reliefs of Naksh-i-Rustoom are sculptured, bear the name of Koh-i-Hoossain; they form the continuation of the ridge lying south of the valley of Kamin and serve for a northern boundary to the district of Hafrek. They are rugged cliffs of white and yellowish marble with hardly any slope towards the plain. The more ancient sculptures are known by the designation Royal Tombs. These are seven in number, of which four are at Naksh-i-Rustoom, and three in the rocks of Rahmet, at Takht-i-Jamshid. The former are supposed to contain the four Persian monarchs who immediately followed Cyrus, namely, Cambyses, Darius I., Xerxes and Artaxerxes I. The remaining three kings of the Achemenid race are supposed to have been interred in the three other tombs in the rock of Rahmat, at Takht-i-Jamshid.—*Baron C. A. DeBode's Travels in Luristan and Arabistan, pp.* 97, 98, 99.

NAKTRUSA, Hind. Sisymbrium iris.

NAKULA, one of the five Pandava.

NA-KYEEN, Burm. This is the soondri wood of Calcutta, Heritiera minor, where it is so common as to serve for firewood, although, from its superior qualities for buggy-shafts, hackery or cart axles and wheels and other purposes requiring great strength and toughness, it is highly prized. In Amherst the timber is employed for house posts and rafters.—*Cat. Ex.* 1862.

NAL, Hind. Arundo donax.

NAL, also Nul, Beng. Amphidonax karka, *Lind.*

NAL, Hind. A hollow reed or cane, a tube, a pipe. The reeds used as pens or kalm, for writing in the Persian character. The best are red without, white within, and hard as stone. See Graminaceæ.

NAL, also means 'a tube,' whence the warlike nal-gola, a kind of arquebuss; a ball propelled by whatever force from a tube; a term used by the old martial poets of India for a warlike engine, long before gunpowder was known in Europe. A single barrelled gun is ek-nalli-ka-banduq; do-nali-ka-banduq, a double barrel.—*Tod's Travels, p.* 25.

NAL, Tam. Day.

NAL, see Kelat.

NAL (?) Hind. A gang of freebooters in Bundelkhund as Sanoria, or Uthaigir.

NALA, Hind. Is a term applied to a mountain stream, from nal, 'a defile,' indicating that the course of a stream always presents some mode of penetrating into mountainous regions. Vulg. a nullah, a water-course or stream: often a long inlet from one of the great rivers and receiving the drainage of the country, but not having any origin in a spring or snow bed, as rivers and streams have; usually a rivulet, a channel cut in the soil by rain-water, or water-course.

NALA and Damayanti, a story of ancient

hindoo life, in the later Vedic period preceding brahmanism. Nala inhabited Nishada, the Bhil country and Damayanti was a daughter of the Vidarbha, in the modern Berar. Nala, lost, for a time, both his kingdom and his faithful wife Damayanti. The rajah of Jeypore claims to have sprung from the ancient rajah Nala of romantic memory.

NALANDA, a famous monastery in Magadha, near Gaya, now called Baragaon. It is the most famous buddhist monastery in all India.—*Cunningham's Ancient Geog. of India, p.* 15.

NALAPANA KULINGOO, Curculigo orchioides.

NAL BANS, Hind. Bambusa arundinacea. The bamboo.

NALCHE, see Kunawer.

NALDRUG, a fortress in the western part of the Hyderabad dominions, 27 miles from Sholapore.

NAL ENNE, Tam. Oil of Sesamum orientale, Gingelly or Sesamum oil.

NALI, Tel. Ulmus integrifolius, *Roxb.*

NALI, Hind. Ipomæa reptans.

NALKAPUR, 17° 17′; 78° 48′, in the Dekhan, 32 miles east of Hyderabad. Mean height of the village, above the sea is 1,591 ft.

NALKEE, Beng. Hibiscus cannabinus.

NALKI, a kind of palanquin.

NALKIA, Hind. Tulipa stellata.

NALL, Hind. A hollow bamboo. See Nal.

NALLA, Tel. Black, hence

Nalla-agisi, or Avisi, Tel. Linum usitatissimum, *L.*, Sans. Atasi, *W.* 15.

„ ariti, Tel. Musa paradisiaca, *var.* also Michelia, *sp.* Sk. explains it by Champa which *W.*, 318, renders both Michelia and a var. of the plantain.

„ asakalu, Tel. Paspalum, *sp.?*

„ ativasa, Tel. Curcuma cœsia, *R.*, i, 29. One of the Sans. syn. is Sati which *W.*, 826, says, is a kind of Curcuma, and in Bengal, C. cœsia is still called black Haldi and Nilakantha.

„ balusu, or Nakkena, Tel. Canthium didymum, *Gœrtn.*

„ budama, Tel. Cucumis turbinatus, *R.*, iii, 723, *W.* and *A.* 1059.

„ chamalu, Tel. Panicum miliare, *Lam. R.* i, 309.

„ chandra or Chandra, Tel. Acacia sundra, *DC.*

„ chikkudu, Tel. Lablab, *sp.*

„ chitra mulam, Tel. Plumbago capensis, *Th.*

„ chukka kada, Tel. Eleiotis sororium, *DC.*—*W.* and *A.* 711. Roxb. has Nalla sora kada evidently a mis-print for Nalla sukka or chukka kada, *i. e.*, "black spot" from the dark mark in the middle of each leaflet.

„ daduga, Tel. Miliusa velutina, *Hook. f.* and *Th.*—Uvaria villosa, *R.* ii, 664.

„ dintena or Dintena, Tel. Clitoria ternatea, *L.* *a.* cœruleoflora.

„ doggali, Tel. Amarantus spinosus, *L.* A dried sp., with this name was sent from Kondavid, but it probably refers more properly to some of the many dark-coloured sp.

„ gaggera or Tulasi, Ocimum sanctum, *L. W.* 218, Krishnarjaka and Kala tulasi in Bengal.

„ nalla gili gichcha, Crotalaria hirsuta, *Willd. R.* iii, 270.—*W. and A.* 582. The flowers are black or purple spotted.

Nalla giri gili gichcha, Tel. Crotalaria linifolia, *L. W.* and *A.* 589—C. cœspitosa, *R.* iii, 269. So called from the ovoid, black legume—nalla, black; giri round.

„ gilikarra, Tel. Nigella sativa.

„ nalla giniya, Tel. Occurs in Sk. as the equivalent of Katabhi which *W.* 180, makes to be Cardiospermum halicacabum—also Clitoria.

„ guli vinda or Gulivinda, Abrus precatorius, *L.* γ. melanospermus, Roxb. ii, 292, applies the same name to Cardiospermum halicacabum, the seeds of which are black with a white spot, very like the seeds of Abrus precatorius.

„ gunta kalagara or Gunta, Kalagara eclipta, *sp.?* The Sans. syn. is Maha bhringah or great Eclipta, not in *W.*

„ gurujinja, Tel. Abrus precatorius, *Linn.*

„ irugudu, Tel. Dalbergia latifolia, *W. & A.*; *R.*

„ iswara, Tel. Aristolochia acuminata, *L.*—*R.* iii, 489.

„ jidi chettu or Jidi chettu, Semecarpus anacardium, *L.*—*R.* ii, 83; *Cor.* 12—*W. and A.*, 523; *Ic.* 558.

„ jila karra, Nigella sativa, *L.*, δ Indica, *DC.* Jilakarra or Jira is cumin, black, or Kali jira, Nigella sativa.

„ jilledu or Jilledu, Calotropis procera, *R. Br.* This application is made from the dark color of the flowers. Hamilton identifies this sp. with C. Hamiltonii, *R. W.*

„ jiluga, Cassia pumila, *Lam.*—*W. and A.* 904—Senna prostrata, *R.* ii, 352.

„ kaka mushti? Diospyros, *sp.*—D. sylvatica, *R.?* A doubtful name. Mushti is Strychnos—Beddome adds, "only found in fruit, D. sylvatica?" or Gata, p. 58. It is more probably D. cordifolia. See Kaka ulimera and Nalla ulimera.

„ kakara, Momordica, *sp.* From Kondavid.

„ kakasi, or Devata malle, Randia uliginosa, *DC.*

„ kaluva, Nymphœa stellata, *Willd.*—*W. and A.* 55; *Ic.* 178—*R.* ii, 579; N. cyanea, 577; Nilotpalam, *W.* 486.

„ kamanchi or Kamanchi, Solanum rubrum, *Mill.*—β. melanopyrenum.

„ kasana, Ormocarpum sennoides, *Beauv.*—*W. and A.* 672; *Ic.* 297—Hedysarum sen. *R.* iii, 216.

„ kavani, Dicerma biarticulatum, *DC.*; *W. and A.* 710; *Ic.* 419—Hedysarum bi., *R.* iii, 356.

„ kokkita, Ipomœa obscura, *Ker*—Conv. obs., *R.* i, 472.

„ kuppi, also Nalla opie, Tel. Clerodendron inerme, *Gært.* Syn. of Volkameria inermis, *L.*

„ mada or Mada, Avicennia tomentosa, *R.* iii, 88.

„ maddi, Terminalia tomentosa, *W. and A.* 972; *Ic.* 195.—Pentaptera tom, *R.* ii, 440, also Maba buxifolia, Pers. The bark dyes black.

„ manga, Randia, *sp.* Perhaps R. uliginosa.

„ marri, Ficus?

„ mulu goranta, Barleria obovata, *L*—B. buxifolia, *R.* iii, 37. The syn. is Sairiyaka, *W.* 944.—Common in Mysore and Malabar with pinkish violet flowers: another variety occurs in Guntur with pure white flowers, or tella mulu goranta.

„ nela gummudu or Bhuchakra gadda, Batatas paniculata, *Ch.?*

„ nilambari, Eranthemum nervosum, *R. Br.*—E. pulchellum, *R.* i, 111; Justicia pul., *Cor.* 177.

„ nallani padmam, Euryale ferox, *Salisb.*; Nymphœa stellata, *Willd.?* Nallani padmam is a black or purple lotus. The only species answering to this description is Euryale ferox, which however is unknown in the south, but it is only given in Sk. as a syn. of the Sans. word Padma.

„ pagadapu chettu or nalla purugudu, Tel. Anisonema multiflora, *R. W.*

„ palleru, or nili palleru, Tel. Indigofera echinata, *Willd.*—*R.* iii, 371—*W. and A.* 617; *Ic.* 316.

„ pamulagedda, Tel. Spilornis cheela, *Daud.*

„ pedda goranta, Barleria cristata, *L.*—*R.* iii, 37—*W. Ic.* 453.

„ pesalu or pesalu, Tel. Phaseolus mungo, *L.*—β. melanospermus—Ph. max., *R.* (not *L.*) iii, 295.

„ ponuku, Peltophorus myurus, *Blain.*—Manisurus my., *R.* i, 351; *Cor.* 117.

„ pulugudu or purugudu, Anisonema multiflora, *R. W.*—Phyllanthus mul, *R.* iii, 664—*Rheede*, x, 27. Fruit black. The reference to Rheede is Wight's. Dillwyn assigns the figure to Ph. reticulatus.

„ putiki, Aristida depressa, *Retz.*, *R.* i., 351.—Chætaria dep., *Beauv.*

„ puvvula ufrulli, Allium, *sp.* The words mean black-flowered onion.

„ rantu, Endopogon, *sp.* This was the name given by the Konda Doralu at Sinhachalam to a very pretty sp. with pale blue flowers, whether an Endopogon or a Stenisiphonium, doubtful.

„ ratiga, Tel. Vitis quadrangularis, *Wall.*; *W. & A.*, *W. Ic.*, *Rheede.*

„ regu, Acacia amara, *Willd.*—*W. and A.* 848—Mimosa am, *R.* ii, 548; *Cor.* 122.

„ sugandhi pala, Hemidesmus indicus, *R. Br.* var. The flowers are always dark purple or blackish, but there are several well marked varieties.

„ tady gudda, also nalla-tata-gudda, Tel. Curculigo orchioides, *Gært.* See Musli.

„ tapeta, Tel. Sonchus orixensis, *R.* iii, 402. Br. under nela tappeta 389, has "name of a tree" and adds the syn. grishma sundaramu, which W. 306, explains to be a kind of pot-herb, quoting Erythræa (Chironia) centauroides!—Wight contr. 27, considers sonch. orix. and oleraceus to be the same—tappeta is Asystasia.

„ tegada or Tegada, Black tegeda. The Sans. syn. given is palinda which according to W. 531, is jasminum pubescens; palindi is explained to be teori, and palindhi to be the black teori. Teori occurs in Pid. Ind. in Speede's calendar and in Voigt, as the hindoo name of Ipomœa turpethum. Teori is also the hindi name of Lathyrus sativus, the expressed oil of the seeds of which, is, according to O'Sh. 317, a powerful purgative, and as it has large blue flowers, the similarity of the name may have led to the use of the term black or nalla tegada, the root of Ip. turpethum possessing similar qualities.

„ tige or illa katte, Ichnocarpus frutescens.—*R. Br.*

„ toomi kara, Tel. Ebony.

„ tumiki or Tumiki Diospyros, *sp. Br.* 428, under tubiki, has karra tumiki, "ebony," but, goes on to refer to embryopteris. The name in the text probably refers to D. melanoxylon.

„ tumma, Acacia arabica, *Wild.*—*W. & A.* 858.—Mimosa ar., *R.* ii, 557; *Cor.* 149; *Br.* 428. *Jour. As. Soc.*, *Calc.*, vi, 392.

„ ummetta, Tel. Datura fastuosa, *Mill. Roxb.*

„ vavali, Tel. Gendarussa vulgaris, also vitex negundo, *Linn.*, *Roxb.*, *W. Ic.*

Nalla valu, Tel. Sinapis glauca, *R.* iii., 118. Sans. Syn. krishnika.

„ vandi karra, a name given by the Konda Doralu to an undetermined tree at Sinhachalam.

„ vatti veru, or vatti veru, andropogon muricatus, *Retz.* The syn. in Pt. II, Jalasayah, *W.* 345, is stated to be Khashhas.

„ vavili, Vitex negundo, *L.*—*R.* iii, 70—*W. Ic.* 519—*Rheede* ii., 12.

„ vegisa or vegisa, Pterocarpus, *sp.*

„ vishnu kranta, or Vishnu kranta, Evolvulus alsinoides, *L.*

„ udata, or bali komma, Cansjera rheedii, *Gm.*, *W. Ic.* 1861.—C. scandens, *R.* i, 441; *Cor.* 103., *Rheede* vii, 2-4. Opilia amentacea, *R.* ii, 87; *Cor.* 158. This name is applied to both plants by the Konda Doralu.

„ uduga, or uduga, Alangium hexapetalum, *Lam.*—*W. Ic.* 194. *Ill.* 96—*Rheede* iv, 26. This name was given to specimens from Kondavid. It is probably the same as Rheede's karangolum which Dillwyn identifies with A. hexapetalum, *Lam.* (not *Willd.*) Are they different? V. *Wight*, *Ill.*, ii, 2.

„ ulimera, or Kaka ulimera, Diospyros cordifolia, *R.*

„ ummetta, Datura fastuosa, *Mill.*—*R.* i, 561—*W. Ic.* 1396.

„ uppi, Capparis sepiaria, *L.*—*R.* ii, 568—*W. & A.* 92. Br. 105, under Uppi quotes this name, and also Monetia which is Tella uppi adding a "thorny, medicinal, styptic shrub, with a ligneous, hollow fruit or gall, as large as a nut-meg" and gives as a syn. Mouktika phala.

„ urimida, or nalla ulimera, Diospyros cordifolia, *R.*

„ yirugudu chettu, Dalbergia latifolia, *R.* iii, 221; *Cor.* 113—*W. & A.* 814; *Ic.* 1156. D. latifolia is called Sweta sal, *i. e.*, white sal in N. India. The Krishna simsupa which is the syn. of Nalla yirugudu in Sk. seems to refer to another species, V. Patsa yirugudu chettu, but the Tel. name exactly corresponds with its Eng. syn. "black-wood."

„ nalleru, Vitis cissus quadrangularis, *Wall.*—*W. & A.* 410—*W. Ic.* 51—*R.* i, 407. *Br.* 480.

„ nalli or medakava, Grewia pilosa, *Lam. Br.* 480.

NALLA-GADHA, Tel. Aquila nævia.—*Gmel.*

NALLA JUTE, Anglo-Beng. Corchorus olitorius.

NALLAK, Tel. The male bird of Eudynamis orientalis, *Linn.*

NALLA MALLA, two hill ranges near Cuddapah.

NALLA-PAT, Beng. Jute.

NALL-ENNAI, Tam. Gingelly oil.

NALLERU, Tel. Vitis quadrangularis.—*Wall.*, *W. & A.*, *W. Ic.*, *Rheede.*

NAL-SAHIB (lit. Mr. Horse-shoe,) an Alam or standard of mahomedans.

NALTA-PAT, Beng., Hind. Corchorus capsularis.

NALU, Hind. Arundo donax.

NAM, Hind. A name.

NAMA, Hind. A name applied to the marks which the sects of hindoos wear on their foreheads.

NAMA, Amb. Arenga saccharifera, *Labill.*

NAMA, also Nama dampo, Tel. Aponogeton monostachyon, *Willde.*

NAMA KARANA, Sans. From nama a name, and kree, to make, a hindoo ceremony of naming a child.

NAMAK-ARANAM, see Hindoo.

NAMAK DULLA, Hind. A salt of soda, a natron salt from the waters of the lake of Loonar. It is used in dyeing, in medicine and the arts.

NAMA ? KETTI GADALU, Tel. Aponogeton monostachyon, *Willde.*

NAMA KIRTANA. In the hindoo religion the constant repetition of any of the names of the deity.

NAMAK KA TEZAB, Hind. Muriatic acid.

NAMALLI PILLI, Tam. Felis rubiginosa, *Is. Geoff.*

NAMA SIVAYA, the principal Mantra of the Saiva sect of hindoos.

NAMASKARA is a reverential salutation to an idol or a brahman.

NAMASUDRA, corruptly, Numoosoodr(?) Beng. A low caste, a chandala.

NAMAZ, Pers., Hind. Prayer. The mahomedan prayer-time occurs five times daily.

> Ta dil ba mihnat dadim,
> Dar bahr-i-fikr uftadim,
> Chun dar namaz istadim,
> Kuwat amad anderim.

—*Yule Cathay, Vol.* ii, *p.* 499.

NAMBALL PAIO, Maleal. Eugenia malaccensis, *Linn.*

NAMBI, Tam., Maleal.

Nambiyana,	Kar.	Nambiyan,	Tam.
Nambadi,	Maleal.		

The title of an inferior class of brahmans said to be sprung from a Kshatriya mother and brahmin father, and usually officiating as priest in Vaishnava temples in the South of India.

NAMBOGUM, Maleal. See Tibilebu.

NAMBUDIRI, commonly pronounced and written Namburi, Mal., Tam. A brahman of the highest order in Malabar. The Namburi brahman race of Malabar are arranged into two tribes, the Panniur grammakar or Boar-villagers, and the Choour grammakar or Bird-villagers. When the Namburi brahman women are guilty of connection with inferior castes, they are often sold by their relatives and chiefly to the mahomedan Mapilla. Under the terms head-price and breast-price, the princes of Malabar, in granting certain lands to the christians in A. D. 316, allowed them the revenues derived from the sale of males and females for serious caste offences, a practice which the Namburi continue. A Namburi brahman of Malabar is always the Rawal or chief priest of the temple of Badarinath in the Mana Pass of the Himalaya.—*Wilson.* See Sankara Achari.

NAMBU VETUVAR ? a class of slaves in Karnata.

NAMBYARA, Mal. A tribe of Nayar, or Nair in Malabar.

NAMCUL, near Salem, a fortified detached hill with a pretty large town at the foot. The hill is steep but not high; its rock is sienitic, in which white quartz and felspar prevail: in some places it contains garnets in hornblende and a greenstone which possesses the characters of felspar and is composed of the same constituents; the latter compound seemed to prevail particularly in the lower country. The sand in the nullas and in some part of the road was mostly an aggregate of small garnets and hornblende.

NAMDAH, Hind. Pers. A thick felt used by the nomade races of Persia and Afghanistân for their tents, hence the term nomade. The numda is also largely used as a sleeping rug and for carpeting. See Nammad.

NAMDUNG, a river at Rungpoor.

NAMEDE. A rather hard, very fine, close-grained, heavy Ceylon wood.

NAMELUDDOOGOO, Tel. See Junglee shumbaloo, Hind.

NAMI, a root of the form of a large potato, which grows in Mindoro, cultivated also in Timor and in the Moluccas. It is said to be the Manioc or Cassava of South America.

NAMILLE, Tel. Ulmus integrifolia. *Roxb.*

NAMMAD, Pers. Narrow strips of thick soft felt, handsomely ornamented with various colours, which are placed round the rooms in Persia and Koordistan, and serve instead of sofas and chairs.—*Rich's residence in Koordistan Vol.* i. *p.* 85. See Namdah.

NAMMA DUMPA, or Gotti gadda, Tel. Spathium chinense, *Lour.*

NAMMAM, Arab. Thymus chamædrys.

NAM ME, Burm. A river.

NAMO, or Lamo Island, called also Nan Gaou, on the south coast of China, is 12 miles long from east to west, and 5½ miles broad. It is very barren, but well peopled by a fishing population.—*Horsburgh.*

NAMOONE-KOOLE, a mountain near Badulla in Ceylon, nearly 7,000 feet high.

NAM PAPATA. Pavetta tomentosa, *Sm*—Ixora tom, *R.* i. 386—*W. Ic.*, 186.

NAM-PHRIK. A sauce used by all classes in Siam, it is prepared by bruising a quantity of red pepper in a mortar, to which are added kapi (paste of shrimps or prawns), black pepper garlic, and onions. These being thoroughly mixed, a small quantity of brine and citron-juice is added. Ginger, tamarinds, and gourd seeds are also employed. The nam-phrik is a most appetite-exciting condiment.—*Bowring's Siam, Vol.* i., *p.* 108.

NAMRUD. Nine miles from Baghdad is the small Akarkouf, the ground around the ruined pile is called by the Arabs Tall Namrud, and by the Turks Namrud Tapassi. Both these terms mean the hill, not the tower, of Nimrod and the term Akarkouf or Agargouf given by the Arabs, is intended to signify the ground only, around it.

NAM SAKI, Sans. Namesake.

NAMSANG, a rude pagan tribe on the hills of Assam, on the eastern frontier of the Mikir and Cachar. See India, Naga.

NAMUM, Tam. Pipeclay.

NAMUM, the marks hindoos make on their foreheads.

NAMUM, Tam. The marks on the foreheads of the hindoos indicating the sects to which they belong. That of the Ramanuja consists of two perpendicular white lines, drawn from each root of the hair to the commencement of the eyebrow, and connected by a transverse streak across the root of the nose. In the centre is a perpendicular streak of red, made with red Sanders or with Roli, a preparation of turmeric and lime. They have also patches of Gopi chandana with a central red streak on the breast and each upper arm. The marks are supposed to represent the Sankh (Shell), Chakra (Discus), Gada (Club), and Padma (Lotus).

NAMUTI, Beng. Grangea Maderaspatana, *Poir.*

NAMZAD BAZI, Pers. Pushto, in Affghanistan a custom of allowing the engaged couple to see each other.

NAM ZEYLANICA, *Linn.* Syn. of Hydrolea zeylanica, *Vahl.*

NAN, Pers. Leavened bread.

NAN, a dependency of Siam, N. E. of Bankoli. Its capital is in a fertile valley. Lu, one of the Laos tribes, are perpetually at war with Nan.

NANA, Arab. Pers. Mint, Mentha sativa.

NANA, Mahr. Ben-teak.

NANA BALA, Tel. Euphorbia hirta, *L.—R.,* ii., 472.

NANA FARNAVES, see Baji Rao.

NANAH, the Tamil name of a tree, probably the Morinda citrifolia, which grows in Travancore and Malabar to about twelve feet in height, and ten inches in diameter. It is generally curved in its growth, and very soft and light. It resembles the American red-birch as to its silvery grain. The native carpenters use it for the frames of small vessels. It is of little value in consequence of its early decay.—*Edye M. and C.*

NA-NAH. Burm. Is a very large tree, thorny. Fruit deep red, size of a small plum, skin very thin, full of hard, white triangular seeds. Prized only by the Natives.—*Malcom, Vol.* i., *p.* 181.

NANAH, Mahr. Lagerstræmia parviflora, R. also Lagerstræmia macrocarpa.—*Roxb.*

NANAK, was the son of a grain-factor at Talwundee, in the neighbourhood of Lahore. He was born in the year 1469, and in early life deserted the humble shop of his father to seek, in study and retirement, a more genial occupation for a naturally reflective mind. The tenets of the hindoo and mahomedan of that day alike dissatisfied him; and he came forward as a reformer of his country's faith. He began to teach A. D. 1490. For the gross polytheism of hindoo mythology he substituted what may be defined a high philosophic deism, and succeeded in collecting together a large body of followers, whom he called Sikh, or "disciples;" and these he organized under a theocratic form of polity, being himself recognised as their Gooroo, or "teacher." For many years this rapidly increasing body of converts continued to lead a peaceful meditative life, absorbed in the study of their holy book, the "Grunth," which contained all the recorded dogmas of their founder. They gradually spread over other parts of India, a college of them existed so far south as Patna, probably founded by gooroo Tegh Bahadur. An interesting account of this college is given in an early number of the Asiatic Society's Journal, from the pen of C. Wilkins, Esq., dated March 17, 1781. But in the beginning of the seventeenth century, Govind Singh, the tenth gooroo, gave a new character to this religious community. He was a man of a naturally warlike spirit and ambitious views, and, thirsting to be revenged for domestic wrongs, soon converted the hitherto contemplative Sikhs into a band of warriors. These were the men who a century afterwards formed the flower of Runjeet Singh's army, and whose rampant fanaticism presented so formidable an array on the different battle fields during the Sutlej and Punjab campaign.

NANAK SHAHI, religious mendicants or vagrants. See Kabir panthi.

NANAMBOO, Tam. A wood of Travancore, of a brown colour. Used for common buildings.—*Col. Frith.*

NANA PADAM, Tel. Bleaching.

NANA RAO, or the Nana sahib, of Bithoor, who claimed to be an adopted son of Baji Rao the last Mahratta Peshwa was infamous for his cruel outrages at Cawnpore in 1857 against helpless men, women and children. He joined early in the revolt of 1857-8-9 and his cruelties in Cawnpore were great. The most notorious and distinguished characters among the rebels in 1857 were Tantia Topee, once a shroff in the Oudh bazaar and subsequently servant of the Nana at Bithoor; Jwalla Pershad, the Kotwal of Cawnpore, subsequently Commander-in-Chief of the Nana's Army; Khan Bahadoor Khan of Bareilly, an old servant and pensioner of the British Government, and long the successful leader of revolt in his district—all three were hanged. Mummoo Khan, a low menial whom the passions of the Begum of Lucknow raised from the kennel to power, was transported to the Andamans. His paramour and her boy Brijis Kudr, who claimed the throne of Oudh went to Katmandoo, under the care of the Nepaulese, where also the Ranee Chunda of Lahore, that Messalina of Indian history, had long found an asylum. Bala Rao, the brother of the Nana; Azeemoolah whom, once a khitmutgar, he sent to London as his Agent and who was his confidant throughout the revolt, and the Nana himself are said to have died in the Dookurh valley of fever. Feroz Shah, the aspirant to the honours of Delhi and the companion of Tantia Topee, was never captured. The three claimants for power in India were the Nana, Brijis Kudr and Feroz Shah. The claim of the second was to Oudh and of the third to Delhi.

NANAS, Malay. Pine Apple.

NANASAI? Mahr. A religious mendicant in the west of India, who extorts alms from the shop-keepers and others by importunities, abuse, and threats. These seem to be the Nanak shahi, vagrant mendicants, professing to be followers of Nanak shah, the founder of the sikh religion.

NA-NAT, Burm. Pine Apple, Ananas sativus, *Schult.*

NAN BAI, Hind. A bread-seller, a baker.

NANCOWRY, in lat· 8° 0′, long 93° 46′ E. one of the Nicobar Islands.

NANDA, a person not of princely extraction, who successfully rebelled against Pingamakha, the last of the Sisunaga kings of Maghadha, captured Patalipura and ascended the throne, B. C. 378. His younger brother was dethroned and killed by Chandragupta, B. C. 313. Nanda, and his sons, B. C. 378 to 313, and the Maury dynasty, B. C. 312. *B.* iii, 541.

NANDA, the cow-keeper foster-father of Krishna, in whose house Krishna grew up. Gokul is a small town on the banks of the Jumna, below Mathura, and Radha, the mistress of Krishna was wife of a cowherd of Gokul. Hence one of Krishna's titles is Gokul Nath, lord of Gokul. Gokul, is almost an island, and is one of the prettiest spots in the holy land of the hindoos. The scene there is still as pastoral as it had been three thousand and five hundred years ago. Large herds of heavy-uddered kine remind us of the days of Nanda, though their number is far short of nine lacs, possessed by that shepherd-chief of old. See Kasyapa, Krishna, Magadha.

NANDA DEVI, a peak in the Himalaya, 25,749 feet high, 3,253 feet less than Gaurisankar. The villages in most cases are built considerably above the bed of the river, sometimes on terraces remaining within the eroded channel, but more generally upon the slopes above the erosion.

NANDA MAHAPADMA B. C. 415, but Wilson 340 and Jones 1602. "He will bring the whole earth under one umbrella. He will have eight sons, Sumalya and others, who will reign after Mahapadma. He and his sons will govern for 100 years. The brahman Kautilya will root out the nine Nandas." See Bhattya, Barhadratha, Chandragupta, Inscriptions, Kabul.

NANDAN SAR, a small lake in the Pir Panjal range.

NAND BANSA, a branch of the Ahir.

NANDER, 19° 9′; 77° 20′, in the Dekhan, on the left bank of the Godaveri: Level of the Godaveri here is 1,152 feet. The mean height of the village 1,276 feet.—*Cull.*

NANDI, also called Basavi, also Rishaba, the sacred bull of Mahadeva, or Siva: it is his vahan, and by some described as the emblem of justice. In the institutes of Menu, Ch. 8, Vol. 16, the divine form of justice is represented as Vrisha, or a bull; and the gods consider him who violates justice as a Vrishala, or one who slays a bull. Nandi is the epithet always given to the vehicle of Siva. We sometimes find it is used in speaking of Garuda, the vehicle of Vishnu, and of the goose or swan, Hanasa, the vahan of Brahma; but the term Vahan would be more correct.—*Moor.* See Bull, Burabur caves, Hindoo, Lustral ceremonies, Mahadeva, Siva, Vrishala.

NANDI, Tel. Cedrela toona.—*Roxb.*, *Cor.*, *W. & A.*

NANDIAL, a town in the Cuddapah district. There is a forest race in the district called Chenchwar. They have no language of their own, but speak Telugu, with a harsh and peculiar pronunciation. Brahmans say they formerly were shepherds of the Yerra Golla caste. They have large dogs, and a few are employed as hill police, in the pass from the Kuman to Budwail. The Nandial Chenchwar, assert their ignorance of a god or a soul. They have no images. They are polygamists; they bury their dead, but sometimes burn, and like the Tartars, the Nandial Chenchwar carry the deceased's weapons to the grave. They have the spear, hatchet, the matchlock and a bamboo bow and reed arrow tipped with iron. They look on weaving and other manufacturing arts with contempt, and they have in general only a rag for covering. They are patient and docile. It is suggested by Mr. Logan that the Chensuar are a continuation of the wild forest Surah of the mountainous tracts, further north in the line of the Eastern Ghats. Vocabularies of six of the non-Arian tongues, the Kond, Savara, Gadaba, Yerukala, and

Chentsu are given at p. 39, No. of 1856, of *Beng. As. Soc. Journal; Newbold in R. As. Soc. Journ.*, 1845; *Logan in Journ. Ind. Arch.*

NANDIA VATAM, Tam. Tabernæmontana coronaria, *R. Br.*, *Roxb.*, *W. Ic.*, *Rh.*

NANDIDÆ, a family of fishes as under:

Fam. 33.—Nandidæ.

First Group.—Plesiopina.

Gen. 5 Plesiops, 1 Trachinops.

Second Group.—Nandina.

Gen. 2 Badis, 3 Nandus, 3 Catopra.

Third Group.—Acharnina.

Gen. 1 Acharnes.

NANDIER VATAM, Maleal. Tabernæmontana coriara, *R. Br.*

NANDI-KESVARA, a form of Iswara or his vehicle.

NANDINA, see Lustral ceremonies.

NANDINA DOMESTICA, *Thbg.* A tree of Japan, with red berries, a plant, which takes the place of the English holly: the Nandina domestica, is called by the Chinese the "Teinchok," or sacred bamboo. Large quantities of its branches are brought in from the country and hawked about the streets. Each of these branches is crowned with a large bunch of red berries, not very unlike those of the common holly, and, when contrasted with the dark shining leaves, are singularly ornamental. It is used chiefly in the decoration of altars, not only in the temple, but also in private dwellings and in boats, for here every house and boat has its altar—and hence the name of "sacred bamboo" which it bears.—*Fortune, p.* 122; *Roxb, Vol.* ii, *p.* 184; *Voigt.*, *p.* 27.

NANDI REKA, or Billa juvvi, Tel. Ficus nitida, *Thumb.*

NANDI VARDHANA CHETTU, Tel. Tabernæmontana coronaria, *R. Br.*—β plena —*R.* ii., 23; *W. Ic.* 477; *Rheede*, ii., 55.

NANDOBAR, see India.

NANDRA-KAIA, Tel. Crab.

NANDRAMI, Rupees of Kabul.

NANDRU, Hind. Scopolia præalta.

NANDUS MARMORANTHUS and Nandus malabaricus, are fish of the rivers of Malabar, which build nests among the rushes at the margin of the water, deposit their eggs therein and keep guard over them like a stickleback. The Ophiocephalus striatus, Ophiocephalus marubus, and O. diplogramme, exhibit parental affection, swimming always close below their offspring and attacking everything that comes near them. This they do till the fry are about three inches long, when they turn on and eat them themselves if they do not disperse. Other fish spawn in the sand, in the gravel, and even on rock. Some fish seem to be almost entirely herbivorous, and they find an ample supply of fresh water weeds on all the rocks in the rivers. Six different sorts of podostemaceæ have been gathered in flower and seed, but the names of only two of them have been ascertained. These are Moriopsis hookeriana and Dalzellia pedunculosa. Others prey on their brethren, and others again are omnivorous, and none more so than the mahseer.—*Mr. Thomas.*

NANEH GHAT, in the Dekhan, has a cave chamber with an inscription in old Pali of date B.C. in the old Lat character. The inscription relates to the buddhist religion and has the words Glory to Dharma, Indra, the Lords of Sakra, sun and moon, sanctified saints, Yama, Varuna, and spirits of the air, and Lokapala, or upholders of the world. It mentions the young prince Rakesa, the great warrior Tunakayiko, prince Hakusaro, connected with the house of Amara Pala. This is part of a long inscription in a chamber cut in the rock overlooking the Konkan in one of the passes, which was evidently the high road from Adjunta, Ellora, Junir, to Kalian and the cave temples in Salsette. The inscriptions in all these localities are very numerous, and call for translation.—*Vol.* vii, *p.* 565.

NANESHWER, a subordinate incarnation of Vishnu, described by Major Moor as having taken place at Alundy, near Poonah, about, as some state, seven, or according to others, twelve hundred years ago. In that gentleman's work he is stated to have been a religious ascetic, and to have been buried alive at Alundy, where his tomb is seen under a splendid temple, and where he yet appears (for, although buried, he is not dead) to pious, if at the same time, wealthy visitors.—*Cole. Myth. Hind.*, *p.* 390.

NANG, Hind. Cornus macrophylla.

NANGAL, a village, generally inhabited by the hindoo Sadh sect. Their body is left naked, except the lower part, which is covered by a piece of coarse cloth. They wear wooden shoes, and commonly do penance in the Himalaya mountains. Their hair is exceedingly long, and made brown by ashes.—*Mohan Lal's Travels*, *p.* 19.

NANGALA, see Hindu.

NANGAR, Hind. A plough.

NANGARWAL, Hind. Ephedra alata.

NANGASAKI, see Japan.

NANGIRA, Hind. Derajat, a wild grain. A kind of amaranth.

NANGKA, Malay. Artocarpus incisa, in several districts of Java where teak is not found, the timber of this tree is almost exclusively used in the construction of houses and for other domestic purposes: the wood is more close and ponderous than the suren, which it otherwise resembles; it takes a tolerable polish and is sometimes employed for furniture. The colour is yellow; but it is made to receive a brownish hue, by the application of the young teak leaves in polishing: its bark is used as a yellow dye. This and the Champadah, are species of artocarpus integrifolia, and differ from each other in the smaller size, and hairy stems of the latter.—*Wild.*; *Low's Sarawak, p.* 73.

NANGKE, Hind. Ribes rubrum.

NANG KOD, the name applied to Balti by the Dard race.

NANGO. In descending from Nango in East Nepal, Dr. Hooker passed at first through Rhododendron and Juniper, then through Black silver fir (Abies webbiana), and below that near the river, he came to the Himalayan larch, a tree quite unknown, except from a notice in the Journals of Mr. Griffith, who found it in Bhotan. It is a small tree, twenty to forty feet high, perfectly similar in general characters to a European larch, but with larger cones, which are erect upon the very long, pensile, whip-like branches. He adds, its leaves, now red, were falling, and covering the rocky ground on which it grew, scattered amongst other trees. It is called "Saar" by the Lepchas and Cis-Himalayan Tibetans, and "Boargasella" by the Nepalese, who say it is found as far west as the heads of the Cosi river: it does not inhabit Central or West Nepal, nor the North-West Himalaya.

NANG-PUT, Hind. Bauhinia anguina.—*Roxb.*

NANING, an inland territory in the Malay peninsula, in length about forty and in breadth about ten miles, to the north of the old Portuguese capital. It is an undulating district, composed of jungly knolls and round valleys—inhabited chiefly by Malays—about 6,000 in number. They dwell in rudely built villages.—*John's Indian Archipelago, Vol.* ii, *p.* 91.

NANKA. Nankin.

NANKA ISLANDS are three in number, and are situated about four or five miles from the Banca shore, in the Straits of Banca.—*Horsburgh.*

NANKAR. There are two kinds of recognised perquisites which landholders enjoy in Oude, and in most other parts of India—the nankar and the seer land. The Nankar is a portion of the recognised rent-roll, acknowledged by the ruler to be due to the landholder for the risk, cost and trouble of management, and for his perquisite as hereditary proprietor of the soil when the management is confided to another. It may be ten, twenty, or one hundred per cent. upon the rent-roll of the estate, which is recognised in the public accounts, as the holder happens to be an object of fear or of favour, or otherwise; and the real rent-roll may be more or less than that which is recognised in the public accounts. The seer lands are those which the landholders and their families till themselves, or by means of their servants or hired cultivators. Generally they are not entered at all in the rent-rolls; and when they are entered, it is at less rates than are paid for the other lands. The difference between the no rent, or less rates, and the full rates is part of their perquisites. These lands are generally shared out among the members of the family as hereditary possessions. The word Nankar used to mean a grant to zemindars and other hereditary local officers, is a compound Persian phrase of Nan "bread," and Kar "work," meaning support for service. Some of them in Malwa have rich endowments. The zemindary of Nolye is estimated at above sixty thousand rupees per annum.—*Sleeman's Journey, Vol.* iii, *pp.* 23-6; *Malcolm's Central India, Vol.* i, *p.* 8.

NAN-KHOAH, Pers. Ajwain seed, Ptychotis ajowain.

NANKEEN, also Nankin.

Nankings linnen,	Dut.	Nankin,	Hind.
Toile-de-Nankin,	Fr.	Nanquino,	It.
Nanking,	Gr.	Langking,	Malay.
Nankin,	Guz.	Nanquina,	Sp.

A Chinese cotton cloth either of white, blue, or brownish-yellow colour. In point of strength and durability, it is unrivalled by any of the cotton fabrics of Europe. In some of the southern parts of Europe, the warmer parts of America, and the British settlements in Africa, Nankeen is worn by both sexes all the year round, and constitutes the principle article of attire. In Great Britain and India it is now almost disused. This kind of cotton cloth is so named from Nanking, where the reddish threads were originally made. Nankeens are also manufactured in Canton and other parts of the empire, but the fabric is of an inferior quality. Those made in Canton still maintain their superiority in colour and texture over the imitations of other countries. The price varies from \$ 45 to \$ 90 per hundred pieces. This cloth is extensively worn by the Chinese themselves, who usually dye it with indigo. The exportation is now trifling. The duty, which was formerly a discriminating one, has been equalized under the new tariff, and includes nankeens and all other kinds of native cotton cloths. The durable cotton cloth made in the central provinces of China, called Nan-keen by foreigners, is the chief produce of Chinese looms from cotton, the ærial muslins so highly admired by the hindoos not being woven. The nankeen is generally exported without dyeing, but the people usually colour it blue before making it into garments. The import of raw and manufactured cotton constitutes a large item in the foreign trade, but forms a small part of the native consumption. In preparing the cotton for spinning, it is cleaned and freed from knots by placing the string of a bow under the heap, and striking it with a beater; the recoil separates it into flocks without injuring the staple. Nankeens were formerly sent abroad in considerable quantities, but instead of exporting their own fabrics, the Chinese now purchase cottons from their former customers to a large amount. There are few fabrics more durable than the nankeen, and it forms the principal material for cheap garments among the people.—*Faulkner; Morrison; William's Middle Kingdom, Vol.* ii, *page* 124 *; McCulloch's Commercial Dictionary, p.* 812.

NANKIN, Guz., Hind. See Nankeen.

NANKIN COTTON, Gossypium religiosum.

NANKING, or, according to the court pronunciation, Nanchang, is not a corruption, but is the Chinese name of the old metropolis of the empire, and means "southern capital" just as Peking (in the court pronunciation Peiching) means northern capital. King, in Chinese, means an imperial capital, as in Peking, Nanking; Tu, in Chinese is a court or imperial residence, as Taitu, Shangtu; Fu, in Chinese is a city of the first class, or rather the department of which it is the head; Cheu is a city of the second class, or the district of which it is the head. The great porcelain tower at Nan-kin, in the province of Kiang-nan, is the most extraordinary building in China, it was built by the emperor Yong-lo, and is called by the Chinese the Temple of gratitude. The tower is erected upon a pile of bricks, and is formed upon a most substantial timber frame-work; it stands about two hundred feet high, and is of an octangular shape.—*Meadow's Desultory Notes, p.* 10; *Yule Cathay,* ii, *p.* 262; *Sirr's China and the Chinese, Vol.* ii, *p.* 426.

NANKING, Ger. Nankeen.

NANKINGS LINNEN, Dut. Nankeen.

NAN-LUNG-KYEN, Burm. Acacia arabica.—*Willd., Linn., W. & A.,* also Vachellia farnesiana, *Wight.*

NAN MAH, Chin. A kind of cedar, of China. See Deodar.

NANNA, see Sati.

NANNA, Mahr. Lagerstrœmia reginæ, *Rb.*

NAN NAN, Burm. Coriandrum sativum, *L.* Coriander seed.

NAN-NAN-YA-WET, Burm. Fennel, Nigella sativa.

NANOCK, see Nanak.

NAN-PARVARASHI, Hind., Pers. A pension.

NANQIUNA, Sp. Nankeen.

NANQUINO, It. Nankeen.

NAN SINH, see Sikhs.

NANSJERA-PATSJA, Hoya pendula.

NAN TARUK, Burm. Liquidambar altingia.

NANTU-YOK, Burm. Liquid amber.

NANUK, the founder of the Sikh religion, is often styled Nanuk Shah or king Nanuk by the Sikh historians, who likewise styled him Nanuk Narinkar, or Nanuk the Omnipotent. Nanuk was a hindoo of the Kshatriya caste and Vidi tribe, was born A. D. 1469, at the small village of Talwandi (since become a town and now called Rayapur,) on the banks of the Beas, in the district of Bhatti and province of Lahore.—*History of the Punjab, Vol.* i, *p.* 79.

NANURI, or Nonari ver, Mal., Tam. Hemidesmus indicus.

NAO, Hind., Pers. New, used in many compound words, *W.*

NAO, Hind. A ship, a boat; Nao-khuda, a shipmaster.

NAO-AIT, Hind. A mahomedan sect.

NAOO, Burm. In Amherst, a timber used for house posts: the leaves, flowers, and roots are said to be used for medicine. It is a brown, substantial, solid wood, not liable to the attacks of insects.

NAO-ROZ, the Parsees of India have a New year's day in March. The mahomedans of Persia reckon the year, from their Nao-roz or New year's day, the day on which the sun enters Aries, but the mahomedans of India follow the lunar months and have no intercalary periods, so that their anniversaries and festivals make, continuously, circuits of the seasons. The hindoos of India follow the lunar months, but every twenty-fifth year insert an intercalary month to adjust. See Era.

NAOSHIRWAN, the celebrated son of Kobad, in his reign an embassy came to the Persian court from the emperor of China, bringing splendid presents.—*Yule Cath, Vol.* i, *p.* 85.

NAPA-BIJ, Hind. Fruit of Nymphœa lotus.

NAPALA OIL. Croton oil.

NAPALAM, Tel. The Jatropha curcas, *Linn.*

NA PEW GEE, or Let Thouk Gee, Burm. In Amherst, Tavoy and Mergui, a wood of maximum girth 1½ cubits, and maximum length 14 feet. Abundant all over the provinces. When seasoned, it floats in water. It is a wood of inferior grain, and not durable.—*Captain Dance.*

NAPHTHA.

Neft,	Ar.	Kesoso no abra,	Jav.
Mang-ho-yu,	Chin.	Minak tanah,	Malay.
Bitume de Judi,	Fr.	Bhumi tailum,	Sans.
Nuk-teil	Guz., Hind.	Mun tylum,	Tam.
Mitti-ka -tel	„	Manti tylum,	Tel.

The term naphtha is usually limited to the thinner and purer varieties of rock oil; and petroleum to the darker and more viscid liquids. Naphtha, rock oil, or petroleum, are mixtures of various hydrocarbons; but in its purest form naphtha may be said to consist of $C^5 H_6$, and yielding a vapour of the density of 2·8. Such a hydrocarbon is obtained as a natural product at Baku on the shores of the Caspian, where the soil is a clayey marl impregnated with naphtha. In the peninsula of Abcheran, on the western shore of the Caspian, naphtha rises through a marly soil in vapour, and is collected by sinking pits several yards in depth, into which the naphtha flows. It is also procured from Monte Ciaro near Piacenza in Italy, by sinking pits in the horizontal beds of argillite, which gradually fill with water; and the naphtha oozes out of the rock and floats upon the surface, from which it is skimmed off. There is an abundant spring near Amiana, in the Duchy of Parma. The spring at Amiana is used for illuminating the city of Genoa. Mr. Dana says that in the United States it was formerly collected for sale by the Seneca and other Indians; the petroleum is therefore commonly called Gensee or Seneca oil, under which name it is sold in the market. This substance has also been obtained pure in a liquid form from the coal-pits of Derbyshire. In the Burman empire, on one of the branches of the river Irawaddy, there are upwards of 500 naphtha and petroleum wells, which afford annually 412,000 hogsheads. The Burmah petroleum contains the compound Parafine. Petroleum is used as lamp-oil in Burmah, and when mixed with earth or ashes as fuel, naphtha is used both for fuel and light by the inhabitants of Bakou, on the Caspian. The vapour is made to pass through earthen tubes, and is inflamed as it passes out, and used in cooking. Naphtha may be obtained by the distillation of petroleum, it is also one of the results of the destructive distillation of coal, it often passes with the gas to the distant parts of the apparatus, and may be found in gas-meters and gas-meter tanks, and even in the mains. Carefully rectified naphtha, whether from natural or artificial sources, appears to possess similar properties. The sp. gr. of the purest Persian and Italian naphtha is said to vary from 0·750 to 0·760, while that of coal-naphtha may be ·820 or higher. The odour of the natural naphtha is bituminous but not unpleasant; that of coal is penetrating and disagreeable. It does not congeal at Zero. It ignites readily, and burns with a voluminous sooty flame. It is not soluble in water, although it communicates its odour to that fluid. It dissolves in absolute alcohol, in ether and the oils. The boiling-point varies in different specimens from 320° to 365°. Naphtha has been found to be a good stimulant in some chronic diseases. It has been externally applied as a lotion in cutaneous affections. It is sometimes substituted for drying oil in making paints. It is also employed for preserving the metals of the alkalies, potassium and sodium, which cannot be kept in contact with any substance containing oxygen. It is used for the purpose of diminishing the friction of machinery as a substitute for sperm-oil. It is now obtained artificially from coal, and also in a solid form, from which candles are made. Naphtha dissolves the greater number of the essential oils, and the resins; and is extensively used for dissolving caoutchouc to render cloth waterproof; with certain vegetable oils, it forms a good varnish and for this purpose is sometimes substituted for turpentine. The naphtha pit near Kifri is in the pass through which the Ak-su penetrates to the plains. The hills are about a mile S. E. of the town of Tuzkurmatti close to the gypseous hills of Kifri and the pit being in the bed of the torrent is sometimes overflowed by it, and, for a time, spoilt. The pit is about fifteen feet deep, and, to the height of ten feet filled with water; on the surface of which black oil of naphtha floats, small air-bubbles continually rising to the surface. They skim off the naphtha, and ladle out the water into a channel, which distributes it into a set of oblong, shallow, compartments, made in the gravel, where they allow it to crystallize, when it becomes very good salt, of a fine, white, brilliant grain, without any intermixture of bitterness. Great quantities of this are exported into Koordistan; and it is worth annually about 20,000 piastres, which is distributed among the different members of the family of the late dafterdar. The oil of naphtha is the property of the village. Part of it is consumed by the manzil khaneh, or sold for its support, and part for religious establishments, &c. About two jars, each containing six oaka, or one Bagdad batman, of naphtha, may be skimmed from this well in twenty-four hours. The spring is at the bottom of the pit, and once a year they cleanse the well, on which occasion the whole village turns out, victuals are distributed to all the poor, and sacrifices of sheep are made, to the sound of drums and oboes, in order to insure the good flowing of the spring again—a ceremony, in all probability, derived from remote antiquity. The principal naphtha springs are in the hills, a considerable distance south of this, towards Kifri. They are five or six in number, and are much more productive than this pit, but no salt is found there. Indeed, it is probable that naphtha may be found in almost any part of this chain. Near the naphtha-pit in the hills are alum (zak or sheb) and chalk (tabashir), of a very fine close white grain, but the natives make no use of these productions. An earth is found, which they employ to give an acid flavour to some of their dishes, no doubt it is vitriolic. Sulphur is also found, and is used by the peasants to cure the itch in their cattle and themselves. Naphtha is obtained near Kirkook. It is scooped out with ladles into bags made of skins, which are carried on the backs of asses to this town, or to any other mart for its sale. The profits are estimated at thirty or forty thousand piastres annually. The Kirkook naphtha is principally consumed by the markets in the south-west of Kurdistan, while the pits not far from Kifri (see Kifri) supply Bagdad and its environs. The Kirkook naphtha is black; and close to its wells lie a great pool of stagnant water, very muddy, and covered with a thick scum deeply tinged with sulphur. A few hundred yards to the eastward on the summit of the same hill, is a flat circular spot, measuring fifty feet in diameter, full of small holes, to the number of a hundred at least; whence issue as many clear flames without an atom of smoke, but smelling most sulphureously. In fact, the whole surface of this perforated plot of ground appeared a crust of sulphur over a body of fire within; and on Major Porter digging a hole into it with his dagger, to a depth of ten or twelve inches, a new flame instantly burst forth. From this spot the government derives another source of revenue from the sale of its sulphur. The natives call the place Baba Gurgur. Gur being an Arabic name for naphtha or bitumen. Mr. Rich describes the principal bitumen-pit at Kit (which place must have furnished the builders of Babylon) as having two sources and being divided by a wall, on one side of which the bitumen bubbles up, and on the other the oil of naphtha. The manner of qualifying the bitumen for use as a cement, he observes, is very troublesome, for to render it capable of adhering to the brick it must be boiled with a certain proportion of oil. Its chief purpose, when applied to building, appears to have been in the lower parts as a preservative against damp; and at present it is used for coating cisterns, baths, caulking boats, &c.; in short, to every thing put in the way of injury from water. The black naphtha springs at Baku, on the Caspian, are of similar benefit to the inhabitants of that part of the country; and Jonas Hanway describes their appearances and applications, to be nearly the same as they exist at the present day. He mentions, that when the weather is thick and hazy, the springs boil up higher; and that the naphtha, sometimes taking fire on the surface of the earth, runs like burning lava into the sea. In boiling over, the oily substance makes so strong a consistency as to gradually become a thick pitchy substance all round the mouth of the pit. The poorer sort of people use it as we would do oil, in lamps, to boil their food. They find it burn best with a small mixture of ashes: but, for fear of accidents, they preserve it in earthen vessels, under ground, and at some distance from their dwellings. There is also a white naphtha, of a thinner fluid than the black, and not found in such great quantities. It is sometimes recommended medicinally, inwardly, for chest complaints, and outwardly, for cramps and rheumatisms. Both it and the black are used for varnish. When it takes fire by accident, the consequences have often been fatal; and Strabo, who calls it liquid bitumen, asserts that its flame cannot be extinguished by water. The experiment tried by Alexander was horrible in its effects; and with a very little addition made by a poetical fancy, might induce us to believe that the celebrated consuming garments which Medea bestowed, were robes dipped in the naphtha that flowed so near her native land. The flaming soil or everlasting fire, as it is called, of Baku, is not less famous than its naphtha springs. It is now part of the eastern territory of Russia. The bitumen so famous in the Babylonian history, and so often described by travellers, is, when taken from the pit, a thick dark liquid resembling pitch, similar, although of a finer quality, to the pitch from the lake in the island of Trinidad. It is undoubtedly a most excellent substitute for pitch. The bottoms of most of the vessels which navigate the Euphrates and Tigris are covered with it; and it is also used in the lamps, instead of oil, by the natives. There are several fountains of this bitumen in Irak Arabi, and the lower Kurdistan. The most productive are those in the vicinity of Kerkook Mendali and Hit on the banks of the Euphrates. The white naphtha is, of a much thicker consistency, and more like tallow. It has no resemblance to pitch, affords a better light, and, at the same time, emits a less disagreeable smell than the other. It floats like a crust on the surface of the water, whilst the black, on the contrary, is procured by digging a small pit, about three feet in diameter and ten or twelve in depth. The pit fills of itself after a certain period, and is then emptied with a leathern bucket, and fit for use immediately afterwards. The only fountain of white naphtha which Major Porter had seen, is situated at the foot of the mountains of Bucktiari, half-way between the city of Shuster and the valley of Ram Hormuz. Naphtha springs occur at Ayer-i-Nosh. The flaming soil or everlasting fire of Baku is the attraction to pilgrims and is not less famous than its naphtha springs. Naptha holding in solution a bituminous matter was obtained by Vigne near Deraband in the Suliman mountains.

At Tung-shao, near Tam-sui in the island of Formosa are wells yielding paraffin, or thick bitumen differing from the Burmah or American rock oils. A naphtha is said to be obtained in Corea. During the war between the Chinese and the British in 1842, much naphtha was brought from Sech-uen, stored at Ningpo for the purpose of destroying the British Fleet. Naphtha, of a reddish colour, by the Japanese called Tasutsona Abra, which signifies red earth, is found in a river of the province Jetsingo. It is taken up in such places, where the water hath little or no run, and the natives burn it in lamps instead of oil. Naphtha is used for cheap varnishes. It dissolves the resins more readily than ordinary spirit of wine, but the varnish is not so brilliant. —*Tomlinson; Dana, Manual of Mineralogy; Gregory, Hand-book of Organic Chemistry; Eng., Cyc.; Faulkner; Rich's Residence in Koordistan, Vol.* i. *pp.*27—9; *Porter's Travels, Vol.* ii, *p.* 440 *to* 443.; *Smith Mat. Med., p.* 155; *History of Japan, Vol.* i, *p.* 111. See Kirkook, Kifri, Jogi, Asphalte, Bitumen, Earth oil, Petroleum, Rock oil.

NAPIER, Sir Charles, K. C. B., a British Infantry officer who commanded an army in Sindh, and fought and won the battles of Dubbee and Meanee. He was afterwards Commander-in-Chief of India. He died on the 29th August 1853.

NAPIER, Robert, Lord Napier of Magdala, an officer of the Bengal Engineers, who rose to the rank of General officer, was engaged in the wars against Lahore and was styled the Bayard of the Punjab. Subsequently he was engaged in the wars of the rebellion in 1857-8-9, in the second China war, was a member of the Viceroy's Council, then Commander-in-Chief of Bombay, and commanded the expedition to Abyssinia, into which he led successfully a mixed army of Natives of India and Europeans through the mountains of Abyssinia to the storm of Magdala, the capital of the emperor Theodore of Abyssinia. Theodore destroyed himself at the gateway. The march to and from Magdala has not been surpassed since Hanibal crossed the Alps.

NAPIT, Hind. A barber, a shaver, who usually acts also as a surgeon, the village barber and barber-surgeon. Along with the original term, the dialects have various modifications of the word, as Nai, *Hind.*, Naida, Nainda, Napig, *Karn*, Nau, Nahir, Nhawi, Nahawi, Nahu, and Nhawi, *Mar.*

NAPUTA, Hind. Didynamia gymnosperma.

NAQOOS, Ar. A bell or conch-shell.

NAQSHA, Hind. Chart, map, plan.

NAR, Hind. Arundo donax, Amphidonax karka, also Rhamnus virgatus.

NAR, Hind. of Kaghan, Hazara, &c., used for nalah, and meaning mountain stream.

NAR, Turk. Pomgranate.

NAR or Nul, Beng. Amphidonax karka, employed for making the mats known by the name of Durma, which are formed of the stalks split open. In Sindh the grass called Sur, which perhaps is Arundo karka, has its culms, sur jo kanee, made into chairs, and its flower-stalks beaten to form the fibres called moonyah. These are made into string or twine (moonyah jo naree,) and into ropes (moonyah jo russa).—*Royle.*

NAR, Tam. Fibre.

NARA, Hind. The tape or band for the trowsers.

NARA and Naraiyana in one hindoo legend, sons of Dharma and Ahinsa: devoted themselves to ascetic exercises which alarmed the gods, and Indra sent Kama and Vasanta, or love and spring, with the nymphs of heaven to inflame the sages with passion and thus end their penance. Narayana observing the gambols of the party suspected their purpose. He invited them to approach, and treated them with so much civility, that they thought their object was attained. The sage, however, taking up a flower-stalk, placed it on his thigh, when a beautiful nymph appeared, the superiority of whose charms covered the nymphs of heaven with shame. Narayana then told them to return to Indra, and bear him a proof he needed not the company of beauty, in the present he made him of the new-born nymph, who accompanied the Apsarasas to Swerga, and was called Urvasi from uru, a thigh (Vamana Purana). A commentator on the drama says, Nara and Narayana were Avataras, descents or incarnations of Arjuna and Krishna.—*Wilson's Hindu Theatre, Vol. p.* 201; *The Hero and the Nymph*, see Yoni.

NARA or Kinara, see Zingarri.

NARABALI, see Hindoo.

NARA BOTUKU, Tel. Eriochlœna hookeriana, *W.* and *A.* 259. The term nara implies a fibrous texture.

NARA CHETTU, Tel. Tetranthera monopetala, *R.* iii, 821; *Cor.* 148.

NARADA, in hindoo mythology, a famous rishi and the prince of musicians, frequently going on errands, usually regarded as one of the ten Rishi or Prajapati, first created by Brahma and called his sons. He is described as a friend of the god Krishna, as a celebrated lawgiver, and as the inventor of the vina or lute. Narada is mentioned in Manu 1, 34, 35, as one of the 'ten lords of created beings, eminent in holiness.' In the hindoo plays Narada usually acts as a kind of messenger of the gods. See Vikramorvasi end of Act v; and Sakuntala, end of Act vi. He is constantly employed in giving good counsel. He is by some considered to belong to the order of the Denashi, and by others to the Brahmarshi. It was Narada who declares to king Harischandra the benefit of having a son.—*William's Story of Nala, p.* 167.

NARA DABBA or Dabba, Tel. Citrus medica, *L.*

NARADIDI VRIKSHA, Can. Eugenia caryophilifolia.

NARA EPE or Epe, Tel. Hardwickia binata, *R.* ii, 423; *Cor.* 209—*W. and A.* 879. The bark yields a strong fibre which people extract in considerable quantities and employ as cordage, without further preparation, in the island of Sivasamudram.

NARAGA MARAM, Tam. Ehretia ovalifolia.

NARAH, Maleal. A tree of Malabar and Canara that grows to about twelve feet high, and ten inches in diameter. It is curved in growth, and is used for the frames of vessels. It is not very durable, and ranks as one of the inferior sorts of jungle wood.—*Edye, M. and C.*

NARAIN, a river near Moondura in Saugor.

NARAINA, 40 miles from Jaipur, the chief site of the Dadu Pant'hi sect.

NARAKA or Narakam, Sansc. Hell, the abode of the wicked.

NARAKARU, part of the inferior village servants of India, they are similar to the menials of the ballotta system.

NARA MAMIDI, Tel. Tetranthera roxburghii, *Nees*—*a.* apetala, *R.* iii, 819; *Cor.* 147. Nara or Nara chettu, is a generic term for Tetranthera at Vizagapatam.

NARA MEDHA, Sans. A human sacrifice.

NARANG, Ar. Citrus aurantium, *Linn.*

NARANGAMU, Tel. Citrus aurantium, *L.*

NARANGI, Hind. Citrus aurantium.

NARANGAS, Sp. Citrus aurantium, *Linn.*

NARANJ, Pers. Citrus aurantium, *Linn.*

NARANJA, Sp. Orange.

NARANI, a river in Sagor.

NARAPATI or Chola dynasty of Karnata, Dravira, and the southern portion of the Peninsula of India, embraced a period of 534 years, during which 27 rajas reigned, from A. D. 266 to A. D. 800. After the overthrow of the Narapati dynasty, Karnata and Dravira seem to have been separated from the southern districts, in which the Chera, Chola and Pandava lines were at first united, under one sovereignty. Thereafter, 13 maharajas of Madura, Tanjore and Coimbatore, reigned 239 years, after which follow the Belal rajas of the Karnata, and the petty Polygar dynasties of Madura, &c.—*Prinsep, p.* 275.

NARA-SHIJ, Beng. Euphorbium antiquorum, *Linn.*

NARASIMHA, Vishnu's incarnation as man-lion.

NARA-SINGHA or Man-lion avatar, of Vishnu in which he took the form of a monster to punish the wickedness of Hiranya-casipa, a profane and unbelieving monarch, the brother of the gigantic demon mentioned in the third avatar, and his successor on the throne, who also refused to do homage to Vishnu. Quarrelling with his son, Pralhaud, the king boasted that he himself was Lord of the Universe, and asked wherein Vishnu was greater than himself. Pralhaud replied that Vishnu was supreme over all and was everywhere. Is he, cried Hiranyacasipa, in this pillar? striking it at the same moment with his sceptre, if he be, let him appear. In an instant the magnificent column was rent in twain, and Vishnu in the form of a man with the head of a lion, issued from it and tore Hiranyacasipa in pieces. See Avatar, Sacti, Salagrama, Inscriptions, Vishnu.

NARASINGHI, a name of Lakshmi, as the sacti of Vishnu in the Narasingh avatar.—*Cole. Myth. Hind., p.* 390.

NARA TEGA or Nara tige, or Eddu toka dumpa, Dioscorea glabra, *R.* Tega is the tuberous root, tige the twining stem.

NARAVALI FIBRE, Anglo.-Tam. Fibre of Cordia angustifolia.

NARAVARMA, see Inscriptions.

NARAVELIA ZEYLANICA, *DC.*

Chagul-bati, Beng. | Atragene zeylanica, *L.*

A handsome flowering climbing plant of Ceylon, British India, Burmah and Tenasserim. —*Drs. Roxb., Mason, Voigt.*

NARAYANA, in Hindu mythology, the Spirit of God, Brahm. The term means moving on the waters. By the Vaishnava sect, he is identified with Vishnu, but in the Saiva theogony, Narayana and Siva coalesce. Narayana, is pronounced and written Narayan, or sometimes Narrain: it is a common name with hindoos of several sects, and often occurs in their writings without reference beyond mere mortality. Dasa, usually written by the English, Dass, or Doss, is a common termination to hindoo names of men, especially among the tribe of Banias, as Narayan Doss. Bhagavan Dasa, for instance, signifies the slave of Bhagavan, Vishnu, or Crishna; similarly to Abid Ullah, the slave of God, among the mahomedans, Ramdas is, in like manner, the slave or servant of Rama. In the Ins. of Menu, c. 1, v. 10, the waters are called Nara, because they were the first production of Nara, or the Spirit of God; and since they were his first ayana, or place of motion, he is thence named Narayana, or moving on the waters. Narayana in his watery cradle, is a most mystical and profound subject: his boat-shaped Argha, its rim, its termination; the endless figure he assumes by the conceit of putting his toe in his mouth, symbolical of eternity, furnish enthusiasts with fancies of a corresponding endless and puerile description. The cradle is also styled vat patra, meaning of the leaf of the sacred pipala; and pan-patara, or leafy vessel; as well as Argha patra, and by each of the words forming the last. In marriage, and funeral ceremonies, as well as in that copious sacrifice of Srad'ha, an Argha is an indispensable utensil. At the very extremity of a promontory on the island of Bombay, called Malabar Point, is a cleft rock, a fancied resemblance of the Yoni, to which numerous pilgrims and persons resort for the purpose of regeneration by the efficacy of a passage through this sacred type. This Yoni, or aperture, is of considerable elevation, situated among rocks of no easy access, and, in the stormy season, incessantly buffetted by the surf of the ocean. The hindoos are prone to fancying a type of something mysterious in almost every subject that can come under their contemplation: any thing hollowed out, conveying an idea of capacity, they deem typical of the Yoni, or Argha, itself a type of female nature, or the Sacti, or power, of Siva. The sea, a pond, a well, a cave, the palm of the hand, or any thing similarly hollowed, convey to their enthusiastic minds an idea of the Argha; and their periphery, real or imaginary, an idea of the Yoni. In like manner, a mountain, a hill, a tree, deprived of its boughs, a mast, a pole, an obelisk, a pyramid, or anything conical or erect, excites an idea of the Linga; and such objects as they can fancy its symbol; a conical stone is particularly so esteemed, or fire or flame whose natural and necessary form is conical. Hence a triangle, with its apex upwards, is the immediate type of Mahadeva, who in some relations, is fire personified. Vishnu is, in like manner, a personification of the principle of humidity; and water is symbolized by a cone, or triangle, with its apex downwards: these types correctly denoting the ascending and descending properties of their respective prototypes, elemental fire and water. The two conjoined, express the junction or union of the two elements, or deities: this mark or character, is said to represent also Vishnu and Prit'hivi, of whom an equilateral triangle is severally the type. The larger the object, the more venerable. The As. Res., Vol. ii, p. 478, mention a cone, in Bengal, of 363 feet diameter. The sea itself, or rather its containing concave, is regarded as the Argha of the world. In hindoo mythology, the beverage of immortality drank by the gods, Narayan's gem and other gifts to man are fabled to have been produced by churning the ocean, along with other precious gifts to man. Chitra-ratha describes in song how

"Whilom from the troubled main,
The sov'reign elephant Airavan sprang:
The breathing shell, that peals of conquest rang;
The patient cow, whom none implores in vain;
The milkwhite steed, the bow with deaf'ning clang;
The goddesses of beauty, wealth, and wine;
Flow'rs, that unfading shine;
Narayan's gem; the moonlight's tender languish;
Blue venom, source of anguish;
The solemn leech, slow, moving o'er the strand,
A vase of long-sought Amrit in his hand—
To soften human ills dread Siva drank
The pois'nous food that stain'd his azure neck;
The rest, thy mansions deck,
High Swerga stor'd in many a blazing rank."

—*Moor, pp.* 79 *&* 399; *As. Res., Vol.* vii, *Arts.* viii *and* ix, *by Mr. Colebrooke.* See **Argha**, Bhaktamala, Brahma or Hiranyagharbha, Hindoo, Linga, Narayan Das, Sati, Vishnu, Yavana, Yoni.

NARAYANI, a name usually applied to Lakshmi, as the Sacti of Vishnu; but may also be applied to Parvati and Saraswati. See Lakshmi, Narayana, Sacti, Salagrama.

NARBADA, a river of Central India, which rises on the plateau of Amarkantak and disembogues in the Gulf of Cambay. It is written Nerbadah, Nerbuddah. From Haran Pal or the Deer's Leap to the temple of Sulpani Mahadeva, a distance of some seventy miles, there occurs the main barrier of the Narbada. Here the Narbada displays all her terrors. Thereafter the Narbada enters on the rich plains of Broach which border on the sea. In this particular section it is securely navigable, and is actually navigated by country craft. The Narbada, then rising in the highest land of Central India, 5,000 feet above the sea, and pursuing a serpentine westerly course for 750 miles through a hilly tract, which runs parallel to, and borders closely both its banks, may be said to flow through a longitudinal cleft rather than a distinct valley, and to present the general characters of a mountain stream more than anything else. No great depth of water can ever be expected in it, from the nature of its tributaries, except in the monsoon; neither, were they to promise better, could it be retained, owing to the great declivity of the bed of the river, which from Jhansi Ghat, near Jabalpur, to the sea falls 1,200 feet in 500 miles. The falls are those of Kapiladhara and Dudhdhara near its source, the former of 78 feet. The next is at Umaria in the Narsinghpur district of about ten feet. At Mandhar, ninety miles below Hoshungabad, and about twenty-five below Handia, there is a fall of forty feet; at Dadri, near Punasa, twenty-five miles below Mandhar, there is another fall of forty feet. The classes which prevail most among the agricultural population of the Narbada valley, are the Gujar, the Jat, the Kaonra, and the Kirar; these are hardly represented in Damoh. The Kurmi are the most numerous caste. Then follow the Lodhi, Chamar, Gond, Brahman, Ahir, &c. In number 262,641, they may be roughly classified thus :—

Kurmi	34,907	Ahir	15,281
Lodhi	31,980	Bania	9,783
Chamar	28,401	Rajput	9,187
Gond	29,724	Other castes	82,712
Brahman	23,666		

See Nagpore, Sagor and Nerbuddah.

NARCINE, a genus of Fishes inhabiting the Indian Ocean.

NARCISSUS. From the habit of planting the Narcissus upon tombs and shrines, it has acquired a certain sacredness of character. The hindoos have few tombs. They have shrines however, many of which have been adopted by the muhammadans. The Narcissus is common in the Panjab. The Narcissus flowers are of easy culture in a light soil, though they throw out a profusion of leaves, they rarely blossom.—*Ben. As. Soc. Jour., No.* 11 *of* 1854, *p.* 146; *Riddell.* See Hemerocallis fulva, Nargus.

NARCONDAM, see Volcanoes.

NARCOTICS, in use amongst eastern nations, are commonly of vegetable origin, such as opium, bhang, madad, majum, ganja.

NARD.

Narden,	Gr.
Nardoon,	Lat.
Balchur,	Hind.
Jatamansi,	Hind.
Bekh-i-Sanbal,	Per.
Nartu,	Tam.

Nard, said to be the spikenard of Solomon and of St. Mark, is the Nardos indike, or Nardos, also N. gangetica, and the Nardostachys jatamansi, *De Candolle.* Celtic nard is the Valeriana celtica and mountain nard the Asarum europæum. The term Nard was in use amongst the ancients to designate any Indian essence, as Attar (Otto) is now used. The spikenard of Solomon's song, is the Nardostachys jatamansi. Albastron, of the ancients, were phials used for holding their precious scents or cosmetics. Dioscorides (I. i, c. 6) describes three kinds of Nard, of the first and principal of which, there are two varieties, Syrian and Indian, the latter is also called Gangites, from the river Ganges, near which, flowing by a mountain, it is produced. The second kind is called "Celtic," and the third "Mountain Nard." On consulting Avicenna, we are referred from Narden to Sunbul, pronounced Sumbul, and in the Latin translation from Nardum to Spica, under which the Roman, the mountain, the Indian and Syrian kinds are mentioned; and Sanbul, misprinted Senbel, is given as the synonymous Arabic name. This proves, as stated by Sir Wm. Jones, that Sumbul, in Persian dictionaries, translated, the hyacinth,—the spikenard, to which the hair of a mistress is compared—an ear of corn, &c., was always considered by Arabian authors as synonimous with the Nardes of the Greeks. On consulting the Persian works on the Materia Medica in use in India, and especially the Mukhzun-ool Adwiah, we are referred from Narden, in the index to Sumbul, in the body of the work. Under this name, however, four separate articles are described—1st, Sumbul-hindee; 2nd, Sumbul-roomee, called also Sumbul ukletee, and Narden-ukletee, evidently the *ναρδοξ ινδικγ* of Dioscorides, said also to be called Sumbul-italioon, that is, the Nard, which grows in Italy, the 3rd kind is Sumbul-jibullee, or Mountain Nard (*ναρδοξ ορειυγι*); and 4th Sumbul farsee, which is a bulbous plant, and probably a kind of hyacinth. Polianthes tuberosa is described as being one of the kinds of Persian Sumbul. But the first alone is that which is valued for its fragrance. The synonymes of it, given by Persian authors are in the Arabic, Sumbul-ool-teeb, or fragrant nard, in the Greek narden; in Latin, nardoom, in Hindee, balchur and jatamansee. The last is a Sanscrit name, and that which was given to Sir Wm. Jones, as the equivalent of Sumbul-hindee and which he informs us, like other Sanscrit names applied to the same article, has reference to its resemblance to locks of hair.—*Willd.*; *Royle's Ill. Him. Bot., p.* 242.

NARDAR BOUTHAH, see Bazeegur, Nat: Nut.

NARDEN, also Nardos, Gr. Spikenard.

NARDJIL, Arab. Cocos nucifera, *L.*

NARDOSTACHYS GRANDIFLORA has a glabrous stem, oblong glabrous leaves, with solitary terminal flowers; the capsule is downy, and the lobes of the calyx evidently denticulated. It is a native of Nepaul and Kumaon.—*Lindley, Flora Medica; Eng. Cyc.*

NARDOSTACHYS JATAMANSI, *DC.*

Valeriana jatamansi, *Jones.*
Patrinia jatamansi, *Don.*

Sumbul-ul-tib,	Ar.
„ hindi,	„
Usrureh,	„
Muygiah,	„
Jatamansi,	Beng., Hind., Sans., Tam.
Spikenard,	Eng.
Indian „	„
Nardos indike,	Gr.
Sambul,	Hind.
Balchur,	„
Chehur,	„
Indur-latib,	„
Narawastu,	Malay.
Nard,	Pers.
Mattusal,	of Ravi.
Shadamanji,	Tam.

A dwarf herbaceous plant with a long hairy taproot; stems perennial, very short, and simply divided into a number of shaggy scaly crowns, from which the leaves are produced; the branches erect, downy, and a few inches high; leaves obovate, lanceolate, 5-ribbed, downy, those at the base acute, the upper ones obtuse; the flowers are of a pale pink colour, clustered in the axils of the upper leaves, which form a kind of involucre for them. The true spikenard of the ancients is supposed to have been obtained from the Nardostachys jatamansi. Considerable discussion has arisen as to the true origin of the celebrated spikenard of the ancients, but the labours of Sir William Jones and Professor Royle leave no longer any reasonable doubts as to its being truly referrable to this plant. It is a native of Nepaul, on the Himalaya mountains, and in Delhi, Bengal, the Dekhan, and Punjab Himalaya, where it ranges from 10,000(?) feet upwards. The roots of the jatamansi are brought down from the mountains in large quantities. The root is of a blackish colour, and resembles the bushy tail of the ermine. Its odour is strong and fragrant, and is much esteemed by all eastern nations. For medicinal purposes experience leads to the belief that the species is a perfect representative of the valerian of the English Pharmacopœia; it is used to scent and clean the hair, also in medicine as a stimulant and antispasmodic. This species of valerian smells strongly of patchouli, and is a very favourite perfume. It is used in scents for its strong odour; it is also used as refrigerant. Dose, gr. v. to ʒj. in infusion. Price 6 annas per lb., employed chiefly as an expectorant in coughs and colds. Dose, grs. xlv. of the powder, price 9*d.* per lb. In Chumba, its root is said to be added to the beer of that tract, and it is exported to the plains to be used in medicine, being considered cordial. The Indur latib, of which Davies' Trade Report states that five maunds are imported from Persia via Kabul and Peshawar annually, has been dubiously identified with this drug.—*Simmond's Comml. Product*, 572; *O'Shaughnessy, pages* 403, 404; *Powell Hand-book, Vol.* i, *p.* 354; *Hooker's Him. Jour., Vol.* i, *p.* 217; *J. L. Stewart, M.D.*

NARDUM, Lat. Spikenard.

NARE, Tam. Fox.

NAREDA, in hindoo mythology, is a son of Brahma and Saraswati. He is the messenger of the gods, and the inventor of the vina, or hindoo lute. He was not only a wise legislator, an astronomer, and a musician, but a distinguished warrior. The mythological offspring of Saraswati, patroness of music, was famed for his talents in that science—so great were they, that he became presumptuous, and emulating the divine strains of Krishna, he was punished by having his vina placed in the paws of a bear, whence it emitted sounds far sweeter than the minstrelsy of the mortified musician. In a picture of this joke, Krishna is forcing his reluctant friend to attend to his rough visaged rival, who is ridiculously touching the chords of poor Nareda's vina, accompanied by a brother bruin on the symbols. To this day Nareda is represented in the hindoo Jatra under a long grizzled beard.—*Cole's Myth. Hind., p.* 7; *Tr. of Hind., Vol.* i, *p.* 269. See Brahmadica, Krishna, Narada, Saraswati, Veda.

NAREDE CHETTOO, Tel. Eugenia caryophilifolia.

NAREDOO KARRA, Tel. Wood of Eugenia caryophilifolia.

NAREE, Sans. From nee, to obtain.

NAREE-PAYATHEN-KAI—? Phaseolus trilobus.

NAREGAMIA ALATA, *W. & A.*

Nela-narœgam, Malеal. | Turrœa alata, *Wight.*

A pretty garden plant of the Travancore forests, used in medicine.

NAREL, Duk. Cocos nucifera, *L.* Nareli cocoanut toddy, Sap (or toddy) of the cocoanut tree. Narel ka jhar, Hind. Cocos nucifera or cocoanut palm tree. Narel-ka-tel, Hind. Cocoanut palm oil.

NARGAMOLLE, Tel. Rhinacanthus communis, *Nees.*

NARGEEL, Pers. Cocoanut palm.

NARGIL, Pers. A tobacco pipe.

NARGILLI, Arab. Cocoanut palm.

NARGIS, Hind. Narcissus tagetta. Honigberger states that the roots of this are officinal, being brought from Kashmir.—*Dr. J. L. Stewart, Punjab Plants, p.* 235.

NARGUS, also Gool-Nurgus, Hind., Pers. Hemerocallis fulva, Narcissus.

NARI, also Nali-kera—? Cocoanut palm.

NARI, Nari-khorsum, Gnari or Mnah-ris, the Tibetan name for the north-western part of Tibet, a Tibetan Chinese province connected with British India, by the five Bhot passes in Garhwal and Kumaon. The Chinese viceroys are Tibetans with 200 Mongol or Turk troops or perhaps Mantshu Tartars, as they are said to use horseflesh, which no Tibetan and no Chinese would do. It is enormously lofty, utterly barren, and almost uninhabited, except on the lowest part of the ravine of the Indus. It is wholly under Chinese influence. It was entered by Moorcroft.—*H. f. et T.*, 225. See Kohistan, India.

NARI, Can. Canis aureus, *Linn.*, the jackal.

NARI, Hind. Equisetum debile, also Ipomœa reptans.

NARIA, Hind. Arundo donax.

NARI-COOMARI, Tam. Salsola nudiflora.

NARIJI CHETTU, Tel. Citrus aurantium, *L. var.*

NARIKEL, Beng. Cocoanut palm.

NARIKELA, also Narikaylum, Sans. Cocoanut palm.

NARIKELEE-KOOL, Beng. Zizyphus jujuba.

NARIL, Arab., Duk., Guz. Copra, also the cocoanut palm. Cocos nucifera, *L.* Naril ka Goor, Duk. Sugar from cocoanut palm. Naril-ka Kroote, Duk. the greens; Narilli, Duk. Sap of the cocoanut palm, Palm-wine. Naril ka tel, Duk. Oil of Cocos nucifera, *L.*

NARINGHI, Duk., Hind. Citrus aurantium, *Linn.*

NARINGI KE BAS KA GHANS, Duk. Andropogon nardus.

NARJIL, Arab., Pers. Cocos nucifera, *L.*

NAR-KACHUR, Hind. Zinziber zerumbet.

NAR LEI, Hind. Tamarix orientalis.

NARMA, Hind. Trianthema pentandra.

NARMADA, Sans. A name of the Nerbudda river. See Vikramaditya.

NARNA, see Kutch.

NARODA, in Guzerat a tribe of half-caste Rajputs.

NAR-PUTTE, Tam. A Ceylon tree which is used for canoes, planks of vessels, &c. It grows to about thirty feet in height, and twenty inches in diameter; is not durable, and is of little use.—*Edye, Ceylon.*

NARR, HIND. Malva parviflora.

NARRA CANAL, a Canal in Sind'h. See Canal.

NARRAINPETT, Dhanwar and Muktul, in the Nizam's territories; Gudduk and Bettigherry in Dharwar, Kolapoor, Nassik, Yeola, and many other are manufacturing towns in the Deccan; Arnee in Chingleput and elsewhere, send out cotton fabrics of excellent texture, with beautifully arranged colours and patterns, both in stripes and checks. Comparatively few native women of any class or degree wear white; if they do wear it, the dress has broad borders and ends. But women of all classes wear coloured clothes, black, red, blue, occasionally orange and green, violet and grey. All through Western, Central and Southern India, sarees are striped and checked in an infinite variety of patterns.

NARRI, HIND. Polygonum barbatum, also Arundinaria falcata: bag narri, is the Arundo donax.

NARRI-COMBOO, TAM.? The Jackal's horn, which natives say only grows on the head of the leader of the pack. The Singhalese and the Tamil races regard it as a talisman, and believe that its fortunate possessor can command by its instrumentality the realization of every wish, and that if stolen or lost by him, it will invariably return of its own accord. It is the popular belief that the fortunate discoverer of a jackal's horn becomes thereby invincible in every law suit, and must irresistibly triumph over every opponent. In the Museum of the college of Surgeons, London, is a cranium of a jackal which exhibits this strange osseous process on the super-occipital bone and Sir J. E. Tennent placed along with it a specimen of the horny sheath, which was presented to him by Mr. Lavalliere, district Judge of Kandy.—*Tennent's Sketch, Nat. Hist., pp.* 36-37.

NARROOVALLAY PALLAM, TAM. Fruit of Cordia obliqua, also of C. angustifolia, *Roxb.*

NARROW-BEAKED CROCODILE of the Ganges, see Crocodilidæ, Sauria.

NARROW-LEAVED SEPISTAN, Cordia angustifolia, *Roxb.*

NARROW-LEAVED TERMINALIA, Terminalia angustifolia, *Jacq.*

NARROW-LEAVED TURMERIC, Curcuma angustifolia, *Roxb.*

NARSINGA, or Nursoo, a hindoo deity. See Salagrama.

NARSINGHPUR, a district of Central India between 22° 45′ and 23° 15′ of north latitude, and 78° 38′ and 79° 38′ of east longitude. It consists of three distinct portions. The largest of these lies south of the Narbada, and on the north has the Narbada, on the east by the Sone, and on the west by the Dudhi. The southern boundary is an irregular east and west line including a strip of the Satpura table-land, generally narrow, but of varying width. The trans-Narbada portions are two isolated tracts. The easternmost, a mere insignificant patch of hill and ravine, the westernmost is a small but fertile valley, enclosed by the Narbada in a crescent-shaped bund of the Vindhyan range. The whole area of the district is 1,916 square miles, of which about half is cultivated. The extreme length from east to west is about seventy-five miles, and the extreme breadth about forty miles. The number of villages is 1,108, giving an average area to each village of nearly a square mile and three quarters. The face of the Satpura range overlooking the valley is generally regular, probably nowhere rises more than 500 feet above the the low land. The Vindhyan range of flat-topped cliffs is marked by great uniformity of outline, averaging from three hundred to four hundred feet above the level of the valley, in rare cases rising to eight hundred. In a similar manner the line of escarpment bounding the valley on the south marks the northern limit of the Talchir, Damuda and Mahadeo series of rocks, &c.

On both sides of the valley the high ground is often occupied by basaltic trappean rocks. On the north such rocks spread into wide patches over the country towards Bhopal, Sagar, and Damoh, in which direction they gradually die out, on the S. and S. W. the trap is found to cover considerable areas among the Gondwana hills, and it becomes gradually more and more the prevailing surface rock in this direction, and so far as known, connects itself with the great trap area of the Deccan. The prevalence of regularly-bedded fine-grained grits, with a characteristic red colour, is the most striking lithological feature of the Vindhyan group, and speaking of the formation generally, its most marked characteristic certainly is the persistency of this lithological aspect over great areas. This sameness of texture is strongly in contrast with the prevailing character of all the more recent sandstone formations to the south. Ripple-marking may be considered as a phenomenon characteristic of the Vindhyan series; almost totally absent in all the other groups of sandstone of Central India, it is almost everywhere throughout them found preserved in the most extraordinary perfection. The Narbada is fed almost entirely from the south, as the water-shed of the Vindhyan table-land stands but little back from its southern face. As soon as the limits of the "haweli," or black soil tracts, are passed, the characteristics of the country change. The population of the Narsinghpur district is 336,000, of whom rather more than one-third are non-agricultural classes. The average population rate is about 175 to the square mile. The mohammedans number little more than three per cent. of the whole. Most of the Gond race who dwell in the valley conform to hindoo rites and observances. There are a few Jain merchants and mountain Gonds. The most influential landholding classes are the Brahman, Rajput, Raj-Gond, Lodhi, Kurmi, and Kaonra. The Brahman and Rajput zamindars are scattered all over the district. The Raj-Gond and Kaonra are to be found principally in the western sub-division—Gadarwara; the Lodhi in the eastern and central sub-divisions and the Kurmi in Narsinghpur. Besides genuine Rajputs and the Kaonra there are three other castes, well represented among the land-holding body, who claim Rajput descent, viz: Bundela, Raghubansi, and Kirar. The total number of land-holding classes is thirty-two, and the total number of castes represented in the district is not less than twice that number. The people of the valley are generally well-grown. Among men of the peasant class the favourite colour of the angarkha, or long coat, is yellow, with a green shade from the mhowa dye. The sleeves are turned back on the wrists, and the waist-cloth is worn on or below the hips, with a white turban. The chiefs affect the Maratha turban tied so much on one side as almost to cover one eye, or what appears to be a Gond fashion—a turban composed of innumerable folds of cloth twisted like a rope. Their dress seldom corresponds with their pretensions, and some of the oldest rajas and thakurs might be taken for poor peasants. Titles of honor are so common as to have lost much of their significance. Raja, Thakur, Rao, Diwan and Chaudhari abound in every part of the district, and it is so much the custom to adopt any available distinction, that such designations as Jamadar and Mukhtar are pressed into the service as hereditary honors. There is certainly neither the closeness of ritual observance, nor the rigidity of social usage, which prevail in Hindustan. Among brahmans, the Kanojia still keep up their intercourse with their parent country, and adhere to their traditionary rights and habits; but the Sanoria who take a high rank in Upper India, are here very lax, forming connections with women of other classes, and neglecting the niceties of hindoo worship.

The four known periods of the history of this part of the valley are the Gond rule, the dominion of the Maratha subas of Sajar, the rule of the Bhonsla rajas of Nagpur, and British administration. The origin of the Gond rajas of Garha Mandla is lost in antiquity, but the Gond Rajput family, which was supplanted by the Marathas, is said to have sprung from Jadhava Raya, a Rajput, who succeeded his father-in-law, the Gond raja Nagdeo, in A.D. 358. Forty-eight in descent from him was raja Sangram Sa, who is stated to have extended his dominions over fifty-two districts, only three or four of which he received from his father. The Narsinghpur district came under the Mandla rule in his reign, and he is said to have built the fort of Chauragarh. The principal implements of husbandry now employed are the "bakhar" and the ordinary plough. The former is a kind of scarifier, having, instead of a share, a broad iron blade set horizontally and at right-angles to its body. It is used in preparing the land for the rain crops, twice if possible before the setting in of the rains, and twice afterwards. Iron pits lie north of the Narbada, near the Vindhyan hills; and the excavations for coal have been made at Mohpani, in the Satpura hills at the debouchure of the Chita-Rewa river.—*Gazetteer of Central Provinces.*

NARTHEX ASSAFÆTIDA, Syn. of Ferula assafætida.

NARUL KA-TEL, Hind., of Dera Ghazi Khan, a compound oil used as a drug in some eye complaints.

NARUMPANEL, Maleal. Uvaria narum, *Wall.*

NARUNGEE, Pers., also Narunghi, also Kounla, Guz., Hind. Citrus aurantium; orange, sweet orange.

NARU NINDI, Maleal. Hemidesmus indicus, *R. Brown.*

NARUVALLI, Tam. Cordia angustifolia, *R.*

NARU VALLUM, Maleal. Croton tiglium.

NARVALI FIBRE, Anglo-Tam. See Narwuli.

NARVALLI MARAM, Tam. Species of Cordia.

NARVELL, a Ceylon tree, sometimes called Jambu, in Tamil and Portuguese. It grows to about eighteen inches in diameter, and from ten to fourteen feet in height. It is used for the frames of native vessels and boats, but is not considered a very durable wood. After it has attained its full growth it produces a berry which the natives use as food. This seems a species of Eugenia, or the Dillenia speciosa of Thunberg.—*Edye, Ceylon.*

NARWALI or Narvali, fibre of Cordia angustifolia, ropes are made of the fibres.—*M. E.*

NARWULI, Tam. Cordia angustifolia and Cordia obliqua.

NARYANA, see Inscriptions

NARYEL, Hind. A cocoa nut shell, a kind of hukka.

NAS, Hind. Hordeum cæleste, Thibetan barley.

NAS, Hind. Snuff.

NASA-BHAGA, Beng. Peristrophe bicalyculata.

NASAL, Ar. Family. Nasal-Namah, Hind., Pers. A genealogical tree.

NASALIS LARVATUS.

Kahan of Borneo, | Bangkatan of Labuan.

The proboscis monkey, well known in Labuan and Borneo, its glossy coat is richly coloured. It is shy.

NASHA—? Phyllanthus, species.

NASHDAK, Rus. Emery.

NASHPATI, Hind. Pyrus communis.

NASHTAR, Hind., Pers., Pshtu. Cedrus deodara, deodar or Himalayan cedar. Nashtar or nakhtar, Pshtu, is the Pinus longifolia, long-leaved pine, any pine, gul nashtar Hind., is the Erythrina arborescens.

NASHTAR, Pers. Lancet.

NASIRI, a nomade race of Affghans, who occupy the Tohki and Hotuki countries in summer, and the Daman, or skirts of the Suliman range in winter. In their migrations, they appoint a Chahlwasti or Captain of Forty, and a Khan or Director General.

NASIR-UD-DIN ABDALLAH bin Umral, Baizaivi. Baizavi was the literary takhallus of kazi Nasir-ud-din Abdallah bin Omar, Albeizavi, who died in the year 1299, Hig. 699. His book is in Persian, entitled, Nizam-ut-Tuarikh, which signifies the Order of Chronological Histories. He was a kazi or judge. He has treated of most of the Asian monarchs, and particularly of the ancient Moguls.—*History of Genghizcan, p.* 413.

NASJEERA RATSJA, Maleal. Hoya pendula, *Wight and Arnott.*

NASKEL, Naril, Nargel. Beng., Hind. Cocos nucifera.

NASNIJANGI, Duk. Trianthema obcordata, *Roxb.*

NASPAL, rind of the pomegranate, Punica granatum. Besides its astringency this is itself used alone as a dye, giving a somewhat feeble yellow.—*Powell's Hand-book, Vol.* i. *p.* 452.

NASPATI, Hind. Pyrus communis, pear tree

NASRIN, Hind. Rosa, sp.

NASSARA, Nazarene, a term used by mahomedans in India, when intending to speak abusively of christians.

NASSERI, regiments of soldiers raised at the suggestion of Sir David Ouchterlony from the Gurkhas who took service with the British, after the first Nepal campaign.

NASSICK, a town in the Bombay Dekhan.

NASSICK DIAMOND, taken in the Dekhan war, originally valued at £30,000, was sold to Lord Westminster for £7,000.

NASSIR JUNG, second son of Nizam-ul-Mulk, on whose death, in 1748, he assumed the subahship of the Dekhan. He took part with Mahomed Ali and the British against Chandah Sahib and the French. After varied fortunes he dwelt at Arcot in an indolent and voluptuous manner, in 1750, however, he again took the field against the French but was killed by the Pathan nabob of Cuddapah, and three of the conspirators to his death fell in one day. His death gave great joy to Dupleix, Chandah Sahib and Pondicherry.—*Orme.*

NASTI, Sans. Non-existence; annihilation.

NASTIKA, S. An atheist, also one who denies the authority of the Vedas.

NASTRO DI SETA, It. Ribbon.

NASTURTIUM, a genus of plants of the order Brassicaceæ. The water-cress. N. officinale, *R. Br.*, the Sisymbrium nasturtium, *Linn.*, the Lutputiah of India, is cultivated in gardens.

NASTUS ARUNDINACEUS, *Zoy.* Bambusa arundinacea.

NASTUS STRICTUS, *Sm.* Syn. of Dendrocalamus strictus, *Nees.*

NASUA, see Viverridæ.

NASUK, see Nazuk, Vishnu, Viswakarma.

NASURANGI, Duk. Trianthema obcordatum, *Roxb.*, also Trianthema monogynia.

NASUT, Hind. Ipomœa turpethum.

NAT, Burm. Spirit. The Nat are supposed to have been objects of Burmese worship, in pre-buddhistic times. They correspond to the Deo of the hindoos, whose place they take in the Burman buddhist system.—*Yule, p.* 17.

NAT, or Nut, in Bengal, a wandering tribe, who are dancers, actors, athletæ. They resemble the gypsies in habits. The Nut are called also Nut Sirki bash (dwellers under mats); those in the Dekhan are not distinguishable from Dher.

NATA, Beng., also Nata Kanja, Hind. Guilandina bonduc, *Linn.*

NATA, Mal., Tam., Tel. A country, relating to the country, used to form many compound words.—*Wils.*

NATA KARANJA, Beng. Guilandina bonduc, *Linn.*, *W. and A.*

NATA-KOTHIAR, a race in the south of the peninsula; all speak Tamil and follow brahminism, they are large merchants, and all of them have the marked African protruding lips and nose, sharply cut at the forehead.

NATAL, a district in Africa; also one in Sumatra.

NATAM, or Nattam, an extensive tract of mountainous country beginning about 10 miles N. of Madura, through which a pass leads.

NATARU, Guz. Second marriage.

NATATORES, an order of swimming birds, viz;

Order VIII.—Natatores.

A. Tribe, Longipennes.

Fam Laridæ.

Sub-fam. Larinæ, 2 gen., 5 sp., viz., 1 Catarracta 4 Larus.

Sub-fam. Sterninæ. *Div.* 1 *Skimmers*, 1 gen., 1 sp., viz: 1 Rhynchops albicollis. *Div.* 2 *Marsh*

Terns, 5 gen., 10 sp., 1 Sylochelidon ; 1 Gelochelidon, 2 Hydrochelidon ; 1 Thalasseus ; 1 Seena ; 3 Sterna ; 1 Sternulla. *Div.* 4 *Oceanic Terns*, 2 gen., 4 sp., 2 Onychoprion ; 2 Anous.

Fam. Procellaridæ ; 6 gen., 12 sp., viz. 4 Diomedea ; 4 Procellaria ; 1 Prion, 1 Pelicanoides ; 1 Puffinus, 1 Thalassi droma.

B. Tribe, Totipalmati.

Fam. Pelicanidæ, 5 gen. 12 sp. viz. 2 Phæton, 2 Sula, 3 Pelecanus, 4 Graculus, 1 Plotus.

C. Tribe Lamellirostres.

Fam. Anatidæ : Gooses.

Sub-fam. Phænicopterinæ, 1 gen., 1 sp., viz. 1 Pnænicopterus roseus.

Sub-fam. Anserinæ. *Div.* 1 *Swans*, 1 gen., 2 sp., 2 Cygnus, olor, atrata. *Div.* 2 *Geese*, 2 gen., 4 sp., 3 Anser, 1 Bernicla. *Div.* 3, *Perching Geese*, 2 Dendrocygna ; 2 Sarcidiornis ; 1 Nettapus. *Div.* 4, *Sheldrakes*, 1 Casarca rutila, 1 Tadorna vulpanser.

Sub-fam. Anatinæ, 1 gen., 6 sub-gen., 10 sp., viz., 1 Spatula, 3 Anas ; 1 Dafila ; 1 Chaulelasmus ; 1 Mareca ; 3 Querquerdula.

Sub-fam. Fuligulinæ, 1 gen., 1 sub-gen,. 5 sp., viz., 4 Fuligula, 1 Branta.

Sub-fam. Merginæ, 1 gen., 1 sp., viz., 1 Mergus castor.

Fam. Podicipidæ, 1 gen., 2 sp., viz., 2 Podiceps cristatus, Philippensis.

The Grallatorial and Natatorial birds begin to arrive in Nepaul, from the north, towards the close of August, and continue arriving till the middle of September. The first to appear are the common snipe, and jack snipe, and rhynchœa; next, the scolopaceous waders (except the wood-cock ;) next, the great birds of the heron and stork, and crane families ; then, the Natatores ; and lastly, the wood-cocks, which do not reach Nepaul till November. The time of the re-appearance of these birds, from the south is the beginning of March ; and they go on arriving till the middle of May. The first which thus return to Nepaul are the snipes ; then come the teal and ducks ; then the large Natatores ; and lastly, the great cranes and storks. The Grallatores which visit Nepaul or pass over it, are much more numerous than the Natatores ; and Mr. Hodgson was of opinion that observation in the plains of India would satisfactorily prove that this is a just and decisive indication of the superior prevalence of wading over swimming birds in that extensive region. India, as he supposes, is too hot for the Natatores—a great majority of which seem to affect arctic regions, or, at least, high latitudes. The wild swan was never seen there but once, in the mid winter of 1828, when the apparition suggested a new version of the well known hexameter,—

> 'Rara avis in terris, *alboque* simillima cygno.'

Such a bird is never seen, he supposes, in the plains of India ? None of the Natatores stay in Nepaul beyond a week or two, in autumn (when the rice fields tempt them) or beyond a few days, in spring, except the teal, the widgeon, and the coot, which remain for the whole season, upon some few tanks whose sanctity precludes all molestation of them. There are cormorants throughout the season upon the larger rivers within the mountains ; but none ever halt in the valley, beyond a day or two : for so long, however, both they and pelicans may be seen, occasionally, on the banks just mentioned. The Larus and Sterna are birds which usually affect the high seas,—but Mr. Hodgson had killed both the red-legged gull, and a genuine pelagic tern, in the valley of Nepaul, but so had he fishing eagles ; and in truth who shall limit the wanderings of these long-winged birds of the etherial expanse ?

NATCHENNY, Sans.

Murua,	Beng.	Mutamy,	Maleal.
Ragi,	Duk.	Rajika, Tsjettipullu,	Sans.
Natchenny, ragi,	Guz. Hind.	Kelwaragu,	Tam.
Eleusine coracana, *Gært.*, *Roxb.*,	Lat.	Ponasa, Tamidalu,	Tel.

Eleusine coracana, a useful grain, is grown throughout British India and is eaten by the labouring classes. It is about the size of mustard seed, and darkish coloured. It is made chiefly into cakes, but is also prepared in several other ways ; it has a sweetish taste.

NATCHENNY RAJIKA, Sans. Eleusine coracana. See Graminaceæ.

NAT-GYEE, Burm. A tree of Moulmein, wood used for posts and knife handles.—*Cal. Cat. Ex.* 1862.

NATH, Sans. Lord ; hence Jaganatha, vernacularly Jagannath or Juggernath, Lord of the world, a name especially applied to Krishna in the form in which he is worshipped at the temple of Jaganath at Puri in Orissa. All the land within 20 miles round this pagoda is considered holy, but the most sacred spot is an area of about six hundred and fifty feet square, which contains fifty temples. The most conspicuous of these is a lofty tower about one hundred and eighty-four feet in height, and about twenty-eight feet square inside, called the Bur Dewali, in which the idol and his brother and sister, Subhadra, are lodged. Adjoining are two pyramidical buildings. In one, about forty feet square, the idol is worshipped, and in the other, the food prepared for the pilgrims is distributed. These buildings were erected in A. D. 1198. The walls are covered with statues, many of which are in highly indecent postures. The grand entrance is on the eastern side, and close to the outer wall stands an elegant stone column, thirty-five feet in height, the shaft of which is formed of a single block of basalt, presenting sixteen sides. The pedestal is richly ornamented. The column is surrounded by a finely sculptured statue of Hanuman, the monkey chief of the Ramayana. The establishment of priests and others belonging to the temple has been stated to consist of three thousand nine hundred families, for whom the daily provision is enormous. The holy ood is presented to the idol three times a day. His meals lasts about an hour, during which time the dancing girls, the Deva-dasi, belonging to the temple exhibit their professional skill in an adjoining building. Twelve festivals are celebrated during the year, the principle of which, is the Rat'h Jattra. Jaganath's temples are also numerous in Bengal, and are, invariably, of a pyramidical form. During the intervals of worship they are shut up. The image of this god in Orissa, is a rude block of wood, and has a frightful visage with a distended mouth. His arms, which, as he was formed without any, have been given to him by the priests, are of gold. He is gorgeously dressed, as are also the other two idols which accompany him. In a compartment in the temple of Rama, he is represented in company with Bala Rama and Subhadra without arms or legs. These idols are doubtless handed down from pre-brahmanic times.—*Cole's Myth. Hind.*, p. 52.

NATHA, Sans., or Nath, corruptly Nauth, Naut, Nautum, and Natan, Tam. A lord, a master, a name borne by some classes of religious mendicants. See Kala Priyanath.

NA-THAT, Burm. In Pegu, a forest term for trees that have died from natural causes. The term seems to be applied also to seasoned timber, or to trees that have been girdled. Nathat teak trees ought to be removed, but besides these, no teak tree below six feet in girth ought to be felled.—*McClelland's Report, No.* xxviii, *p.* 2 ; *Dr. Brandis, Selection from the Records of Govt. of India Foreign, Dept., No.* 28, *p.* 24.

NAT'HDWARA. This is the most celebrated of the fanes of the hindoo Apollo. Its etymology is 'the portal (dwara) of the god' (Nat'h), of the same import as his more ancient shrine of Dwarka at the 'world's end.' Nat'hdwara is twenty-two miles N. N. E. of Oodipoor, on the right bank of the Bunas. Although the principal resort of the followers of Vishnu, it has nothing very remarkable in its structure or situation. It owes its celebrity entirely to the image of Krishna, said to be the same that has been worshipped at Mat'hura ever since his deification between eleven and twelve hundred years before Christ. As containing the representative of the mildest of the gods of the hindoos, Nat'hdwara is one of the most frequented places of pilgrimage, though it must want that attraction to the classical hindoo which the caves of Gaya, the shores of the distant Dwarica, or the pastoral Vrij, the place of the nativity of Krishna, present to his imagination ; for though the groves of Vindra, in which Kaniya disported with the Gopi, no longer resound to the echoes of the flute; though the waters of the Yamuna are daily polluted with the blood of the sacred kine, still it is the holy land of the pilgrim. It was in the reign of Aurungzeb, that the pastoral divinity was exiled from Vrij, that classical soil, which, during a period of two thousand one hundred years had been the sanctuary of his worshippers. He had been compelled to occasional flights during the visitations of Mahmood and the first dynasties of Affghan invaders ; though the more tolerant of the Mogul kings not only reinstated him but were suspected of dividing their faith between Kaniya and Mahomed. Akbar was an enthusiast in the mystic poetry ot Jydeva, which paints in glowing colours the loves of Kaniya and Radha, in which lovely personification the refined hindoo abjures all sensual interpretations asserting its character of pure spiritual love. Jehangir, by birth half a Rajpoot, was equally indulgent to the worship of Kaniya: but Shah Jehan, also the son of a Rajpoot princess, inclined to the doctrines of Siva, in which he was initiated by Sid-rup the Sanyasi. Sectarian animosity is more virulent than faiths totally dissimilar. Here we see hindoo depressing hindoo: the followers of Siva oppressing those of Kaniya; the priests of Jupiter driving the pastoral Apollo from the Parnassus of Vrij. At the intercession, however, of a princess of Oodipoor, he was replaced on his altar, where he remained till Aurungzeb became emperor of the Moguls. In such detestation did the hindoos hold this intolerant king, that in like manner as they supposed the beneficent Akbar to be the devout Mokund in a former birth, so they make the tyrant's body enclose the soul of Kal-yamun, the foe of Krishna, ere his apotheosis, from whom he fled to Dwarica, and thence acquired the name of Rinchor.—*Tod's Rajasthan, Vol.* i, *pp.* 521-522.

NATH'H—? Timber, a log of wood, a beam.

NATH'H BAWA, see Jogi.

NATHUR, Guz. Canes.

NATICA MELANOSTOMA, see Molluscs, Neritidæ.

NATIKI—? Tetranthera, *sp.*

NATI-SCHAMBU—? Eugenia malabarica.

NATIVE, the terms Hindoo, and Native of India, are the ordinary names by which the idol-worshipping people and mahomedans of British India are at present known, but the terms are all of very recent use. The hindoo peoples to whom they are applied are only now fusing, under the firm sway of the British rule, and never before had, nor could have had, one common designation. Natives of India first sat on the petty jury on the 25th July 1828.

NATIVE BLISTER-FLY, Meloe telini.

NATIVE CINNABAR, see Cinnabar.

NATIVE COMPANION, see Egret.

NATRALOO, Hind. Sweet Potato, is the

root of Batatas edulis, *Choisy*, which is boiled, roasted, and eaten. It is of two kinds or colours, white and red. The white is supposed to have been brought from some foreign land, and under this supposition it is called Walaitee natraloo, European or Foreign natraloo, and the other Nat ka Natraloo or country Natraloo. The white is the better, the correct spelling for the Batatas edulis or sweet potato is Natr-alu.

NATRON, Fr., Ger. Sodæ sesquicarbonas. Sodæ biboras, Carbonate of soda. Natron is abundant in the vicinity of Ava, where it is used by the Burmese instead of soap, and they call it "earth soap."—*Mason.*

NATRON LAKE of Lunar, see Lunar Dyes, Alkaline minerals.

NATSJATAM-CIVA, Cocculus cordifolius.

NATSO-KARAM, Tam. Soap.

NATSU-PIA, Bhot. Gallus ferrugineus. *Gmel.*

NATTALA (?) The name of a class of slaves in Karnata.

NATTAMAKAN, also Nattamakkal and Nattamar, Tam. A sub-division of the Valala tribe, husbandmen, farmers.

NAT-TA-MIN, Burm. A reddish grey wood of British Burmah, loose grained, and recommended for cigar boxes. Breaking weight 129 lbs.; a cubic foot weighs 33 lbs. In a full-grown tree on good soil the average length of the trunk to the first branch is 60 feet, and average girth measured at 6 feet from the ground is 6 feet. It sells at 4 annas per cubic foot.—*Dr. Brandis, Cal. Cat. Ex.* 1862.

NATTA VADAM COTTAY, Tam. The fruit of Terminalia catappa.—*Linn.*, *Roxb.*, *W. & A.*, *Rheede.*

NATTES, Fr. Mats.

NATTOO-BADAM, Tam. Terminalia catappa.

NATTU, Tel. Ischœnum pilosum, *R. W.*, *Mad. Jour. Lit. and Sc.*, ii, 139, cum. *Ic.*, *p.* 144, *Br.* 475. This is the grass that infests the regada or black cotton-soil to the great detriment of cultivation. It is called kunduru nattu or "grievous-weed," *Br.* 237, to distinguish it from jaraka nattu, or "grass-weed" which is Cynodon dactylon.

NATTU VADOM MARAM, Tam. Terminalia catappa, *Linn.*, *Roxb.*, *W. & A.*, *Rheede.*

NATUM MUNGALA VANLOO, Tel. Barbers.

NATUNAS ISLANDS, in the China Seas, extend from the coast of Borneo a great way to the north-west and are arranged into the north, great or grand, and south Natunas. The north Natunas comprize Pulo Laut, Pulo Stokong. The great or grand Natuna, is called by the Malays Pulo Boong Ooran, and extends from lat. 3° 39′ to 4° 16′ N. The interior is high with two high mountains, Goonong Bedong or Quoin Hill, in lat. 4° 3′ N., and Goonong Ranay in lat. 4° N.

NATURAL HISTORY, see Ajaib ul Maklukat, much of which is fabulous. Nature and its varied scenery and objects, its birds or trees or beasts or seas, form no subject of wonder to either the Indian mahomedan or hindoo.

NATURE-WORSHIP, or Totemism, is a cult in which natural objects, trees, lakes, stones, animals, &c., are worshipped. According to Bunsen, the earliest Bactrian faith was a pure nature-worship as recorded in the Vedas. That was superseded by an ethical faith, when light and darkness, sunshine and storm, became represented by good and evil, but in the change, Zoroaster denotes the spirits of evil by the term Deva, common to the old Aryan divinities. The Bactrian religion continued unchanged amongst the Aryan emigrants until they reached the Punjab. In the west, Zarathustra Spitama, the Zoroaster of Europe, one of the mightiest intellects and greatest men of all time, appeared in the reign of Vistaspa, a Bactrian king, towards the year 3000 B. C. His contemporaries accounted him as a blasphemer, atheist, firebrand, worthy of death, and he was regarded, even by his own adherents, and after some centuries, as the founder of magic, a sorcerer and deceiver; but Hippocrates, Eudoxus, Plato and Aristotle looked on him as a great spiritual hero and the earliest sage of a primeval epoch. Zoroaster's views are expressed in a hymn, or Gatha, consisting of eleven 3-line strophes. It seems to have been composed on some great public occasion, and offers the choice of following a true path or of continuing in the existing superstition, and in the 3rd strophe, announces the presence of two twin spirits, the Good and the Base, and commands them to choose between them. In the fifth strophe, he names Ahura Mazda, the All Holy and All True; there is no mention of the name of Ahriman, later regarded as that of the evil principle, but in the seventh strophe Armaiti is named as the mother of the corporeal world who comes with Power, and with Truth and with Piety to succour this life. Later, this religion degenerated into magism: from this, Persians have derived their Shah-River: Ashta, or Truth is the second, which has become the Ardi Behesht of the Parsi: and the third is Vohu Mano, signifying the good pious mind or piety, out of which has grown the later term Bahman. Zoroaster's doctrine spread from Bactria into Media. But in the year B. C. 2234, Zoroaster, a king of Media, conquered Babylon where the true magism as taught by the disciples of Zoroaster, soon mingled with Chaldean philosophy, and under the despotisms of Xerxes and other rulers, so early as the times of Artaxerxes, rites were introduced into Persia, glaringly contradictory of the ethico-spiritual nature of Zoroaster's religion, which has now-a-days degenerated into a fire-worship and magical formula. Zoroastrians used the Zend language which is newer than the language of the Vedas, but older than Sanscrit. The Bactrian language is commonly called Zend: the Vedic language is stereotyped Bactrian, the Zend is the continuation of this old Bactrian tongue, with two phases of which we are acquainted. One of them, the language of the Zend books, the other that of the cuneiform inscriptions from Cyrus and Darius down to Artaxerxes II. The Sanscrit is the weakened prose form of the old Bactrian, the poetical form of which exists in the hymns of the Rig Veda. These hymns were transmitted, orally. Literature proper only commences with Sanscrit after it became a learned language; and it became the sacred language about the year 1000 B. C. at the beginning of the fourth age. Both Vedic and Sanscrit were at first living languages, spoken by the people. Spirit-worship, amongst the Aryan hindoos, the non-Aryans and the Parsees or Zoroastrians, has almost displaced the Nature worship of the Vedas.—*Lubbock*, *Origin of Civil.* *p.* 119; *Bunsen*, *God in Hist.*, *Vol.* i, *pp.* 270 *to* 293; *Tod's Rajasthan*, *Vol.* ii, *p.* 217; *Bunsen's Egypt*, *Vols.* iii *and* iv. See Affghanistan, Aryan, Greeks of Asia, Iran, Koh, Kabul, Inscriptions, Semiramis, Hindoo, Kattywar, Zoroaster.

NATU VADOM COTTAY, Seeds of Terminalia catappa.

NAU, Hind. A boat, a ship. Nau-Khodah, ship master, corrupted into the Anglo-hindi Nakodah.—*W.*

NAU, Hind. Saccharum, sp.

NAU, Hind., Sans. Nine; nau-naga, nine-headed snake; also Nau, Hind. New.

NAU-AIT, in the south of India, a class of mahomedans engaged in civil life, who came from Persia to Guzerat. They are fair men.

NAUCLEA, a genus of plants of the natural order Cinchonaceæ, *Lindl.* The following species are known to occur in the East Indies, viz.:

acida, *Hunt.* Penang, Java.
cadamba, *Roxb.* Peninsula, Bengal.
capitelata, *Watt.* ———— ?
cirrhiflora, —— Malayana.
coadnata, *Roxb.* Ceylon.
cordifolia, *Roxb.* British India.
elliptica —— Penang.
gambier, *Hunt.* Malayana.
glabra, *Roxb.* Moluccas.
lanosa, *Poir.* Penang.
macrophylla, *Roxb.* Amboyna.
ovalifolia, *Roxb.* Sylhet, Penang.
parvifolia, *Roxb.* British India.
pedicillata —— Moluccas,
purpurea, *Roxb.* Coromandel.
rotundifolia, *Roxb.* Chittagong.
scandens, *Sm.* N. E. India.
sclerophylla, *Hunt.* Penang.
sessiflora, *Roxb.* Assam.
sessifructus, *Roxb.* N. E. India.
undulata, *Roxb.* Moluccas.

NAUCLEA ? ?

Babdat,	Hind.	Behra,	Hind.
Bhada,	„	Hirida,	Mahr.

Under these names, Captain Sankey notices a nice, clean working, Nagpore wood, of a yellow colour and straight grain, which has apparently but little essential oil. It is very scarce but, when obtainable, is used by the natives for all purposes; in strength it ranks next to "eyne," and, therefore, if procurable in large quantities and of a proper size, would be a most valuable wood. The timber procurable ranges from 15 to 17 feet in length and is about 3 feet in girth. Major Pearson considers that this is the Terminalia bellerica; the timber in colour is similar to the Hurdo.—*Capt. Sankey.*

NAUCLEA, species.

Hagin-kae,	Can.	Hagin mara,	Can.

A tree of Canara and Sunda, frequent in the upper third of the ghats to the south. Wood described as being strong and serviceable for houses and implements.—*Dr. Gibson.*

NAUCLEA, Species. Htein-ga-lah, Burm. A wood of British Burmah of a light chesnut colour, recommended for furniture. Breaking weight 208 lbs. A cubic foot weighs lbs. 43 to 56. In a full-grown tree on good soil the average length of the trunk to the first branch is 40 feet, and average girth measured at 6 feet from the ground is 6 feet. It sells at 8 annas per cubic foot.—*Dr. Brandis, Cal. Cat. Ex.* 1862.

NAUCLEA, species. Hteinthay, Burm. A wood of British Burmah. Breaking weight 170 lbs. A cubic foot weighs 35 lbs. In a full-grown tree on good soil, the average length of the trunk to the first branch is 30 feet, and average girth measured at 6 feet from the ground is 6 feet. It sells at 8 annas per cubic foot.—*Dr. Brandis, Cal. Cat. Ex.* 1862.

NAUCLEA CADAMBA, *Roxb.*, *Rheede.*

Kaddam,	Beng., Hind.	Kadapa chettu,	Tel.
Maoo-ka-doon,	Burm.	Prenkhanamu,	„
Maoo tha,	„	Kadimi manu,	„
Kudda-vailoo,	Can.	Prenkanapu chettu,	„
Halamba-gass,	Singh.	Kodombo,	„
Vella cadamba,	Tam.	Rudrakshakamba,	„

This is a noble ornamental tree of all British India and British Burmah, it has orange-coloured flowers, collected into heads the size of a small apple, it is common in Ceylon, up to an elevation of 2,000 feet; it is found in Travancore and in the Dekhan. It attains a height of 70 to 80 feet with a girth of from 6 to 15 feet and a stem of 32 feet to the nearest branch. It is made into boats, its flowers are offered to the hindoo deities, it is used for various kinds of furniture. The wood is of a deep-yellow colour but loose grained. A cubic foot weighs lbs. 37. It sells, in Burmah, at 8 annas per cubic foot, is suitable for furniture, and is used for building purposes. According to hindoo mythology, this is one of the four shady trees that grow on mount Meru, the others being the Eugenia, the Ficus indica and Ficus religiosa.—*Thw. En. Pl. Zeyl.*, *Captain Macdonald*, *Dr. Cleghorn*, *Cal. Cat. Ex. of* 1862, *Captain Puckle in Mad. Cat. Ex.* 1862, *Irvine's Med. Top.*

NAUCLEA COADUNATA, *Roxb.* ; *DC.*

Bakmee-gass, SINGH.

Common in the warmer parts of Ceylon.—*Thw. En. Pl. Zeyl.*, ii, *p.* 137.

NAUCLEA CORDIFOLIA, *Roxb.*, *W. & A.*

Keli kadam,	BENG.	Adumbay,	TAG.
H'Nau,	BURM.	Munja cadamba,	TAM.
Hedde,	CAN.	Bandaru: Daduga,	TEL.
Yetlay-ga,	„	Bettaganapa : Passupu-kadimi	„
Hurdoo,	HIND.	Paspoo karami,	TIB.
Haldoo,	„	Holondho,	URIA.
Hedoo,	MAHR.		

This large tree grows in the hot drier parts of Ceylon, and abundantly in the mountainous districts of the peninsula of India ; it is a common tree in the coast forests of the Bombay Presidency, but never found inland,—it is getting scarce in Ganjam and Gumsur, it is common in the N. W. Provinces. It is said to be a tree of Jubbulpore, abundant, and its wood much in request, being light and easily worked. In Behar it is common and resembles a young sycamore. Its strength is not great, but it is lasting if not exposed to the weather. In the Siwalik hills it yields a poor wood used for planks, but which quickly decay. In British Burmah it appears as a large tree of regular growth, but not very common. Wood yellow, rather close-grained : used to make combs, may be expected to prove valuable for furniture ; it decays when exposed to wet. In Ganjam and Gumsur, it attains an extreme height of 75 feet with a circumference of 7 feet, the height from the ground to the first branch being 36 feet : but, in British Burmah, in a full-grown tree, on good soil, the average length of the trunk to the first branch is 80 feet, and average girth measured at 6 feet from the ground is 10 feet, and, there, a cubic foot weighs 42 lbs. and sells at 12 annas. The wood is pretty, yellow, rather close-grained, soft, and easily worked. In Coimbatore, it is much used for common purposes and sustains a weight of 320 lbs. In the Bombay Presidency, it is most extensively used for all purposes of planking in in-door work. The timber deteriorates from steeping, and therefore should not be floated to its destination. In Gumsur and Ganjam, on account of its size and lightness, it is used for boats, which are made from a single log by simply scooping out the inside and afterwards shapening in a rough manner. It is also used for the masts of native dhoneys, and bazar measures, and is cut into planks and made into doors, boxes, &c. It is best suited for work which is sheltered, bedsteads, house carpentry furniture, said to be a good wood for model work, it polishes well, resembles box-wood, and is good for turning ; but it cracks and warps. It is used for making slates for scholars in native schools. Is close-grained, very durable, much employed in building and joiner work, and when varnished looks very pretty being much affected by alternations of dry and wet weather, could probably be creosoted with advantage. At one time there were great forests of this tree in Kamaon, but these have been thinned. The tree rises with a clear stem of 30 to 40 feet, and has a girth of 6 to 12 feet. When growing singly it throws out branches close to the ground, and gives support to itself by projecting large buttresses, from the bole. Timber when freshly cut is of a light yellow, turning to a nut-brown on seasoning.—*Dr. J. L. Stewart*, *p.* 116 ; *Cal. Cat. Ex.* 1862 ; *Cleghorn*, *Punjab Report*, *Kullu and Kangra*, *p.* 82 ; *Thw.* ; *Drs. Wight*, *Gibson*, *Brandis*, *Roxb.*, *Hooker*, *Him. Journal*, *Vol.* i, *p.* 26 ; *Captain Macdonald*, *Cal. Cat. Ex.* 1862 ; *Madras Exhibit.* ; *Mr. Rohde*, *MS.* ; *Mr. Thompson.*

NAUCLEA DIVERSIFOLIA, *Wall.*

Ringah ? Bingah ?,	BURM.	Pungah ?	BURM.

A wood of British Burmah, of a light yellow colour, not much used but may be recommended for furniture. A cubic foot weighs lbs. 45. In a full-grown tree on good soil, the average length of the trunk to the first branch is 60 feet, and average girth measured at 6 feet from the ground is 7½ feet. It sells at 8 annas per cubic foot.—*Dr. Brandis' Cal. Cat. Ex.* 1862.

NAUCLEA GAMBIR, Syn. of Uncaria gambir, *Roxb.*

NAUCLEA PARVIFOLIA, *Roxb.*, *W. & A.*

N. parviflora, *Pers.*
N. orientalis, *Gærtn.*
Cephalanthus pilulifer, *Lam.*

Kalham,	Beas, Ravi.	Kalàm ; Karam,	PANJAB.
H'tein,	BURM.	Kaim ; Keim,	„
Hedoo mara,	CAN.	Helembe,	SINGH.
Neer codumbay,	„	Nir kuddembay,	TAM.
Yetega,	„	Bota Kadimi,	„
Yetegal,	„	Bottta kadapa chettu,	„
Kyen,	HIND.	Buta kadambe,	„
Phaldoo,	KAMAON.	Buta Karamee,	TEL.
Kuddum,	MAHR.	Moondo-monde,	URIA ?

This large tree is found in the western and northern provinces of Ceylon, in the hot, drier parts of the island, where its close-grained hard timber is used for common house-building purposes. It weighs lbs. 42 to the cubic foot and is calculated to last 40 years. Dr. Wight, writing in Coimbatore, says, it has a strong fine grained timber, sustaining 400 lbs., and yielding considerable beams, dark-coloured, but soon rots if exposed to wet. From the fineness of its grain it seems well fitted for cabinet purposes, and has the advantage of being easily worked. On the western coast it is valued for yielding flooring planks, packing boxes, &c. It is mentioned by Captain Macdonald as a tree of Ganjam and Gumsur, of extreme height 60 feet, circumference 4½ feet and height from the ground to the intersection of the first branch, 22 feet. The wood is used there, occasionally for beams, planks, &c., but is not in much request, and the tree is not very plentiful. In the Bombay Presidency, it is rather a common tree in the coast forests; less so inland, but is found in quantities in the dells above the ghats; the wood is reddish coloured, close-grained, and rather valuable for gun-stocks, in the making of which it is chiefly used. That of the Sunda and Canara forests is valued as affording the best plank for flooring of houses and house beams. It is found in the Nalla mallai, and is a hard, tough wood, light red in colour and, used there, for yokes, posts and small beams. In British Burmah, a cubic foot weighs lbs. 43, and it is used for planking. In a full-grown tree on good soil the average length of the trunk to the first branch is 30 feet, and average girth measured at 6 feet from the ground is 6 feet. This tree grows in the Philippines; it grows to a considerable size, and in some numbers in the Siwalik tract up to the Beas. At Sanpla, west from Delhi, there are some hundreds of trees up to 10 feet (one about 13) in girth, and 50 or 60 feet high. The leaves are given as fodder, and might be suitable for sleepers if impregnated with mineral salt.—*Mr. Mendis, Drs. Wight, Gibson, Stewart Cleg., Roxb. and Brandis*; *Captain Macdonald*; *Cal. Cat. Ex.* 1862; *Mr. Latham*; *Thw.*; *Powell.*

NAUCLEA PEDUNCULARIS, *Wall. Cat.*

N. triflora, *Moon's Cat.* | N. purpuræ, *Roxb., var.*

A moderate-sized tree of Ceylon in the Saffragam and contiguous districts, up to an elevation of 1,000 feet, not uncommon in the Central Province.—*Thw. Enum. Pl. Zeyl., Vol.* ii, *p.* 137.

NAUCLEA TUBULOSA, *Thw.* A small tree of Ceylon, one variety very abundant in the Kokoolcorle. Another variety in the hot, drier parts of the island.—*Thw., Enum. Pl. Zeyl., Vol.* ii, *p.* 137.

NAUCLEA UNDULATA, *Wall.*

Ma-oo lettan, Burm.

A soft useless wood in British Burmah, decays in less than a year. Breaking weight 80 to 120 lbs. A cubic foot weighs 22 to 34 lbs. In a full-grown tree on good soil the average length of the trunk to the first branch is 100 feet, and average girth measured at 6 feet from the ground is 15 feet. It sells at 2 annas per cubic foot.—*Dr. Brandis, Cal. Cat. Ex. of* 1862.

NAUCRATES, the Pilot-fish genus of fishes, belonging to the family Scombridæ, which may be thus shown:—

Fam. 16.—Scombridæ.

First Group.—Scombrina.

Gen. 12 Soomber, 13 Thynnus, 5 Pelamys, 12 Auxis, 9 Cybium, 1 Naucrates, 1 Elacae, 10 Echeneis, 1 Hypsiptera.

Second Group.—Nomeina.

Gen. 1 Gasterochisma, 2 Nomeus, 2 Cubiceps, 1 Neptomenus, 1 Platystethus, 1 Ditrema.

Third Group.—Cyttina.

Gen. 6 Zeus, 2 Cyttus, Oreosoma.

Fourth Group.—Stromateina.

Gen. 9 Stromateus, 3 Centrolophus.

Fifth Group.—Coryphænina.

Gen. 6 Coryphæna, 4 Brama, 1 Taractes, 4 Pteraclis, 3 Schedophilus, 1 Diana, 1 Ausonia, 1 Mene, 1 Lampris.

The Pilot-fish, Naucrates ductor, usually accompanies the shark: its ordinary length is from 4 to 8 inches.

NAUGEI, Hind. Jasminum officinale.

NAUGOOLOO. Chicacole is the principal civil station in the Ganjam district. It is in lat. 19° 18′ N. long. 83° 58′ E., about 567 miles from Madras. It lies four miles direct west of the sea, and is situated on the north bank of the river Naugooloo. It is the station of the judge and the sub-collector.

NAUGULI, Sind. Eleusine coracana, *Gært., Roxb.*

NAUJA, Tam., Tel. Soil where rice can be cultivated.

NAUKRA BAG, Beng. Hyæna.

NAUNGOO, Tam. A wood of Tinnevelly, of a red colour, specific gravity 1·009. Used for building, wheel-wrights' work, handspikes.—*Colonel Frith.*

NAUPATTI (?) Hind. A banker of the highest caste, a mahajan.

NAU-RATN, Hind. 'Nine gems,' an ornament worn in the arm, which indicates the only jewels that are esteemed as precious, they are —diamond, ruby, emerald, sapphire, topaz, pearls, coral, turkis, tansala. The others, and also the inferior gems, agates, blood-stone, &c., are mostly in use for signet rings, in the art of engraving which natives of India are extremely skilful.

NAU RATRI, a hindoo festival lasting nine days, three of them in honour of Saraswati and six for Siva's consort.

NAUREI, Tam. Eugenia caryophyllifolia, *Roxb., W. Ic.*

NAURIA, Hind. A class of merchants trading with the Panjab from the south country, &c.

NAURVEALY, Tam. A Ceylon tree which grows to about twenty inches in diameter, and fifteen feet in height. It produces a small red fruit of a very glutinous nature, much esteemed by the natives of Malabar. From the bark a kind of cordage is made, which is used for the purposes required in the hills, and in the conveyance of timber, &c. This seems to be the Narwali or Narvali tree, Cordia angustifolia; ropes are made of the fibres.—*Edye, Ceylon*; *M. E.*

NAUSHADAR, HIND. Sal-ammoniac; chloride of ammonium.

NAUSHADAR-KANI, HIND. An artificial bi-sulphuret of arsenic.

NAUTCH, HIND. A dance, a Hindustani nautch-girl does not dance like Taglioni and Cerito, but by a movement of women's feet to music. The dancing of nautch-girls on public occasions is always decorous. They are to a European dreary, not only not graceful but monotonous, wearisome.—*Kaye's Christianity in India, p.* 309.

NAUTILIDÆ, a family of cephalopodous molluscs; according to Lamarck, they constitute the sixth family of his Polythalamous cephalopoda, consisting of the genera, Discorbites, Siderolites, Polystomella, Vorticialis, Nummulites, and Nautilus. To these, Mr. G. B. Sowerby, jun., adds Simplegas and Endosiphonites. In the system of M. DeBlainville it is the fifth family of his Polythalamacea, and comprises the genera Orbulites, Nautilus, Polystomella, and Lenticulina. The genus Nautilus is the type of this family. The species inhabit the seas of warm climates, especially those of Asia and Africa, and their islands, Amboyna, Zanzibar, and New Guinea; and the Pacific and Australian Oceans. The position of Nautili amongst the Cephalopod may be thus shown:

CLASS I.—Cephalopoda Cephalopods.
ORDER I.—Dibranchiata.
SECTION A.—Octopoda.
FAMILY I.—Argonautidæ.
GENUS. Argonauta, Argonaut or paper sailor; recent, 4 sp., fossil 1 sp., Syn. octhoe, nautilus.
FAMILY II.—Octopodidæ.
GENERA. Octopus, rec. 46 sp. Syn. cistopus.
Sub-genus. Tremoctopus, rec. 2 sp.
Pinnoctopus, Finned octopus, rec. 1 sp. P. cordiformis.
Eledone, rec. 2 species.
Cirroteuthis, rec. 1 species C. Mulleri.
Philonexis, rec. 6 species.
SECTION B.—Decapoda.
FAMILY III.—Teuthidæ. Calamaries, or Squids.
SUB-FAMILY A.—Myopsidæ. Eyes covered by the skin.
GENERA. Loligo, Calamary, rec. 21 sp. Syn. teuthis.
Sub-genus. Teudopis, fossil, 5 sp.
Gonatus, rec. 1 species; G. amæna.
Sepioteuthis, rec. 13 sp.
Beloteuthis, fossil, 6 sp.
Geoteuthis, fossil, 9 sp. Syn. belemnosepia.
Leptoteuthis, fossil.
Cranchia, rec. 2 sp.
Sepiola, rec. 6 sp.
Sub-genus Rossia, rec. 6 sp.
SUB-FAMILY B.—Oigopsidæ. Eyes naked.
Loligopsis, rec. 8 sp.
Cheiroteuthis, rec. 2 sp.
Histioteuthis, rec. 2 sp.
Onychoteuthis. Uncinated calamary, rec. 6 sp. Syn. ancistroteuthis, onychia.
Enoploteuthis. Armed calamary, rec. 10 sp. Syn. ancistrochirus and abralia, octopodoteuthis.
Ommastrephes. Sagittated calamary, rec. 14 sp.
FAMILY IV.—Belemnitidæ.
GENERA. Belemnites, fossil, 100 sp.
The belemnites have been divided into groups by the presence and position of furrows in the surface of the guard.
SECTION I.—Acœli.
Sub-section 1. Acuarii, 20 sp.
2. Clavati, 3 sp.
SECTION II.—Gastrocœli.
Sub-section 1. Canaliculati, 5 sp.
2. Hastati, 19 sp.
SECTION III.—Notocœli, 9 sp.
Belemnitella, fossil, 5 sp.
Acanthoteuthis, fossil. Syn. kelæno.
Belemnoteuthis, recent, also fossil.
Conoteuthis, fossil.
FAMILY V.—Sepiadæ.
GENERA. Sepia, rec. 30 sp., fossil, 5 sp. Syn. belosepia.
Spirulirostra, fossil.
Beloptera, fossil, 2 sp.
Belemnosis, fossil.
FAMILY VI.—Spirulidæ.
GENUS. Spirula, rec. 3 sp.
ORDER II.—Tetrabranchiata.
FAMILY I.—Nautilidæ.
GENERA. Nautilus, rec. 2 or 4 sp. fossil, 100 sp.
Sub-genera. Aturia, fossil, 4 sp.
? Discites, fossil.
Temnocheilus, fossil.
Cryptoceras, fossil.
Lituites, fossil, 15 sp. Syn. hortolus trocholites.
Trochoceras, fossil, 16 sp.
Clymenia, fossil, 43 sp.
FAMILY II.—Orthoceratidæ.
GENERA. Orthoceras, fossil, 125 sp. Syn. gonioceras, cycloceras.
Sub-genera. Cameroceras, fossil, 27 sp.
Actinoceras, fossil, 6 sp.
Ormoceras, fossil, 3 sp.
Huronia, fossil, 3 sp.
Endoceras, fossil, 12 sp.
Gonioceras.
Gomphoceras, fossil, 10 sp. Syn. apioceras, poterioceras.
Oncoceras, fossil, 3 sp.
Phragmoceras, fossil, 8 sp.
Crytoceras, fossil, 36 sp. Syn. campulites, aploceras.
Gyroceras, fossil, 17 sp. Syn. nautiloceras.
Ascoceras, fossil, 7 sp.
FAMILY III.—Ammonitidæ.
GENERA. Goniatites, fossil, 150 sp.
Bactrites, fossil, 2 sp.
Ceratites, fossil, 25 sp.
Ammonites, fossil, 530 sp.
Crioceras, fossil, 9 sp. Syn. tropæum.
Toxoceras, fossil, 19 sp.
Ancyloceras, fossil, 38 sp.
Scaphites, fossil, 17 sp.
Helicoceras, fossil, 11 sp.
Turrilites, fossil, 27 sp.
Hamites, fossil, 58 sp.
Ptychoceras, fossil, 7 sp.
Baculites, fossil, 11 sp.

The Paper nautilus is one of the Argonauta.

The Nautilus Pompilius, or Pearly nautilus, occurs at Amboyna.

NAUTILUS, a genus of molluscs of the family Nautilidæ,

Light as a flake of foam upon the wind,
Keel upward, from the deep emerged a shell,
The native pilot of this little barque,
Puts out a tier of oars on either side;
Spreads to the wafting breeze a two-fold sail,
And mounted up and glided down the billow.
Montgomery.

NAVACHARUM, Tam. Sal ammoniac, Muriate of ammonia.

NAVAGRAHA ARATANAM, see Hindoo.

NAVA-KHANDA, or Nine-divisions, is the title of an account of India, which was first described by the astronomers Parasara and Varaha-Mihira, although it was probably older than their time, and was afterwards adopted by the authors of several of the Puranas. According to this arrangement, Panchala was the chief district of the central division, Magadha of the east, Kalinga of the south-east, Avanta of the south, Anarta of the south-west, Sindhu-Sauvira of the west, Harahaura of the north-west, Madra of the north, and Kauninda of the north-east. The division of India into five great provinces would appear to have been the most popular one during the early centuries of the christian era, as it was adopted by the Chinese pilgrims, and from them by all Chinese writers. According to the Vishnu Purana, the centre was occupied by the Kuru and Panchala, in the east was Kamarupa, or Assam; in the south were the Pundua, Kalinga and Magadha, in the west were the Surashtra, Sura, Abhira, Arbuda, Karusha, Malava, Sauvira and Saindhava, and in the north the Huna, Salwa, Sakala, Rama, Ambashta and Parasika.—*Cunningham, Ancient Geog. of India, pp.* 5, 7.

NAVAKIRE, near Pootoor, 21 miles from Jaffna, in Ceylon, is a remarkable well which rises and falls once every twelve hours and retains the same quantity of water however drawn. It is alluded to in Sinbad's travels.

NAVA MALIKA, Tel. Jasminum sambac, *var. β.* duplex.

NAVANAGGAR, see Kattyawar.

NAVANAY, Can. Setaria italica, Italian millet; it is grown in very few places in Mysore, and serves as food for poor people.—*M. E. Cat.*

NAVANDGARH, or Naondgarh, is a ruined fort from 250 to 300 feet square at top and 80 feet in height. It is situated close to the large village of Lauriya, 15 miles to the N. N. W. of Bettiah, and 10 miles from the nearest point of the Gandak river. The ancient remains consist of a handsome stone-pillar, surmounted by a lion and inscribed with Asoka's edicts, and of three rows of earthen barrows or conical mounds of earth, of which two rows lie from north to south, and the third from east to west. The stupas usually met with are built either of stone or of brick; but the earliest stupas were mere mounds of earth, of which these are the most remarkable specimens that General Cunningham had seen. He believes that they are the sepulchral monuments of the early kings of the country prior to the rise of buddhism, and that their date may be assumed as ranging from 600 to 1500 B.C. Every one of these barrows is called simply bhisa, or "mound," but the whole are said to have been the kots or fortified dwellings of the ministers and nobles of raja Uttanpat, while the fort of Navandgarh was the king's own residence. The word stupa meant originally only a "mound of earth," and this is the meaning given to it by Colebrooke, in his translation of the 'Amara Kosha.' The author of the Ceylonese 'Atthakatha' explains that they are yakhatthanani, or edifices belonging to Yakha, or demon-worship. The Yakha in Sanskrit, Yaksha and Jaksha were the attendants of Kuvera, the God of Riches, and the guardians of his treasures, and their chief residence was called Alakapura. Somewhere in the neighbourhood of the Gandak there was a city named Alakappo, inhabited by a people named Balaya or Buluka who obtained a share of Buddha's relics.—*Cunningham, Ancient Geog. of India, pp.* 448, 450.

NAVARA CHETTU, also Navili chettu, Tel. Ulmus integrifolia, *R.* ii, 68; *Cor.* 78. Holopetala integrifolia, *Planchon, W. Ic.* 1968. Roxb. calls it Nali, it is also pronounced Nemali or Namali by the mountaineers.

NAVARATRICAM, Tam. See Kali, Navaratri, Nau-ratri.

NAVARIA, Mal. Setaria italica, Italian millet.

NAVASARAM, Tel. Hydrochlorate of ammonia.

NAVELLU MARAM, Tam. A Malabar tree which signifies "tongue-wood." It grows to about fifteen inches in diameter, and twenty feet high: it is considered a strong and durable wood, and more particularly so under water. The native carpenters prefer it for the frames of small vessels in consequence of its strength and durability.—*Edye, Forests of Malabar and Canara.*

NAVICELLA, a genus of Molluscs; see Mollusca, Neritidæ.

NAVILE—? Oil seeds of Bassia latifolia.

NAVILI, Tel. Ulmus integrifolia, *Roxb.*

NAVILI JUTTU, or Mayura sikhi, Tel. Actinopteris radiata, lit. "Peacock's crest."

NAVIS, Pers. Writing, Khush-navis, a good penman, *W.*

NAVURU, or Nagaru, Tel. Premna tomentosa, *Willd.*, *R.* iii, 76, *W. Ic.* 1468.

NAVY, during the rule of the English East India Company, the first application of ships in war was to suppress piracy along the coast of Malabar. The fleet was named the Bombay marine, but about 1833 was changed to the Indian Navy. In 1850, the fleet was as under :—

Steam Vessels.	Crew.	Horse Power.	Tonnage.	Guns.
Moozuffer (Steam Frigate,)	230	500	1460	9
Semiramis, (Steam Frigate,)	200	300	960	4
Zenobia, (Steam Frigate,)	200	280	1003	6
Auckland, (Steam Frigate,)	177	200	946	4
Sesostris, (Steam Frigate,)	135	220	876	4
Queen, (Steam Frigate,)	117	220	876	4
Ajdaha, (Steam Packet,)	150	500	1450	4
Ferooze, (Steam Frigate,)	230	500	1450	7
Acbar, Steam Packet,)	132	350	1202	4
Victoria, (Steam Packet,)	104	230	705	4
Berenice, (Troop Ship,)	104	230	664	2
Medusa,	60	70	432	2
Nitocris,	52	40	204	2
Assyria,	42	40	204	1
Nimrod,	42	40	204	2
Comet,	42	40	204	2
Meteor,	42	24	149	1
Planet,	42	60	335	1
Satellite,	42	60	335	1
Napier,	42	90	445	2
Conqueror,	42	50	259	2
Meanee,	42	40	208	2
Indus,	42	100	522	0
Jhelum,	42	60	499	0
Chenaub,	42	60	499	0
Mootnee, Flat,	53	0	42	1
Euphrates, Iron Flat,	20	0	0	0
Sutledge, Accommodation Boat,	24	0	0	0
Beeas,	24	0	0	0
Ravee,	24	0	0	0
Snake,	6	0	40	0
Kedywaree,	28	0	0	0

Sailing Vessels.	Crew.	Tonnage.	Guns.
Hastings, (Receiving Ship)	75	566	20
Elphinstone,	114	387	14
Clive,	114	420	14
Euphrates,	83	259	10
Tigris,	55	259	5
Constance,	41	182	3
Mahi,	41	157	3
Sheemah, (Pattamar,)	24	55	4
Pownah, (Pattamar,)	36	43	4
Margaret, Yacht,	18	61	4
Palinurus,	87	192	4
Nurbudda, (Surveying Tender,)	22	49	4
Maldiva, (Surveying Tender,)	15	...	...
Cardiva, (Surveying Tender,)	12	...	...
	737		89

NAWA, Amb. Arenga saccharifera, *Labill.* The Gomuti palm tree.

NAWAB, Ar. plural of naib, a sovereign, a viceroy, corruptly Nabob, also the highest title under a mahomedan sovereign in India. The mahomedan titular distinctions are Bahadur, Khan, Dowla, Umra, Jah, Nawab.

NAWAB GANJ, the battle of Nawabganj, in Oudh, occurred on the 14th June 1858.

NAWAB NADDI, a small river in the Bareilly district.

NAWAIT, Hind., *lit.* new comers, a body of mohamedans of a fair xanthous colour. They seem to be Persians, but the mohamedans of southern India describe them as descendants from some citizens of Medina who attempted to carry off the corpse of Mohammed, and were therefore exiled and driven from city to city.—*Qanoon-i-Islam.* See Nau-ait, Mahomedan.

NAWAR, Hind., of Spiti, mustard seed.

NAWEL, Hind., Syzygium jambolanum.

NAWEL BUSI ERAGU, Tel. Vitex arborea, *Roxb.*, *Rheede.*

NAWEL MARAM, Tam. Calyptranthes caryophyllifolia, Eugenia caryophyllifolia, the Syzygium jambolanum, *Willd*, *Swartz*, *Roxb.*, *W.Ic.* Nawel Pullum, Tam. Fruit of Calyptranthes caryophyllifolia. Nawel Wood, Anglo-Tam. Wood of Eugenia caryophyllifolia, Calyptranthes caryophyllifolia.

NAWLEE ERAGU, Tel. Vitex arborea, *Roxb.*, *Rheede.*

NAWLEE, Tel. Ulmus integrifolia *Roxb.*

NAW-MARAM, or Nagoo maram, Pterocarpus, species, a very strong and durable wood, common on the lower elevations of the Neilgherries : an ordinary sized tree.—*McIvor, M. E.*

NAWROZ, Pers. New year's day. Jemshid's institution of that festival is placed by Sir William Jones at eight hundred, and by Bailly and D'Hancarville at three thousand two hundred years before the christian era. If one was too sparing of centuries in his calculation, the others appear extravagantly profuse in theirs. —*Jones's Short Hist. of Persia ; Ouseley's Travels, Vol.* i, *p.* 225. See Nau-riz.

NAXOS EMERY, is regarded as granular or amorphous corundum coloured with iron, and is not known to occur in India, where corundum is used by the people in its place. It is principally imported into Britain from the island of Naxos in the Grecian Archipelago, and was found by Mr. Smithson Tennant to consist of Alumina 86, Silica 3, Oxide of Iron 4, total 93.

NAYADI, corruptly Naiade, Mal. An outcaste tribe, found only in the northern parts of Cochin. They are the most degraded of all the low tribes.

NAYAKA, this is an honorific appellation, used amongst most of the races in the south of India, under the pronunciations Naik, Naikan, and in the plural Naidu. It is also in use in the native army of British India as the designation of a non-commissioned officer equivalent to a corporal.

NAYAKAH, see Polyandry.

NAYAKU PONNA, or Muyyaku ponna,

Tel. Pseudarthria viscida, *W. and A.*, probably an erroneous form of Muyyaku, q. v.

NAYA KUROONDU, Singh. Cinnamon.

NAYALU, Hind. In Spiti, an astringent wood or twigs used in dyeing.

NAYANA PALA, see Inscriptions.

NAYAVAYLIE—? Polanisia icosandra.

NAY-KYAT-HGYING, Burm. Eclipse of the sun.

NAY NAMPA, also Pynaru, Can. Mesua ferrea.

NAYLA-TUNGADU, also Nila Ponna, Tel. Senna.

NA-YOO-GA, Burm. A Tenasserim wood, of maximum girth 3 cubits, and maximum length 22 feet. Scarce, but found all over the Tenasserim provinces. When seasoned it floats in water. It is a durable, tolerably good wood with a curled grain; used by Burmese for oars, much like English oak in appearance, but deficient in tenacity. It is scarce, and equally good woods are abundant.—*Captain Dance.*

NAYOOTA, or Munja, *i. e.*, presents carried in state, a mahomedan ceremony.

NAYOR, Beng. Cicca indica, *W. and A.*

NAYPALAM VITTILU NUNAY, Tel. Croton oil.

NAYPALUM VITTILU, Tel. Croton seed.

NAZAR, Ar., Hind., Pers. A present, a fine or fee paid to the state.

NAZARETH, or Nassara, as it is now called, a small town six miles west from Mount Tabor. It is situated at the western slope of a delightful valley, encompassed by rocky mountains of no great height, but meeting together, as it were, to guard it from intrusion. Within this secluded enclosure, all smiling and verdant, Christ was conceived. Here he returned at an early age, and passed the days of his youth. So certain are these facts in a historical point of view, that to this day throughout the east, those who believe in the divinity of his mission are called by way of derision Nazerani, or Nassara, meaning followers of the man of Nazareth.—*Robinson's Travels in Palestine and Syria, Vol.* i, *p,* 209; *De Syria; Morier's Second Journey, p.* 109.

NAZARITE, Numbers, vi. 18, 'the Nazarite shall shave the head.' The hindoos after a vow, cease to cut their hair during the term of the vow; at the expiration of which time they shave it off, at the place where the vow was made. It is a very ancient form of votive offering. Acts, xviii, 18. Cenchrea was a port on the east side of the Isthmus of Corinth, opposite to the Lecheum, another port on the west. Here a christian church was planted by Paul; for we find him commending Phœbe to the regards of the Roman believers, as a servant of the church which is at Cenchrea. (Rom., xxi, 1.) By this pious female he sent from Corinth his epistle to the Romans. It has been a subject of much dispute, whether it was Paul who shaved his head, or Aquila. Chrysostom, Isidore of Seville, Grotius, Hammond, Zegerus, Erasmus, Baronius, Pearce, and Wesley, refer the vow to Aquila; while Jerome, Augustine, Bede, Calmet, Dodd and Rosenmuller, attribute it to Paul. The latter opinion is the more probable. The Æthiopic and the Latin versions refer the vow to both, reading they shaved, instead of having shaved, perhaps on account of the difficulty of deciding. It is probable that Paul had become a Nazaræus votivus, and, consequently, had bound himself to observe the law of the Nazarites for a certain time. The Nazaræi votivi (Num., vi,) were required to abstain from wine, grapes, and all inebriating liquors, during the time of their separation. They were also to let their hair grow without cutting, till the days of their vow were fulfilled; then it was to be shaved off, and the appointed sacrifice to be offered in the temple. From this practice of the Jewish Nazarites, the heathens probably derived their custom of consecrating their hair, in times of danger, &c., to their divinities, which Lucian represents as of frequent occurrence, and with which he himself had complied. The emperor Nero is said, by Suetonius, to have cut off his first beard, and to have devoted it to Jupiter Capitolinus, placing it in a golden box, set with jewels. Nazaritism was partly a religious institution, and partly civil and prudential. Its laws were promotive of the strictest sanctity, and calculated to preserve the health, sobriety, and temperance of the community. Hence, we read, "her Nazarites were purer than snow, they were whiter than milk." (Lam. iv, 7.) Samson, Samuel, John the Baptist, and, according to the rabbins, Absolom were Nazarites, and Joseph is said to have been nazir echaiv, which we translate, "separated from his brethren," but which the Vulgate renders "Nazaræi inter fratres suos." Persons recovering from sickness, or preserved from danger, frequently took upon them the vow; and it is probable, that Paul had experienced some deliverance on this occasion, which the historian has not narrated. At the present time in Persia, if a child be sick, the mother frequently makes a vow, that the razor shall not come upon his head for a certain time, and sometimes for life, as in Sam, i, 11. When the time that is limited expires, the child's head is shaved, money is collected from the relatives, and sent as nazr or offerings to the mosque, and consecrated. Homer speaks of parents dedicating to some deity, the hair of their children which was cut off when they came to manhood, and consecrated to the gods. Achilles cut off his golden locks at the funeral of Patroclus, and threw them into the river, his father having dedicated them to the river-god Sperchius. In the South of India, at the sacred hill of Tripaty, thousands of both sexes annually cut off their hair, and leave it as a votive offering.—*Milner's Seven Churches of Asia, pp.* 110-111; *Iliad, Vol.* xxiii, *p.* 149, *&c.*; *Æneid, Vol.* i, *p.* 698.

NAZIM, Ar., Hind. A supervising servant, a mahomedan official name for a eunuch. Jeipoor and Boondi are the only two of the Rajpoot principalities who, adopting the mahomedan custom, have contaminated the palaces of their queens with the presence of these creatures.—*W.*: *Tod's Rajasthan, Vol.* ii, *p.* 382.

NAZIR JUNG succeeded Nizam-ul-mulk in the Dekhan and gave to Mahomed Ali the title of Nabob of the Carnatic.

NAZM, Ar., Hind., Pers. Order, arrangement: poetry, as distinguished from Nasr, prose.—*Wils.*

NAZR, an offering from an inferior to a superior, a present, a sight, a look: it is the present sent before as in the time of (Gen., xxxii, 18) Jacob and Esau, when the servants said it is a present sent unto my Lord Esau. I. Samuel, ix, 7. Then said Saul to his servant, "But behold, if we go, what shall we bring the man? for the bread is spent in our vessels, and there is not a present to bring to the man of God: what have we?" It is very common in British India for a person, who is desirous of asking a favour from a superior, to take a present of fruits, or sweetmeats in his hand. If not accepted, the feelings of the offerer are greatly wounded. The making of presents to appease a superior is also very common. There are periodical occasions in Persia, at which all who are admitted to stand in the presence of its monarch are expected to appear before him with a present. Of these, the chief is the No-Roz, or new year, which occurs about the end of March or beginning of April. Plural Nazrana, taxes or presents.—*Fraser's Journey into Khorasan, p.* 214.

NAZUC, Hind. Zizyphus jujuba.

NAZUL, Hind. Property belonging to Government usually in charge of District Local Fund Committees, the property is chiefly houses, gardens, or plots of land in cities. In the Panjab the various nazul gardens, (*i. e.*, Government property) are generally planted with mangoes, as well as other trees; and the right to sell the fruit is sold on contract by auction at the beginning of the season; the property of a large garden like that of Shalimar, at Lahore, is something very considerable. —*Powell, p.* 279.

NBUBAY, Burm. A Burmese wood, one of the Anacardiaceæ, has a dense wood, but brittle. —*Major Benson.*

NDALO—? Colocasia macrorrhiza.

NE, Hind. Hordeum hexastichum.

NEAGAM, Egypt. Achyranthes aspera, *Linn.*

NEAMAH, also Tir-ud-jammel, Arab. The ostrich. See Struthionidæ.

NEARA—? Cocoa-nut palm.

NEARCHUS, the general whom Alexander the Great commissioned to survey the Southern Asiatic coast from the mouth of the Indus to that of the Tigris. He sailed along the coast.—*Ind. in 15th Cent.* See Inscriptions, Kishm Island.

NEATS FOOT OIL, used as a softener of leather, &c., &c. See Oil.

NEBBE, Ar. A prophet.

NEBEDE, Singh. A Ceylon wood, used for common house-building purposes. The tree grows in the southern and western parts of the island. A cubic foot weighs 51 lbs., and it is esteemed to last 20 years.—*Mr. Mendis.*

NEBKH, Ar. Rhamnus nabeca.

NEBONG, a Penang wood of a dark colour. It is from a tall and thin, but straight tree; used for railings. See Nibong.

NEBOO, Beng. Citrus acida, acid lime.

NEBUCHADNEZZAR, king of Babylon, defeated Nechao II, near Kar-chemish b. c. 605 while crown prince: he burned and pillaged the palace and temple of Jerusalem. b. c. 586, Jerusalem razed, Zedekiah's children slain and his eyes then put out. He died b. c. 563. The name of Nebuchadnezzar is written in many ways in the Bisutun inscription, we have Nabokhodrossor, Nabukhadrachar, and Nabukhudrachar. In pure Babylonian inscriptions it undergoes even more numerous changes. In Daniel he is called Nebuchadnezzar or Nabuchodonosor, in Ezekiel (ch. xxvi, v. 7) the name is written Nebuchadrezzar. The first component of the word, Nebo, was the name of a Babylonian divinity. (Isaiah, ch. xlvi, v. 1.) The interchanges which take place in consonants is shown by the names of several Babylonian kings, as given by the Greeks; thus, the Labunitus of Herodotus is called Nabunidus by Berosus.—*Layard's Nineveh, Vol.* ii, *p.* 177; *Bunsen.* See Kranganore, Nineveh.

NECHA, Hind. A pipe of a hooka or of a still. Necha-Changhani is a kind of hooka.

NECHETTY KALUNG, Tam. Isoetes coromandeliana.

NECHO, a king of Egypt who reigned about 600 years b. c. He was desirous of joining the Red Sea with the Mediterranean. He is also said to have commanded some Phœnicians to sail from the Red Sea to the Mediterranean, round the Cape of Good Hope—a voyage which they accomplished in two years. If the Phœnicians really did complete the voyage, which is by no means improbable, they anticipated the discovery made by the Portuguese about 2,000 years afterwards! In any case, it is apparent that the king was in those days fully alive to the advantages of the trade from the East. About 100 years later, Egypt fell under the kings of Persia, and Darius determined upon completing the projects of Sesostris and Necho by digging a canal between the Red Sea and the Nile; but being assured by the engineers of the period that the Red Sea was higher than the Nile, and that its salt water would overflow and ruin the whole land of Egypt, he abandoned his purpose.

NECKLACE. Necklaces of the precious metals, of shells, seeds, &c., are worn by all races of British India, by men and women amongst hindoos, by women amongst mahomedans, but no mahomedan man wears such.

NECTARINIA ZEYLANICA, the Sun-bird of Ceylon. See Birds.

NECTOPODA, see Carinaria, Molluscs.

NEDEL AMPEL, Tam., Mal. Villarsia indica, *Vent.*

NEDJD, a district of Arabia. See Nejed.

NEDON, Singh. Dalbergia lanceolaria, *L.* fil.

NEDSITU, Tam. Vernonia cinerea, *Less.*

NEDUM SCHETTI, Maleal. Memecylon amplexicaule.

NEEBRUNG, see Kunawar.

NEEDLES.

Sui,	Guz., Hind.	Wusigal,	Tam.
Jarum,	Mal.	Sudulu,	Tel.

Needles are made from the best steel, reduced by a wire-drawing machine to a suitable diameter. The construction of a needle requires about 120 operations; but they are rapidly, and uninterruptedly successive.—*Faulkner.*

NEEDLE-LIKE ANDROPOGON, Andropogon aciculatus.

NEEJA, a lance carried about at the Mohurrum.

NEEKAH, Ar., Hind. The solemnization of matrimony. Neekah ka seegah, the mahomedan marriage contract; properly Nickah.

NEEK'HUR. The Gudurea, also written Gadaria, is a shepherd race of which there are several sub-divisions in Hindustan, Neek'hur; Tusselha or Puchhade, Chuck, Dhangur, Bureyea, Pyhwar and Bhyeatur. Of each of these there are also many sub-divisions.—*Ell. Supp. Gloss.*

NEEL, Hind. Neelum, Tam. Indigofera tinctoria, Indigo, the Indigo-plant.

NEELA, Sans. Dark-blue.

NEELA-KANTA, Sans., from neela, dark-blue, and kanta, the throat; a name of Siva.

NEELAMPELLAH, Tam.? A Travancore wood of a light brown colour, used for house-building, ceilings, &c., also written Neelum pala.—*Col. Frith.*

NEELA-PARVATA, Sans., from neela, blue, and parvata, a mountain.

NEELA-THEROOVATTAY, Tam. Bauhinia purpurea.

NEELA-VULLY-POOCHADDY, Tam. Pontederia vaginalis.

NEELGHERRY MOUNTAINS, a range in the southern parts of the Peninsula of India. See Neilgherries.

NEEL-JHANJEE, Beng. Utricularia reticulata.

NEEL-KALMEE, Beng. Pharbitis nil.

NEEL-MALL, Hind. Strychnos potatorum.

NEELUM, Tam. Indigofera tinctoria.

NEELUMPALLAH, Tam.? A Travancore wood of a light brown colour, used for light work.—*Col. Frith.*

NEEL-LUTA, Beng. Thunbergia grandiflora.

NEEL-PUDMO, Beng. Nymphœa cyanea.

NEEL-UPURAJITA, Beng. Clitoria ternatea.

NEEM, Hind. The Margosa tree, or Vepa maram, Tam. Azadirachta indica, and all the species of Azadirachta and Melia.

NEEM, Pers. Half. Neemcha, a mixed race.

NEEMA — ? dress.

NEEMBOLEE — ?

NEEMI CHAMBELI, Hind. Bignonia suberosa, *Roxb.*

NEEM NUDDY, a rivulet near Abrowlie in Allygurh, runs near Khasganj in Budaon.

NEEMOOKA, Hind. Root of several species of Cissampelos.—*Ben. Phar.*

NEEN-THA, Burm. A very abundant tree along the sea coast near Tavoy and Mergui. Its wood when seasoned sinks in water. It is used for rafters of houses, is a very heavy wood, but liable to split, therefore not recommended for ordnance purposes.—*Captain Dance.*

NEERADI MOOTOO, Tel. Species of Jatropha.

NEERADI MOOTOO OIL, Anglo-Tam.

Jungli Badam ka tel,	Hind.	Neerada Mootoo Yennai,	Tam.

This valuable oil was sent to the Madras Exhibition under the various names of Neeradeemootoo, jungle Almond, Maroty, Tamana, Maravetti, Neervetti and Soorty. It is in great repute, as a medicine amongst native practitioners, and the kernel enters largely into their prescriptions. It might probably be found of use in the arts, it much resembles almond oil but is rather thicker. The seeds cost in Madras As. 2-6 per seer—excellent specimens were contributed by the Madras Tariff, Travancore and Cochin Local Committees and Lieut. Hawkes.

NEERADI-MUTOO, Tel.? Hydrocarpus inebrians.

NEER-CUDDEMBAY, Tel. Nauclea parviflora.

NEERGOBBI VAYROO, Tel. The root of Barleria longifolia, *Linn.*

NEERGOONDABY,—? Vitex bicolor, *W.*

NEERIJA BARK, ANGLO-HIND. Bark of Elœodendron roxburghii.—*Ben. Ph.*

NEER-MOOLLIE, TAM. Asteracantha longifolia or Barleria longifolia, *Linn.*

NEERMOOLIE VAYR, TAM. The root.

NEEROODEE.

Neerodee, HIND. | Chinna neeroodee, TEL.

NEER-PIRIMI, TAM. Herpestis monniera.

NEETEE PASS, a pass in Kunawer. See Mountains, Passes.

NEETI, SANS., from nee, to obtain.

NEEUT, AR., HIND. A vow.

NEEUT KHEYR-KI-FATEEHA, a thanksgiving.

NEFRUARI, see Hindu.

NEFT, ARAB., PERS. Is a good avenue tree, Naphtha.

NEGALYA-PONYA, NEP. Ailurus elegans, *F. Cuv.*, *Bly.*, *Hard.*

NEGAPATAM, on the Coromandel Coast, is in lat. 10° 45½′ N., long. 79° 55′ E., in the Tanjore district. The town has a considerable coasting trade, is near one of the mouths of the Cauvery. It was taken from the Portuguese by the Dutch in 1660, and henceforward became the head-quarters of the Dutch trade on the Coromandel Coast.—*Cal. Rev.*, *Jan.* 1871.

NEGHKA, MALEAL. Fruit of Tamarindus indica, *Linn.*, *Roxb.* Tamarind.

NEGOMBA, on the west coast of Ceylon, in lat. 7° 12′ N., is a place of some trade.

NEGRAIS, an island, a river, and a cape of this name. The cape is in lat. 16° 2½′ N., long. 94° 13′ E., is the south-west land of the coast of Ava. A river of the same name is navigable a great way inland, by a channel on each side of the island.

NEGRETTI, see Red Sea.

NEGRO RACES. Ethnologists are of opinion that Africa has had an important influence in the colonization of Southern Asia, of India and of the Eastern islands, in times prior to authentic history or traditions, and numerous races of an Africo-Turanian type are found in British India. The marked African features of some of the people in the extreme south of the Peninsula of India, the Negro and Negrito races of the Andamans and Great Nicobar, the Jakun of the Malay Peninsula and the Negrito and Negro, Papuan and Malagasi races of the islands of the Indian Archipelago, Australia and Polynesia, indicate the extent which characterises their colonization. Much of this needs further inquiry, but it is a subject which will well reward investigators. Historical researches have shown how frequent during the past four thousand years were emigrations and conquests between Media, Arabia, Persia, Palestine and Africa. Negro races occupy the hills in the Dandilli district of N. Canara. Their origin has not been traced, but since the mahomedans of Arab origin have been fighting in India for dominion almost all the rulers have retained large bodies of Africans, either of the large-lipped, curly-haired, negro type, or of the softer-featured Abyssinian, and one family of these Abyssinian races, the Habshi or Sidi of Janjirah near Bombay, is still ruling. The Adal-shahi and Nizam-shah Bhairi dynasties, who ruled in Bejapore and Ahmednuggur in the 15th and 16th centuries had considerable bodies of negro soldiers as their household troops; the negro sailors of the Sidi of Janjira continued up to the 18th century, the most ruthless pirates on the pirate coast of India; the Amirs of Sind had, till the latest hour of their rule, bodies of African negroes around them, the nabobs of the Carnatic had a small body of the negro race as their household slaves, the race are still numerous in Lus and Mekran, and at Hyderabad in the Dekkan they still form part both of the regular and irregular troops of the nizam of the Dekhan.

According to Mr. Logan, the oldest races of India, Ultra-India and Asianesia, were of a variable African type, the two principal forms being Australo-Tamulian or quasi Semitic and Negrito, followed in Asianesia by the Malagasi. He is, likewise, of opinion, that the present prevalentUltra-Indian races entered the region from the north-east and at a very remote period spread on the one side over Ultra-India and the basins of the Brahmaputra and Ganges, and partly into southern India; and, on the other, were diffused by a long succession of movements all over Asianesia. Thoughout these regions, they came in contact with more ancient races, and have in some places variously blended with them and in some dislodged or exterminated them, while in others, the old tribes have been able to maintain a certain degree of independence and purity. In southern India, the ancient element was preserved in some degree, owing apparently to a civilization early received from partially allied Semitico-African and Semitic nations. In the Andamans, the interior of the great Nicobar, the jungles of the Malay Peninsula, in Australia and in the various Papuan and partially Papuan Islands, the African element has been maintained from the comparative isolation of the tribes. In the Gangetic province, as in the greater portion of Ultra-India, including the Malay Peninsula, the intrusive race appears to have been recruited by the entrance of new tribes from the north-east and to have ultimately assimilated the native race, although the influence of the latter is still slightly perceptible. He remarks that when we consider the position of India, between the two great negro provinces, that on the west being still mainly negro, even in most of its improved races, and that on the east preserving the ancient negro basis in points so near India as the Andamans and Kidah, it becomes highly probable that the African element in the population of the peninsula has been transmitted from an archaic period before the Semitic, Turanian and Iranian races entered India, and when the Indian Ocean had negro tribes along its northern as well as its eastern and western shores. The basis of the present population of the Dekhan, he says, was of an African character which was partially improved by Turanians or Irano-Turanians and Semitico-Turanians from the N. W. and afterwards by more advanced ancient N. E. African and Semitic settlers. Perhaps all the original population of southern Arabia and even of the Semitic lands generally, was once African; and the Semitic race had descended on them from a tribe located in the mountains at the head of the Euphrates. From the time when the adjacent shores of the Indian ocean began to be the seats of general commercial and maritime nations, the peninsula must have been exposed to the regular influx of foreign traders and adventurers. From the antiquity of the Egyptian civilization, it is probable that the earliest commercial visitors were Africans from eastern Africa or southern Arabia. It is certain that the subsequent Semitic navigators of Arabia at an early date established that intercourse with India which they have maintained to the present day. The trade between India and the west, appears to have been entirely in their hands for about 3,000 years. During this period, the Arab navigators not only remained for some months in the Indian ports, between the outward and home voyages, but many settled in them as merchants. Mr. Logan thinks that the influence of African and Arabic blood must have preceded that of the Arian in the peninsula. In after-ages, the Arian ingredient in the peninsular population became considerable, but it has not modified the native races in the same degree as it has done the Bengali. The languages are still essentially distinct and the non-Arian physical element remains strong. In southern India, are languages of one formation which is broadly distinguished from the Arian or Sanscrit on the one side, and from Tibetan and Ultra-Indian on the other. Physically, the population of Southern India is one of the most variable and mixed which any ancient archaic province displays, the number of varieties amongst the people being too great to allow of their being referred to a single race of pure blood. Some are exceedingly Iranian, more are Semitico-Iranian, some are Semitic, others Australian; some remind us of Egyptians, while others again have Malaya-Polynesian and even Simang and Papuan features. Yet when the eye takes in the whole group at once, they are seen to have all something in common. They are not Iranians, Polynesians, Papuans, &c., but South Indians. The strong Africanism of some of the lower south Indian castes, is believed to be the remnant of an archaic formation of a more decided African character. In certain of the classes of Southern India, in which the complexion is fairer, an Egyptian style of features is not unfrequently observable. In this, the nose is not indented at the root. It is long and slightly curved; the eyes almond-shaped and slightly oblique and the chin is short. In general, the physiognomy is more the Iranian than the East African and Egyptian. Where the Arian or Semitic crossing is not striking, the person is generally rather small and slender, the legs in particular being very thin, compared with those of the Gangetic race. The colour varies from black to different degrees of brown and yellowish brown, in general contrasting strongly with the Ultra-Indian and Indonesian races. There is a tendency to certain peculiar physical traits, neither Ultra-Indian, Tibetan nor Arian, but seem to be East African.. The typical East African head is removed both from the exaggerated prognathous form, prevalent amongst the Guinea negroes and the highly Semitic form characteristic of tribes that have been deeply crossed by Arab blood, and is in some respects intermediate between the Iranian and Turanian, while it has specialties of its own. The cheek bones are often much more prominent than in the Iranian, and less so than in the typical Turanian, the projection being frequently anterior more than lateral. The lips are full or turgid and turned out, frequently with sharp edges. Slightly prognathous heads are not infrequent. In the south Indian population as a whole, the bridge of the nose is generally less prominent than in the Iranian, and much more so than in the Turanian. Even where the root of the nose, between the eyes, sinks in, the upper line as a whole is much more thrown out from the face than in the Turanian head, so as to render the point comparatively sharp and prominent. The alæ have an upward expansion, leaving the upper part of the septum exposed and the elongated nares open and conspicuous. This is a Semitico-African trait. In the Turanian the septum is contracted and thickened at the base, pulling down the point of the nose or rendering it low and obtuse, forcing the nares to spread out laterally and making the nares rounded. The eyes in the Dravidian are large, are of full size, horizontal and well-separated and the beard is generally sufficiently strong. The Africo-Papuan pyramidal nose, with a deep and sharp sinking in at the root, is common, particularly in some of the lower castes, in which the colour is nearly black. Mr. Logan thinks it probable that this lower and apparently the more normal southern type characterised the whole population of India at one period. Amongst the Vindhyans, some tribes are found who seem to approximate to it suçh as the little ill-favored Tamariah, the neighbours of the Ho and the short and jet-black Surah who are spread for 200 miles from the hilly southern side of the basin of the Ganges along the eastern face of the ghauts to the Godavery who are much in person, in civilization, akin to the Gangetic population. The Chensuar, (Suar-Surah ?) who occupy the western portions of the continuation of the ghauts between the Pennar and the Kistna, and who are probably a continuation of the Surah, are described by Captain Newbold as having small and animated features, the cheek bones higher and more prominent than those of the generality of hindoos: the nose flatter and the nostrils more expanded, the eye black and piercing, the stature lower than that of their Telugu neighbours, and the person light but well-formed. He characterizes them as being between a Telugu and Jakun of the Malay Peninsula. The Chensuar live in beehive-shaped huts like the African, Nicobarian and many of the ruder Asianesian tribes.

The Jakun of the Malay Peninsula, is the most African and prognathous of the lank-haired Indianesian tribes.

In the Neilgherry hills, the Kurambar and Erular belong to the same low type. In the ghauts of the northern part of the peninsula, the Koli, Ramusi, Beder, Warali, Katadi or Katkar tribes appear to be allied to the lower type, but in general the African element has been eliminated. One of the most African of these petty northern tribes is the Katadi. They are of a deep black colour, and Mr. Vaupell describes them as being more like monkeys than any race of men he ever saw. The Warali are more slender and somewhat darker than the common Marathi.

The sequestered tribes of Southern India appear to belong chiefly to the lower form. In some cases they approximate to the more Turanian African type, in which the nose is flatter, the beard scanty, and the person shorter. There is so considerable a difference between this type and the more semitic, that, whatever may be the original relationship of the two it is necessary to recognize both as existing in India at the earliest era which ethnology can descry. A similar phenomenon presents itself on the western side of the Indian ocean and, what is still more important with reference to India, it is found also in the negro population of the eastern side. Many of the East-African tribes are very short and slender, small-eyed, flat-faced, and beardless, while others are middle sized and even tall and robust, with the Semitico African beards, aquiline or pyramidal noses, raised nares and large eyes, of the other archaic types of Southern India. Both types preserve a black complexion, alike in Africa, India, the Andamans, the Malay Peninsula, the Malayo-Polynesian Islands, and Australia, although modifications of colour also occur throughout this area. He thinks that little weight is to be attached to the present absence of spiral hair in S. India, for some of the spiral-haired Papuan tribes of New Guinea and Torres straits are often more Africo-Semitic and S. Indian, in their physiognomy, than the Australians, while the latter have the fine hair of S. Indians and some Mid-African nations and a linguistic formation which resembles the S. Indian more than any in the world.

In further India, in the extreme South East of Asia, are two marked types of the human family. These are the lank-haired Malay and brown races, and the curly-haired races, to whom the terms Negro, Negrito, Papuan, Alfura, &c., have been applied. The Ultra-Indian races in their fundamental characters, physical and mental, and in all their social and national developments, from the lowest or most barbarous stage in which any of their tribes now exist to the highest civilization which they have attained in Burmah, Pegu, Siam and Kambojia, are intimately connected with the predominant Oceanic races. The tribes of the Niha Polynesian family who appear to have proceeded those of the Malayan, resemble the finer type of the Mon, Burman and the allied Indian and Himalayan tribes.

The Malayan family approximates closely to the ruder or more purely Mongolian type of Ultra-India, and the identity in person and character is accompanied by a close agreement in habits, customs, institutions and arts, so as to place beyond doubt that the lank-haired populations of the islands have been received from the Gangetic and Ultra-Indian races. The influx of this population closed the long era of Papuan predominance and gave rise to the new or modified forms of language which now prevail. It is generally supposed that when they entered on their career of conquest, the Malays spread from the Menangkabau district in Sumatra. The language of the rude maritime tribes who frequent the coasts and islands of the Malayan peninsula, and amongst whom several distinct tribes are distinguishable by their physical characters, is one mainly Malay but with differences in pronunciation. In all the seaports and courts of the Archipelago, the Malays are a tall handsome class, whose fine eyes and well-shaped features betray the presence of Arab or Indian blood. The Malayan races of Pinang and province Wellesley, is short; five feet, two or three inches being considered the average height of a man, and that of a woman is a few inches shorter. Their bones are large and clumsily put together, but strongly knit; arms and legs usually short compared with the end of the body, and the whole frame robust and capable of much labour. The head is round and elongated at the summit, broad at the back, and set on a stout thick neck. Eyes long and narrow, rather deep set, black or dark hazel in colour and seldom clear about the white. Nose long, wide at the nostrils and not very flat. Forehead broad and receding: cheek bones very prominent and jaws wide and square; teeth regular, large and white, unless discoloured by lime and gambier. The facial angle seldom exceeds fifty degrees, while that of the European is seldom less and sometimes is nearly ninety or perpendicular, hair black and coarse. It is plentiful on the head, but other parts of the body are smooth. The moustaches alone are retained on the face, other hairs being removed by pincers,—mouth large with thin lips: ears large and ill-shaped. The body is fleshy and muscular, legs remarkably so, thighs so large as to be unwieldy. Habit of body lean, Malays seldom become obese. The women are pretty when young, but soon show signs of old age: they become wrinkled and haggard after bearing a few children, and in old age are hideous. Malays are frank, courteous and honest, brave, generous and sensitive to a fault, in youth grave at times and anon overflowing with mirth; in advanced life sedate. They are proud, and if ill-treated, revengeful; but under generous treatment are gentle, kind, humane, grateful, docile and faithful. Capable of the warmest attachments, and yet impelled to madness and the commission of the most revolting deeds by real or imaginary unkindness. They are dutiful children and kind parents. They treat their aged kinsmen with the greatest kindness and even feel it a duty to relieve the wants of an indigent relation. Old men and women are always regarded with respect. The Malays are frequently quite Burmans in appearance, but the normal and least mixed Malays are more Binua and also more Siamese than the western Burmans. The Malays of Johor when employed in gathering camphor, use a fictitious vocabulary, constructed in a similar manner to the deferential dialect of Javan, and used to propitiate the spirit of the camphor tree.

From Timur to New Guinea, there runs a long chain of islets, forming as it were, a wall or barrier to the south-eastern portion of the Archipelago. In some of these islands the inhabitants are of a different race from the Malays, and speak many languages. Till recently, by far the most ample and authentic account of them has been given by Mr. Winsor Earl, who, after a longer experience of the countries in which they are spoken than any other European, makes the following observations. "In the south-eastern parts of the Indian Archipelago, where opportunities of social intercourse between the various petty tribes are of rare occurrence, every island, every detached group of villages, has its own peculiar dialect which is often unintelligible, even to the tribes in its immediate neighbourhood. In some of the larger islands, Timur, for example, these tribes are so numerous, and the country occupied by many of them so extensive, that it becomes impossible to form even an approximate estimate of their number." Of one language, the prevailing one, among several languages of the island of Kisa, one of the Sarawati group, in the chain of islets already mentioned, Mr. Earl furnished a curious and instructive vocabulary of 330 words. The Kisa is an unwritten tongue, but its vowels are the same as those of the Malay and Javanese. Timur is a word which means the east, and was probably imposed on this island by the Malays, to whose language it belongs, because this was the extreme limit of their ordinary commercial voyages to the south-east. Timur is about three times the extent of Jamaica. Its principal inhabitants are of the Malayan race, but it contains also Papuans or Negroes, and tribes of the intermediate race. The two languages of Timur are the Manatoto and the Timuri, the first spoken at the north-east end of the island, and the last used by many of the tribes as a common medium of intercourse. No alphabet has ever been invented in Timur; but judging by the specimens of its languages, the vowels are the same as those of the Malay and Javanese.

In the Archipelago, there seemed to Mr. Crawfurd to be four races of man, the Malays proper; the Semang or dwarf Negro of the Malay peninsula; the Negrito or Aeta of the Philippines; the larger Negro race or Papua of New Guinea and a race whom Crawfurd styles the Negro Malay, intermediate between the Papuan and Malay.

The Malay are superior to all the others in intellect and civilization. They occupy the whole of the Malay peninsula, half of Sumatra, all the sea coast of Borneo. Their numbers are estimated at 1,500,000 in Borneo; 1,250,000 in the Malay peninsula; and 1,000,000 in Sumatra. The Malay are short, squat, with round face, wide mouth, large high cheek bones; short small noses, black, small, deep-seated eyes. Their hair is lank, black and harsh, and the men have little or no beard.

The Semang are a small Negro race.

The Jakun of Jahore, are superior to others in many respects, are the best dressed, having also a great number of rings on their fingers.

The Negrito are short, but well-made, active, soft frizzled hair, nose slightly flattened, features more regular and skin-less dark than the African Negro.

The Papua of New Guinea are true Negroe and have made some advances in civilization.

The Negro-Malay are fairer than the Negro, darker than the Malay, intermediate between the Malay and Papua.

Mr. Wallace, however, believes that the Archipelago is divisible into an Asiatic and an Australian portion, that the flora and fauna differ, and that all the peoples of the various islands can be grouped either with the Malay or the Papuan, two radically distinct races who differ in every physical, mental and moral character, and he states his belief that under these two forms, as types, the whole of the peoples of the Malay Archipelago and Polynesia can be classed. He considers that a line can be drawn which shall so divide the islands as to indicate the one-half which truly belong to Asia, while the other no less certainly is allied to Australia, and he designates these respectively the Indo-Malayan and the Austro-Malayan divisions. He gives to Mr. Earl (*pp.* 12, 13 and 36) the credit of having been the first to indicate the division of the Archipelago into an Australian and Asiatic region. All the wide expanse of sea which divides Java, Sumatra and Borneo from each other, and from Malacca and Siam, rarely exceeds forty fathoms in depth, and the seas north to the Philippine islands and Bali, east of Java, are not a hundred fathoms deep; and he is of opinion that these islands have been separated from the continent and from each other by subsidence of the intervening tracts of land. In the islands of Sumatra and Borneo are the elephant and tapir, and the rhinoceros of Sumatra and the allied species of Java, the wild cattle of Borneo and the species long supposed to be peculiar to Java all inhabit some part or other of southern Asia. Of the birds and insects, every family, and almost every genus of the groups found in any of the islands, occur also on the Asiatic continent and in a great number of cases the species are exactly identical. The resemblance in the natural productions of Java, Sumatra and Borneo with those of the adjacent parts of the continent, lead to the conclusion that at a very recent geological epoch the continent of Asia extended far beyond its present limits in a south-easterly direction including the islands of Java, Sumatra and Borneo, and probably reaching as far as the present 100 fathom line of soundings. The Philippine Islands agree in some respect with Asia and the other islands, but present some anomalies which seem to indicate that they were separated at an earlier period and have since been subject to many revolutions in their physical geography.

But all the islands from Celebes and Limbok, eastward, exhibit almost as close a resemblance to Australia and New Guinea as the western islands do to Asia. Australia in its natural productions differs from Asia more than any of the four ancient quarters of the world differ from each other, and all its striking peculiarities are found also in those islands which form the Austro-Malayan division of the Archipelago, and the contrast between the Asiatic or Indo-Malayan forms and those of the Austro-Malayan are abruptly exhibited in passing from the island of Bola to that of Limbok, though the strait is only 15 miles wide, and in travelling from Java or Borneo to Celebes or the Mollucas the difference is still more striking, leaving the only inference that the whole of the islands eastwards beyond Java and Borneo do essentially form a part of a former Australian or Pacific continent although it may never have actually been joined to it, and it may have been broken up before the western islands were separated from Asia, and probably before the extreme south-eastern part of Asia was raised above the waters of the ocean.

The Aru, Mysol, Waigiou and Jobi islands are called Mo-toung, also Moo-long. Their language is said to be distinct. Of the two great races of Malays and Negroes, most of the former have embraced mahomedanism. The Malays apply to the people of New Guinea, the epithet of Puwa-puwa, or Papuwa, which is the adjective "frizzly," or "crisping," and is equally applied by them to any object partaking of this quality. The term Negro, from the Latin niger, is that usually employed to designate the races of whom mention is now made. Their numbers in Africa are vaguely estimated at twenty millions, including the Hottentot and Kafir off-shoots from the great family. The race on the American continent number about five millions. Their numbers on the Asiatic continent, on the shores of the Red Sea and Persian gulf, and on the Malay Peninsula, may not exceed half a million, but from the Andaman islands eastwards to the races in the Pacific, of the people generally classed as Negroes, there are at least twelve varieties differing from each other in physical appearance, some being pigmies under five feet and others large and powerful men of near six feet. Excepting in the Andamans, in all the Negro languages of which Mr. Crawfurd had seen specimens, Malayan words are to be found. Negro races occupy the Andaman and Great Nicobar islands, and the Minkopi of the Andaman group have some peculiarities which indicate a difference from others of the Negro tribes. The Semang, a pagan tribe of the Malay Pensinsula, are certainly of Negro origin, also, the Aheta, Ita or Negrito race of the Philippines. The Negros of Buglos Island from lat. 9·4 to lat. 9·50 N. The inland inhabitants of New Guinea, Ceram and all the larger islands in the south-eastern part of the Indian Archipelago, also of Mindanao are Papuans. The Arruans of the Arru Islands have African features and bear a strong resemblance to the natives of Port Essington.

Mr. Logan thinks there is no doubt that Southern Asia had always been occupied as at present wtth several races, tribes and languages, and that S. W. Asia and Asianesia had been contemporaneously occupied by 1st, Archaic Indo-Australian; 2, Papuan; 3, Tibeto-Chinese or Ultra-Indian; 4, Dravidian; 5, Scythic; 6, Iranian; 7, Semitic races, and the spiral-haired Negro race seems to have preceded the lank-haired brown race: whether Negro tribes and dialects did not in a still more ancient era, occupy Ultra-India and India, before any of the present non-negro races moved into their regions, he says, is a question deserving investigation. At present, a Negrito race, of small stature, is found in several parts of Asianesia; traces of the Negro race are also found in Formosa and Japan. Lesson alluding to the Australian Negro says the race does not differ in any essential thing from the Oceanic race, of which the Papuans alone form another somewhat distinct branch. They have a similarity of form and external character to the inhabitants of New Britain, New Ireland and very probably those of New Caledonia. He supposes that they have emigrated from New Guinea and Madagascar.

The Negroes of the Andamans are in the very lowest and most abject state of human society, without fixed dwellings, unclad, and unacquainted with the meanest of the useful arts of life. In disposition they are shy, unsocial, and mischievous. They seem to have been isolated for the past two or three hundred years, and when the British last settled on their islands, in 1858, they were found in the lowest condition to which human beings can fall. They are not cannibals as was long supposed,—but live on pork, fish, grains, roots, cocoanut and other fruits, and broil the flesh of their animals before eating it. They may be called hunters and fishermen, hunting game in their own wilds and jungles, using the bow and arrow, with which they are expert, and employ the bark of a tree for fishing lines. They have no clothing, but go entirely naked and seem unconscious of that feeling of shame which guides the other races in the world to cover their persons. They construct huts, but of the rudest character. They are intensely averse to the intrusion of strangers and so far as known, up to the year 1865, only two persons had been allowed to live. They are small in stature, seldom rising in height over five feet. The head is smaller than that of the ordinary Asiatic, and depressions exist in the temporal region. The teeth are nearly white, but often so irregular as to seem in double rows. They are muscular, and are deficient in the roundness and fulness which give such symmetry of form to other races. In youth, to beautify their persons, their bodies are scarified all over with broken glass, which gives the skin a bead-like appearance, the lines running longitudinally down the arms and bust. Their religion is supposed to be a kind of Fetichism. When pleased with any thing to which their attention is drawn, they gently bite with their teeth the lower edge of the palm of the right hand and then smartly strike the left shoulder. They also contract the lips as in kissing and make a hissing noise like that of grooms in cleaning horses. When they speak to one another their pronunciation is so indistinct as to resemble a chatter, but they are sharp in catching words and sounds. They are said to be passionately fond of music, though they have no musical instrument. In dancing, they hop on one foot, beating it down smartly in regular time, keeping both hands raised above the head. They change feet, keeping cadence with the song, work the head, bow the body and thus spring and jump till the dance is closed. The Andaman language is dissyllabic.

Further eastward, in the northern portion of the Malayan Peninsula, within the territories of the Malay provinces of Queda, Perah, Pahang and Tringanu, is a negro race known to the Malays under the names of Simang and Bila. Their complexion is black, or sooty, the hair woolly, the features approaching to the African, and the stature dwarfish. An adult Simang male, said to be of the mean height of this people, was found to be only 4 feet 9 inches high. Some of the Simang, or Bila, have fixed habitations, and practice a rude agriculture, but the majority lead an erratic life, gathering the rude products of the forest to exchange with the Malays for the necessaries of life, or substituting by the chase. The Simang and Bila of the Malay peninsula appear to have several tongues, and that of the Simang though containing Malay and Javanese words is considered by Mr. Crawfurd to be an original tongue. The Simang and the Philippine Negroes are of diminutive stature. The average height of the wild tribe of Simang on the Malay Peninsula appears to be under five feet. In the remoter portions of Asianesia, some of the black tribes possess all the traits of the Guinea Negro, but the Simang and Andaman appear, like the greater number of Asianesian Negro tribes, to have been partially modified by mixture with other races. This is certainly the case with the Simang, some of whom are Australo-Tamulian in appearance, while others differ little save in their frizzled or spiral hair and dark complexion, from some of the adjacent Binua. The average height of the adults of a party of Simang Bukit on the Ijan, a feeder of the Krian was four feet eight inches, the highest four feet ten inches. Head small, ridged, that is, rising above the forehead in an obtuse wedge-shape, the back rounded and markedly narrower than the zygomatic or middle zone; the face generally narrower and smaller than the Malay: eye-brows very prominent, standing out from the forehead and projecting over the occular furrow which extends across the face, the root of the nose sinking into it and forming a deep angle with the base of the supercilliary ridge. The nose short and somewhat sharp at the point, and often turned up, but the alæ spreading; eyes fine, middle-sized and straight: iris large, piercing, conjunctive membrane yellow, the upper eye-lashes, owing to the deep ocular depression or prominent ridges are compressed or folded, the roots of the hair being hidden. The cheek bones generally broad, but in some cases not remarkably prominent, save with reference to the narrow forehead. Mouth large or wide but lips not thick or projecting, the lower part of the face oval or round but not square. The deep depression at the eyes and sinking in at the root of the nose gives a very remarkable character to the head compared with the Malay. The projecting brow is in a vertical line with the nose, mouth and chin, and the upper jaw is not projecting or prognathous. The person is slender, the belly protuberant owing to their animal life in the jungle and precarious food. This induces them to cram themselves whenever they can, and the skin of the abdomen thus becomes flaccid and expansible like that of an ape. The skin generally is fine and soft, although often disfigured by scurf, and the colour is a dark-brown, but in some cases lighter and approaching to the Malay. The more exposed hordes are black. The Simang of Tringanu are not of such a jet-black glossy colour as the Kidah tribe. The hair is spiral not woolly, and grows thickly on the head in tufts. They have thick moustaches, the growth being much stronger than in the Malay race. The head is neither Mongolian, nor Negro of the Guinea type. It is Papua-Tamulian; the expression of the face is mild, simple and stupid. The voice is soft, low, nasal and hollow or cerebral; a line of tattooing extends from the forehead to the cheekbones. The right ear is pierced, the orifice being large. The hair is cropped save a ring or fringe round the forehead. Simangs are found in all the rivers of Pera and are classed as the Simang paya who frequent the low and marshy alluvium between the sea and the hill; the Simang bukit who wander in the forests of the hills, and the Saki who are confined to the mountains of the interior. There are said to be thousands of Simangs in the interior of Patani, Tringanu, Kidah and Pera, wherever the country is covered with forest and there are few or no Malays. Simang tribes of Kidah and Pera have a language mainly dissyllabic like other Asianesian ones. The people of Kidah more often approximate to the eastern Negro type than in southern Malaya, and Mr. Logan was particularly struck with the repeated occurrence of the deep nasal depression of the Simangs, the Australians and Papuans. Small heads, with all the features as it were contracted or compressed, were common.

The ruder Binua dialects of the peninsula are rapidly disappearing. The Binua or Sakai of Pera appears to resemble in its phonetic character, the ruder dialects of the Burman group. This character is intermediate between that of the Simang on the one side and that of the ruder Sumatran, Javan and Borneon on the other. The Johor Binua, is more guttural, aspirate and harsh, remarkably broad and slow. In the Binua, the cheekbones are broad in all directions and prominent, giving to the face below the base of the forehead a marked lateral development, beyond it or to the forehead an appearance of being compressed. The lower jaw is massive, spreads out and does not rise rapidly, thus producing an obtuse chin and the anterior maxillary projection considerable.

The *Arru Islands* extend 100 miles from north to south. Inland are many fresh water swamps with thick impenetrable jungle in other places. Their produce is pearls, mother of pearl, tortoiseshell, birds of paradise and trepang. The timber of the Islands is much praised. Arru Islanders have much intercourse with strangers. They are fond of arrack, and purchase from the Bugis the Papuan slaves brought from New Guinea, who are then employed in diving for pearls and in the beche de mer fishery. The Arru Islanders are impoverished by their excessive use of intoxicating liquors, imported from Java and Macassar. In personal appearance the people are between the Malayan and Polynesian Negro. They are not many degrees further advanced in civilization than the natives of the north coast of Australia to whom many of them bear considerable personal resemblance. Some of the Arru men profess christianity and some are mahomedans. In stature they surpass the civilized natives of Celebes. The dress of the men is a piece of matting or cloth girded round the loins and drawn tight between the thighs, and a salendan or shawl. No fillet is worn round the head. The hair is woolly and frizzled out like that of the Papua. The men are of a jealous disposition and easily roused to anger by abuse of their women or ancestors, otherwise they are mild of disposition. The women wear a mat in front and one behind. When a person of consequence dies, these are stripped off and they rush into the sea where they disport for some time. In the Arru Islands, christianity was introduced many years ago by the Dutch of Amboyna and nearly all the principal people profess this creed. The Arru Paupan ornament their houses with brazen trays, dulam or talam, and elephant's teeth, which are broken up when the owner dies.

In *Dori*, the Papuans are called Myfore. They are about 5 feet 3 inches high, few attain 5 feet 6 inches. They wear their crisped hair its full length, aud generally uncared for, which gives them a wild scared appearance. The men, not the women, wear a comb. The beard is crisp. The forehead is high and narrow; eyes large, dark-brown, or black: nose flat and broad: mouth large, lips thick and teeth good: few have regular features, and most are apathetic. The ordinary men wear a waist cloth made of the bark of a tree, called "mar," which is wrapped round the waist and passed between the legs. Women wear a short sarong to the knee, generally of blue cloth. Men and women tattoo their bodies on occasions, by pricking the skin with a fishbone and rubbing in lamp black. The Dori people are a sea-faring people and are expert swimmers and divers. Their Prahu have outriggers and are excavated from the trunk of a single tree. Their food consists of millet, obi, maize, a little rice, fish and hog's flesh and fruits, sago is imported in small quantities. Theft is considered a grave offence: they are chaste and marry one wife.

Flores, New Guinea.—It is not known that the great islands of Sumatra, Java, Borneo and Celebes, ever contained any Negro race. But a Negro race occurs in the Island of Flores, and, in the great Island of New Guinea, they form the whole native or aboriginal population, as they also do of the islets near its coasts. Even within New Guinea itself, there would seem to be more than one race. M. Madera, of the Dutch Navy, quoted by Mr. Earl in the Journal of the Indian Archipelago, describes two of them whom he saw on the south-west coast. Mr. Earl describes the features of the New Guinea Papuans as of a decidedly negro character:—broad flat noses, thick lips, receding foreheads and chins, and that turbid colour of what should be the white of the eye which gives a peculiarly sinister expression. Their complexion is usually a deep chocolate-colour, sometimes closely approaching to black, but certainly a few shades lighter than the deep-black, that is often met with among the Negro tribes of Africa. In New Guinea, the many Papuan tribes are generally in a state of warfare with each other and return from their warlike expeditions with heads. The New Guinea people worship a wooden deity called Karwar, 18 inches high, whom they consult on all occasions. A widow remains in the family of her deceased husband. The Negroes of New Guinea are in various states of civilization. Some of the rudest dwell in miserable huts and seek a bare subsistence by the chase or the spontaneous productions of the forest. There are, however, other Negro tribes living on the coast who have made some advance in civilization. These dwell by whole tribes in huge barn-like houses raised on posts, like those of the wild inhabitants of Borneo, but ruder.

Philippines.—Negroes are found in several islands of the Philippine Archipelago, especially of the principal island, Lucon, and in Negross, which is said to take its Spanish name from them.

Waigyu.—The inhabitants of the Islands of Waigyu, lying between New Guinea and Gilolo, one of the Moluccas, are Negroes. M. Du Perry represents them as having more regular features.

Gebbe.—M. Freycinct has described the Negroes of Gebbe, an island also between New Guinea and Gilolo, and not far from the latter. The nose is flat, the lips thick and projecting, the complexion a dark-olive, the eyes deep-seated, and on average the facial angle 77°, but as high as 81°. In Gebbe, Waigyu and some parts also of the coast of New Guinea, the Malayan race may have become intermixed with the Negro, as the complexion is lighter and peculiar texture of the Negro hair altered or obliterated.

All the islands extending from New Guinea up to the Fiji group appear to be inhabited by Negroes. But they differ greatly in physical appearance in New Ireland, Malicollo, one of the great Cyclades, Tanna and New Caledonia in the New Hebrides.

The Alfuro seem to have affinities with the Tagala race of the Philippines through the Sanguir islands. A Papuan or Timorese is darker, and with more frizzly hair than the Polynesian, New Zealander or Otaheitan, but their features are almost identical.

Mr. Wallace (ii, 280) believes that the numerous intermediate forms which occur among the countless islands of the Pacific are not merely the result of an intermixture of these races but are to some extent truly intermediate or transitional, and that the brown and the black, the Papuan, the natives of Gilolo and Ceram, the Fijian, the native inhabitants of the Sandwich islands and those of New Zealand are all varying forms of one great Oceanic or Polynesian race. Professor Huxley, however, is of opinion that the Papuans are more nearly allied to the Negroes of Africa than to any other race. The whole of the great island of New Guinea, the Ke and Aru islands, with Mysol, Salwatty, and Waigiou are inhabited almost exclusively by the typical Papuan, and the same Papuan race extends over the islands east of New Guinea as far as the Fiji islands. The people on the coast of New Guinea are in some places mixed with the browner races of the Moluccas. In the typical Papuan, the colour of the body somewhat varies: generally it is a deep sooty-brown or black, somewhat approaching but never quite equalling the jet-black of some Negro races, but it is occasionally a dusky brown. The hair is harsh, dry and frizzly, growing in little tufts or curls, which in youth are very short and compact, but afterwards grow out to a considerable length forming the compact frizzled mop, which is the Papuan's pride and glory. The face has a beard of the same frizzly hair, and the arms, legs and breast are also more or less clothed with hair of a similar kind. In stature the Papuan is superior to the Malay, and the equal or superior of the average European. The legs are long and thin, and the hands and feet larger than those of the Malay. The face is somewhow elongated, the forehead flattish, the brows very prominent, the nose is large, rather arched and high, the face thick, the nostrils broad and the aperture hidden, owing to the tip of the nose being elongated. The mouth is large, the lips thick and protuberant. He is impulsive and demonstrative in speech and action, his emotions and passions express themselves in shouts and laughter in yells and frantic leapings, women and childien take their share in every discussion. The Papuan has much vital energy. In the Moluccas, Papuan slaves are often promoted to places of considerable trust. He decorates his canoe, his house, his domestic utensils with elaborate carving. They are often violent and cruel towards their children. The Papuan is taller, black-skinned, frizzly-haired, bearded and hairy-bodied, long-faced, has a large and prominent nose, and projecting eyebrows, bold impetuous, exciteable and noisy, joyous and laughter loving and displays his emotions. If the tide of European civilization turn towards New Guinea, the Papuan like the true Polynesian of the farthest isles of the Pacific will no doubt become extinct. A warlike and energetic people who will not submit to national dependence or to domestic servitude must disappear before the white man. A race identical in all its chief features with the Papuan, is found in all the islands as far east as the Fiji.

Mysol and Waigiou are Papuan, mixed, partly from Gilolo, partly from New Guinea.

Alfura, is written Alfora, Alafora, Arafura, Alfur, Arafura and Halafora. According to Mr. Crawfurd it is from the Arabic article Al, and fora, but another source is said to be the Portuguese word Alforias and to mean free men, manumitted slaves, also independent tribes of the interior.

The Atheta or Negrito race, are found in the Philippines, the second name, meaning little Negro, being given to them by the Spaniards; but that of Ita or Ahetas, written Ajetas, is their usual appellation among the planters and villagers of the plains. The woolly-haired tribes are more numerous in the Philippines than in any other group of the Indian Archipelago, they were estimated by M. Mallat in 1842 to amount to 25,000. The islands Samar, Leyte and Zebu, have not any of them; but they are found in Negros, Mindanao, Mindoro and Luzon. In the early accounts of them by Spaniards, they are described as being smaller, more slightly built and less dark in colour, than the Negroes of Africa, and as having features less marked by the Negro characteristics, but as having woolly instead of lank hair; and their social condition could not then have been much better than now, since they are described as living on roots and the produce of the chase; and as sleeping in the branches of the trees, or among the ashes of the fires at which they had cooked their food. The name bestowed on them by the Spaniards is 'Negritos,' or little negros, but that of 'Ita' or 'Athetas,' so pronounced but written Ajetas, seems to be their usual appellation among the planters and villagers of the plains. They are all well-formed and sprightly, but very low in stature, as they rarely exceed four feet and a half in height. The character of the Negrito is untameable, and it is impossible to surmount their tendency to idleness. Prompted by an irresistible instinct to return to the place of their birth, they prefer a savage life to all the charms of civilization. The Ajetas or Negritos are ebony-black like Negroes of Africa. Their utmost stature is four feet and a half; the hair is woolly, and as they take no pains in clearing it, and do not know how to arrange it, it forms a sort of crown round the head, which gives them an exceedingly fantastic aspect, and makes the head appear, when seen from a distance, as if surrounded with a sort of aureole. The Negrito of the Philippines, black and woolly-haired, are of small dwarfed stature, 4 feet 6 inches to 4 feet 8 inches high, which is 8 inches less than the Malays. The hair agrees with that of the Papuan and many Negroes of Africa, but the Papuans are taller than the Malays. The Negritos of the Philippines are polytheists, but without temple or ritual. They believe in omens, invoke Camburan (God), the moon and stars, and adore the rainbow after a storm. They have also a worship of ancestors, a god of the harvest, of the fisherman and hunter; and a remnant of fetichism in a grotesque native devil. Mindanao and Mindoro contain several tribes of Negritos, and they form the chief population of the less accessible parts in the mountain ranges of Lucon, the largest island of the Philippine group. The accounts of the Negritos given by the early Spanish navigators perfectly apply to their present condition. They are described as being smaller, more slightly built, and less dark in colour than the Negroes of Africa, and as having features less marked with the Negro characteristics, but as having woolly hair. Papuans of Dory worship, or rather consult, an idol called "Karwar," a figure rudely carved in wood and holding a shield, with which every house is provided. The idol, which is usually about eighteen inches high, is exceedingly disproportioned, the head being unusually large, the nose long and sharp at the point, and the mouth wide and well provided with teeth. The natives have also a number of "Fetishes," generally carved figures of reptiles, which are suspended from the roofs of the houses, and the posts are also ornamented with similar figures cut into the wood. Within the geographical limits of the Indian Archipelago, the Papuans only appear as inhabitants of the sea coast in New Guinea and the islands immediately adjacent. In other parts of this region they are found only among the mountain fastnesses, maintaining an unequal struggle with the brown races by whom they are surrounded. In some of the Spice Islands, the group nearest to New Guinea, "their extirpation is matter of history," as observed by Mr. Crawfurd. (History of the Indian Archipelago, Vol. i, p. 18.) In Ceram and Gillolo a few scattered remnants of the race still exist; but they hold little or no intercourse with their more civilized neighbours, flying into the thickets which afford them shelter and concealment on the first appearance of a stranger, experience having taught them that death or captivity will be their fate if they fall into the hands of their natural enemies. The characteristics of the mountain Papuans must therefore be sought in those islands where their numerical strength permits them to lead a life more fitted for human beings than that of their hunted brethren. It is an error to suppose that these poor creatures disappear before civilization. Their chief destroyers are the wild and warlike hunting tribes of the brown race; and, excepting the case of the Moluccas, wherever European civilization has been introduced, the Papuans are more numerous than elsewhere. In the Philippines, for example, according to an intelligent modern traveller, their number in the year 1842 amounted to 25,000 souls. (M. Mallat, "Les Philippines," &c., Vol. i, p. 97, Paris, 1846.) The large island of Moysol or Mæsual, which lies nearly midway between the north-western extreme of New Guinea and Ceram, is said to have been occupied exclusively by Papuans when this region was first visited by Europeans, and they still form the bulk of the inland population, but the villages of the coast are occupied by a mixed race, in which the Papuan element, however, prevails. The islands of Goram, Ceram-laut, Bo, Poppo, Geby, Patani Hoek, and the south-eastern extremity of Gillolo, are also occupied by people of the mixed race, who are remarkable for their maritime activity, and for their friendly disposition towards European strangers. The woolly-haired tribes are more numerous in the Philippines than in any other group of the Indian Archipelago, with the exception of New Guinea. M. Mallat, as already stated, gives the amount of the "Negrito" population in 1842 as 25,000. This can only be considered as approximative, still it is probably not far from the true amount. The race, therefore, can scarcely be less numerous now than on the first arrival of the Spaniards more than three centuries ago. Indeed, their distribution among the islands of the group seems to have been much the same then as at the present day; for the island on which they were first seen was named by Magellan "Isla dos Negros," to distinguish it from the adjacent island Zebu, where his ships remained for some months. Negros still contains a large population of Papuans, while Zebu is altogether free from them, and no record exists of their having ever been found there. Samar and Leyte are similarly situated with Zebu. From a number of inquiries among Papuans who were marked with the raised cicatrices, it appears that those on the arm and breast, which are the largest and most prominent, were made in order to qualify them for admission to the privileges of manhood, by showing their capability of bearing pain. The Malayan term for crisped or woolly hair is "rambut pua-pua." Hence the term "pua-pua," or "papua," (crisped), has come to be applied to the entire race; and expresses their most striking peculiarity. The features of the Papuans have a decided negro character: broad nose, thick and prominent lips, receding forehead and chin, and that turbid colour of what should be the white of the eye, which is apt to give the countenance a sinister expression. Their natural complexion is almost universally a chocolate colour, sometimes closely approaching to black, but certainly some shades lighter than the deep-black which is often met with among the negro tribes of Africa. The Papuans, when placed in circumstances favourable for the development of their powers, are physically superior to the races of South-eastern Asia. Some of the New Guinea tribes would bear a comparison, in point of stature and proportions, with the races of Europe, were it not for a deficiency about the lower extremities. Even the more diminutive mountain tribes are remarkable for energy and agility—qualities which have led to their being in great demand as slaves among their more civilized neighbours. With regard to mental capacity, also, they are certainly not inferior to the brown races; but their impatience of control while in an independent state, utterly precludes that organization which would enable them to stand their ground against encroachment; and they invariably fall under the influence of the Malayans whenever the two races are brought into contact. The islands in which remnants of Papuan tribes may yet be found are Sumba or Sandalwood Island, Buru, the Xulla Islands, and the small eastern peninsula of Celebes, which terminates at Cape Taliabo. Sumba is a mountainous island, three hundred miles in circumference, lying to the south of Flores, from the coast of which it is distinctly visible in clear weather. The inhabitants of Savu possess a settlement near the south-west extreme of the island, and the Bugis traders of Ende have two or three small stations on the north coast which are occasionally visited by small European vessels for the purpose of obtaining horses; but the natives of Sumba all dwell in the uplands, where they cultivate maize, yams and other produce similar to that grown on Timor, and are said to use the plough, which is unknown in any other island to the eastward of Sumbawa.

The *Kei* group of ten islands adjoin the Arru Islands. Ke, Kei, or Ki, is prefixed to the names of all their villages. The great Kei is about the size of Tanakeka, an island, near Macassar. The men profess mahomedanism, but eat hog's flesh, and the islands produce Maratigo and Banyaro woods, well adapted for masts. In Dori, the Papuans are called Myfore. They are about 5 feet 3 inches high, few attain 5 feet 6 inches. They wear their crisped hair its full length, and generally uncared for, which gives them a wild, scared appearance. The men, not the women, wear a comb. The Papuan women of Ke are not secluded, the children are merry, noisy and have the nigger grin, and amongst the men is a noisy confusion of tongues and excitement on every occasion. The Ki group form the northern of the south-easterly islands. The islands, are covered with luxuriant forests. The islands are occupied by two races, one of them the Papuan who make cocoanut oil, build boats and make wooden bowls, their boats are from small planked canoes to prahus of 20 to 30 tons burden. They build the skin first and fit on the knees and bends and ribs. Money is not used, but every transaction is in kind. The Papuan wears a waist cloth of cotton or bark. The other race are mahomedans who were driven out of Banda. They wear cotton clothing. They are probably a brown race, more allied to Malays, but their mixed descendants have great varieties of hair, colour and features, graduating between the Malay and Papuan tribes.

Ceram is the largest island of the Moluccas and, next to Celebes, of all the Archipelago. It is 162 miles long, but its greatest breadth is only 42 miles. The island is one long mountain chain that sets off transverse spurs, and some of the peaks are 5,000 or 6,000 feet in height. The people of Ceram approach nearer to the Papuan type than those of Gillolo. They are darker in colour, and a number of them have the frizzly Papuan hair; their features are harsh and prominent, and the women are far less engaging than those of the Malay race. The Papua, or Alfuro man, of Ceram, gathers his frizzly hair into a flat circular knot over the left temple, and place cylinders of wood, as thick as one's fingers and coloured red at the ends, in the lobes of the ears. They are very nearly in a state of nature, and go almost naked, but armlets and anklets of woven grass or of silver, with necklaces of beads or small fruits, complete their attire. The women have similar ornaments, but wear their hair loose. All are tall, with a dark-brown skin, and well-marked Papuan physiognomy. The Alfuro or Papuan race are the predominant type in the island of Ceram. Of twenty-eight words of the language of Ceram, nine of the words are Malay, two Javanese, and seventeen are common to these two languages.

In *Celebes*, the Trans-Javan or Timorian band, and the Moluccas, is a large and important class of Indonesians, who graduate between the Anam type, the Burman and the Negrito. The most prevalent head or that of the predominent is ovoid, but it is somewhat Burman or Indo-Burman in nose, eye and colour. The great island of Celebes may be considered the centre of a group of languages, which, although agreeing with those heretofore described, in simplicity of grammatical stucture, differs very widely from them in phonetic character, although spoken by the same race of men. Celebes is intersected by the equator, leaving a small portion of it in the northern and the mass in the southern hemisphere. Its greatest length is about 500 miles, but its greatest breadth does not exceed 100; and in some places it is hardly one-third of this width. Celebes may be considered to be the focus of an original and independent civilization which probably sprung up amongst the most advanced of the nations which occupy it, called by themselves Wugi, and by the Malays, and after them by Europeans, Bugi. In material civilization the Bugi are equal to the Malays.

Languages.—Mr. Crawfurd (Dictionary of the Malay language), considers that a certain connexion of more or less extent exists between most of the languages which prevail from Madagascar to Easter Island in the Pacific, and from Formosa, on the coast of China to New Zealand; thus, over 200 degrees of longitude and seventy of latitude, or over a fifth part of earth's surface. In this are the innumerable islands of the Indian Archipelago, from Sumatra to New Guinea, the great group of the Philippines, the Islands of the North and South Pacific, and Madagascar. It is inhabited by many different and distinct races of men, as the Malayan, the brown Polynesian, the Insular negro of several varieties, and the African of Madagascar. Of these, the state of civilization is so various that some are abject savages, while others have made a respectable progress in the useful arts, and even attained some knowledge of letters. He is of opinion that the leading race in the Archipelago is one and the same, but the languages are many, with more or less intermixture of some principal ones throughout. In Borneo there are at least 40 languages; in Celebes and its islands at least 10; in Flores 6; in Sumbawa 3; in Sumatra and its islands not fewer than 10; and even in civilized Java with its islands, 3. It is the same in the Philippine islands, and in Lucon, alone, there are three. The Indian Archipelago consists of the islands extending from Sumatra to the western shores of New Guinea, and respecting which our information is most complete. He says that no languages in it exist derived from a common stock, or standing to each other in the relation of sisterhood, as Italian, Spanish and French, do to each other; or as Gaelic does to Irish, or Armorican to Welsh, or Scotch to English. The only dialects that exist are those of the Malay and Javanese languages, but they consist of little more than differences in pronunciation, or the more or less frequent use of a few words. In the Polynesian Islands alone, real dialects of a common tongue do exist, but there the number of words common to such dialects, and to the languages of the Archipelago, is so trifling that it refutes at once the notion of a common origin. In Malay, the most familiar words for the head, the shoulder, the face, a limb, a hair or pile, brother, house, elephant, the sun, the day, to speak, and to talk, are all Sanskrit. In Javanese, Sanskrit furnishes words for the head, the shoulders, the throat, the hand, the face, father, brother, son, daughter, woman, house, buffalo, elephant, with synonymes for the hog and dog, the sun, the moon, the sea, and a mountain. In the language of Bali, the name for the sun in most familiar use is Sanskrit, and a word of the same language is the only one in use for the numeral ten. It is on the same principle that Mr. Crawfurd accounts for the existence of a similar class of Malayan words in the Tagala of the Philippines although the whole number of Malayan words does not exceed one-fiftieth part of the language. Head, brain, hand, finger, elbow, hair, feather, child, sea, moon, rain, to speak, to die, to give, to love, are examples.

Some personal pronouns are found in the Polynesian dialects, where, in a vocabulary of five thousand words a hundred Malayan terms do not exist. A sentence of Malay can be constructed without the assistance of Javanese words, or of Javanese without the help of Malay words. These two languages can be written or spoken, without the least difficulty, without a word of Sanskrit or Arabic. The Malay and Javanese, although a large proportion of their words be in common, are distinct languages, and their Sanskrit and Arabic elements are extrinsic and unessential. When this test is applied to the Polynesian languages we find an opposite result. A sentence in the Maori and Tahitan can be written in words common to both, and without the help of one word of the Malayan which they contain, just as a sentence of Welsh or Irish can be constructed without the help of Latin, although of this language they contain, at least, as large a proportion of words as the Maori or Tahitan do of Malayan.

Mr. Crawfurd is of opinion that the Malay and Javanese languages furnish the stock of the wide-spread words which are common to so many tongues in the Archipelago and which have been chiefly derived from the languages of the two most civilized and adventurous nations of the Archipelago—the Malays and Javanese; and he uses the word Malayan for whatever is common to these two people.

Of the languages of Celebes, the next in importance to the Bugis is the Macassar. The people who speak this tongue inhabit the same peninsula. They call themselves and their language Mankasara, and hence the Makâsar or Mangkasar of the Malays, whence the English name. Besides Bugis and Macassar, the two principal languages, there are three other languages of Celebes written in the same character, or, at least, occasionally written in it; the Mandar, the Manado, and the Gorongtalu. The Mandar is spoken by a people on that side of the south-western peninsula, which fronts Borneo.

The island of Sumbawa, the third in a direct line east of Java, about three times the extent of Bali or Lombok, and divided by a deep bay into two peninsulas, has three languages, the Sumbawa, the Bima, and the Tambora. The natives of Sumbawa are little inferior in cultivation to the most improved nations of Celebes. The Sumbawa and Bima languages are written in the Bugis character, but there exists in this island a singular and curious obsolete alphabet. It is ascribed to the Bima nation, but the characters do not generally correspond .with the simple sounds of the Bima language as exhibited in the specimen given of it.

The large island of Flores, the fifth in a line east from Java, due south of Celebes, and of volcanic formation, affords the first example of a race of men seemingly intermediate between the Malay and Papuan, or Negro, but partaking far more of the physical form of the former than of the latter. The complexion is a good deal darker than that of the Malay, the nose flatter, the mouth wider, and the lips thicker. The hair is not lank as in the Malay; but buckles, without frizzling as in the Papuan. The stature is the same as that of the Malay, that is, short and squab. According to the statements made to Mr. Crawfurd by Bugis traders, themselves settlers in the island, Flores is inhabited by six different nations, speaking as many different languages; the Endę, the Mangarai, the Kio, the Roka, the Konga, and the Galeteng, names derived from the principal places of their residence.

Timur is a word which means the east, and was probably imposed on this island by the Malays, to whose language it belongs, because this was the extreme limit of their ordinary commercial voyages to the south-east. Timur is about three times the extent of Jamaica. Its principal inhabitants are of the Malayan race, but it contains also Papuans or Negros, and tribes of the intermediate race. The two languages of Timur are the Manatoto and the Timuri, the first spoken at the north-east end of the island, and the last used by many of the tribes as a common medium of intercourse. No alphabet has ever been invented in Timur; but judging by the specimens of its languages, the vowels are the same as those of the Malay and Javanese.

From Timur to New Guinea, there runs a long chain of islets, forming as it were, a wall or barrier to the south-eastern portion of the Archipelago. In these islets the inhabitants are of the same race with the Malays, and speak many languages. By far the most ample and authentic account of them has been given by Mr. Winsor Earl, who, after a longer experience of the countries in which they are spoken than any other European, makes the following observations. "In the south-eastern parts of the Indian Archipelago, where opportunities of social intercourse between the various petty tribes are of rare occurrence, every island, every detached group of villages, has its own peculiar dialect which is often unintelligible, even to the tribes in its immediate neighbourhood. In some of the larger islands, Timur, for example, these tribes are so numerous, and the country occupied by many of them so extensive, that it becomes impossible to form even an approximate estimate of their number." Of one language, the prevailing one, among several languages of the island of Kisa, one of the Sarawati group in the chain of islets already mentioned, Mr. Earl furnished a curious and instructive vocabulary of 330 words. The Kisa is an unwritten tongue, but its vowels are the same as those of the Malay and Javanese.

Spice Islands.—Sir Stamford Raffles furnished specimens of three of the languages of this furthest east portion, viz.: those of Ceram, correctly Serang, of Ternate, correctly Tarnati, and of Saparuwa, one of the Banda isles. Of the languages of Ceram, nine of the words are Malay, two Javanese, 17 are common to these two language. Ceram Laut is the great place to which the Bugis carry the Papuan slaves whom they steal from New Guinea.

The great group of the Philippines, although contiguous to the proper Indian Archipelago, differs materially in climate and the manners of its inhabitants. It extends over fifteen degrees from near latitude 5° to 20° N., and consists of many islands of which only Lucon and Mindanao are of great size. The bulk of the people are of the same tawny complexioned, lank-haired, short and squab race, as the principal inhabitants of the western portion of the Indian Archipelago, The focus of the aboriginal civilization of the Philippines, as might be expected, has been the main island of the group, Lucon. The principal languages of Lucon are the Tagala, the Pampanga, the Pangasinan, and the Iloco, spoken at present by a population of 2,250,000; while the Bisaya has a wide currency among the southern islands of the group, Leyte, Zebu, Negros and Panay, containing 1,200,000 people. Mr. Crawfurd tells us that it does not appear, from a comparison of the phonetic character and grammatical structure of the Tagala, with those of Malay and Javanese, that there is any ground for fancying them to be one and the same language, or languages sprung from a common parent, and only diversified by the effects of time and distance, and that an examination of the Bisaya Dictionary gives similar results. The great islands of Mindanao, Palawang, and the Sulu group of islets, forming the southern limits of the Philippine Archipelago, contain many nations and tribes speaking many languages of which little has been published. Mr. Crawfurd, on the information given by Mr. Dalrymple, informs us that even in the little group of the Sulu islands, a great many different languages are spoken, and he gives a short specimen of 88 words of one of those most current. Sulu has for many years been the market where the Lanun and other pirates disposed of much of their plunder, and in former times itself was decidedly piratical. The mahomedan religion has made much progress in Mindanao and the Sulu islands, as has the Malay language, the usual channel through which it has at all times been propagated over the islands of the Indian Archipelago. Mr. Crawfurd remarks that whether the principal languages of the Philippines be separate and distinct tongues or mere dialects of a common language, is a question not easy to determine. Certainly, the phonetic character of the Tagala, the Bisaya, the Pampangan and Iloco are, sound for sound or letter for letter, the same. Words of the Malayan languages are to be found in the language of the aboriginal inhabitants of Formosa, or Taiwan; and as this large island about half as big as Ireland, stretches as far north as the 25° of latitude, this is the extreme limit in a northerly direction to which they have reached. The aborigines of Formosa are short in stature, of tawny complexions and lank hair. Although inhabiting a great and fertile island, affording to all appearance a fair opportunity of development, they never made any progress in civilization, and at present seem to live in a state of barbarism. They are thought by Mr. Crawfurd to belong to, or much to resemble, the brown-complexioned race of the Archipelago of whom the Malays are the type.

The islands of the Pacific extend from the east of New Guinea and the Philippines, to within two thousand five hundred miles of the western coast of America, and from about the 22° of north to the 47° of south latitude. The languages spoken over this vast area are, probably, nearly as numerous as the islands themselves. The language, with variations, is spoken by the same race of men from the Fiji group, west to Easter island eastward, and from the Sandwich islands north to the New Zealand islands south. It has been called the Polynesian. The whole number of Malayan words in the Maori dialect of the Polynesian, as they are exhibited in the William's Dictionary, only amount to 85.—*John Crawfurd, Esq., F. S. S., Malay Grammar and Dictionary, also, in Journal Indian Archipelago, Vol.* i, *p.* i, *to* cxli.; *Rev. Dr. Caldwell's Comparative Grammar of the Tamil language, and also Tinnevelly. Shanars; Cunningham's Bhilsa Topes; Yule's Embassy to Ava; J. R. Logan, Esq., F. G. S., in Journal Indian Archipelago from* 1848 *to* 1850, *passim, p.* 774; *Dr. Latham's descriptive Ethnology; Drs. Pritchard, Max Müller; General Briggs; Messrs. Schlagentweit, in Reports British Association,* 1845 *to* 1858; *Messrs. Hodgson, Robinson, Samwells, in Journal of Asiatic Society of Bengal; Captain Newbold in Royal Asiatic Society's Journal and Madras Literary Society's Journal; Calcutta Review, to* 1860; *Rev. William Taylor, A. M., in Journal Madras Literary Society; Dr. Thompson's Travels in Western Himalaya; Dr. Moore, M. D.; Lost Tribes and Saxons in the East; Captain H. G. Raverty, Dictionary of the Pukhto, Pushto or Affghan language; Mr. Piddington's Index; The Hindoos; Sir Erskine Perry's Bird's Eye View of India; Chevalier Bunsen, Egypt's place in Universal History; M. Spreewenberg, in Jour. Ind. Arch., December* 1858. See Africa, Aheta, Andamans, India, Masailma and El Aswad, Negros or Buglos islands, New Guinea, Papuans, Semitic races.

NEGRO-DE-HUMO, Sp. Lamp-black.

NEGRO-DE-ZAPATOS, Sp. Blacking.

NEGRO-FUMO, It. Lamp-black.

NEGRO PRESBYTIS, see Simiadæ.

NEGROS, or Buglos island, extends from lat. 9° 4′ to lat. 9° 50′. Of the central group of the Philippines, consisting of Panag, Negros, Samar, Leyte, Masbate, Bohol, and Zebu, the two former are the only islands in which Negrito tribes exist to the present day, and even as regards Panag, the fact must be considered doubtful. Negros, however, contains a considerable Negrito population, the crest of the mountain range, which extends throughout the length of the island, a distance of one hundred and twenty miles, being almost exclusively occupied by scattered tribes.—*Mr. Earl, p.* 141. See Aheta, Negrito, Negro.

NEGUNDO, see Acer.

NEHAS, Arab. Copper.

NEHEMIAH, is believed to have been born in Babylon.

NEHESH, Heb. Copper.

NEHOEMECA, or Nehoemaka, Maleal. Bryonia laciniosa.

NEHOR NEHU, a large sheep, or goat, or antelope, found in the very rugged mountains north of the Yaroo river, and in the neighbourhood of the salt mines or lakes. It is four feet high, has very large horns, sloping back, and four feet long, has a tail 15 inches long, is shaggy, and of various colours, sometimes black and red.

NEHRWALA, of D'Anville, is the capital of the Balhara sovereignty of the Arabian travellers of the eighth and ninth centuries.—*Tod's Rajasthan, Vol.* i, *p.* 497.

NEIBUHR, M. Carsten. In A. D., 1762, an expedition was organized by king Frederick V of Denmark, for the exploration of Arabia, but more particularly of the province of Yemen. It was under the charge of the learned M. Carsten Neibuhr, with whom were associated Professor Von Hanen as linguist; Professor Forskal and Dr. Cramer as naturalists, and M. Baurenfeind as draughtsman. They arrived in Yemen in the end of December 1762. Von Hanen died at Mokha on the 25th May 1763, Forskal died at Yereem on the 17th July following, M. Baurenfeind expired at sea, near the island of Socotra, on the 29th August, and Dr. Cramer at Bombay on the 11th February 1764.—*Playfair's Aden.*

NEILGHERRIES, a magnificent mass of mountains in the peninsula of India near the southern extremity of the Western Ghauts, rising to an altitude of 8,500 feet at Dodabetta, where an observatory was established in 1845. Dr. Birch wrote a topographical report of the hills in Mad. Lit. Trans. 1838, Vol. viii, 86. The Neilgherries are the highest hills in the south of India, they lie to the west of Collegal. The surrounding rocks are of granite and gneiss, but the summits of the mountains are of greenstone. The Kunda range is extremely irregular in its outline. It forms the seaward flank of the Neilgherries with a very steep slope towards the Malabar Coast. It attains in its higher parts an elevation of 7,500 to 8,200 feet above the sea. The Kunda or Sispara ghaut or pass which leads to Calicut is 6,742 feet above the sea. Neilgheri, means blue mountain. The Neilgherries had been traversed by a party of Pioneers under Captain Bevan and Dr. Ford, in 1809, and were partially surveyed under the direction of Colonel Morrison, so far back as 1812. But they appear to have been almost unknown to Europeans till about the year 1819, when they were first ascended by Messrs. Whish and Kindersley, in pursuit of a band of smugglers. Their report led to Mr. Sullivan establishing himself there, and ultimately to their being selected as a convalescent station. The remains of two forts are still to be seen, each of which was used as a state prison, and was occupied by a small garrison in the time of Hyder Ali and Tippoo Sultan. The Baddagah, or agricultural inhabitants, have a distinct tradition of their having migrated thither from Mysore towards the middle of the 17th century. Of the origin and history of the Toda, nothing certain is known. The hills are situated between L. 11° and 12° N., and L. 76° and 77° E., on the confines of the provinces of Mysore, Coimbatore, and Malabar. To Mysore, they are joined by a narrow neck of land, of much inferior height however. On all the other sides they are completely isolated. The sea is 40 miles distant at the nearest point on the west. The summit of the hills forms an undulating table land of considerable extent in the form of an irregular parallelogram, 40 miles long from E. to W., and with a medium breadth of about 15 from N. to S. The surface may be roughly estimated at 650 square miles, and presents several distinct ranges of undulations with peculiar features. That to the west called the Koondahs, rises abruptly from the plain, bordered by several precipices of great height, and accessible only at one or two points. The upper surface is intersected by narrow deep valleys, thickly dotted with wood, and presenting some most picturesque scenery. Several considerable streams take their rise here and unite to form the Bowany river, wich, descending by a succession of beautiful falls into a most romantic gorge, forces its way through the southern edge of the tableland, where it makes an abrupt turn to the east, and flows along the whole southern aspect of the hills till it meets the Moyar descending in a similar manner, and with similar accompaniments of scenery from the northern face. A prolongation of the Koondahs to the north is called the Neddimulla range, and forms a narrow ridge, shooting up into sharp peaks, and bordered by lofty precipices on the west. On the inner side, the Koondahs sink into a lower range of tableland, formed by a succession of low rounded hills and valleys, less richly wooded and bounded to the E. by the great central range of Dodabet, running completely across from N. to S. This is the highest point of the hills, being 8,730 feet above the sea. On the west side of the range, immediately below the highest summit, is Ootacamund, situated in a basin surrounded by high hills on all sides. At the northern extremity of the range is Coonoor, from which a magnificent gorge descends to the plain of Coimbatoor, giving a passage to the Coonoor ghaut, one of the principal roads. A corresponding fissure on the N., but much less deep and not so picturesque, contains the Segoor ghaut which gives access to the hills from Mysore and the north. After crossing the Dodabet range, the country sinks considerably and is covered with Buddagah villages and cultivation for some miles, when it again rises into long grassy ranges like the Koondahs, but without the lofty peaks which distinguish the latter. At the commencement of the rise is situated Kotagherry, and a little to the N. a deep valley running E. and W. descends abruptly into the low country, and is known as the orange valley, from containing a number of wild orange trees. It also contains a picturesque waterfall of some height. The descent from the tableland of Kotagherry, though less abrupt than that of the Koondahs, is sufficiently sudden to present a bold and imposing aspect when viewed from below. About the middle of the E. face, nearly opposite the Guzzelhutty pass, which ascends into Mysore, is the old Jackanairy Pass which for many years was the only practicable access to any part of them. The views on the Koondahs are bold and magnificent. Those towards and near Ootacamund, more pastoral; and in the vicinity of Kotagherry, richer and more agricultural. The want of rich tropical vegetation presented by some of the ghauts to the northward is conspicuous, and the absence of the deciduous plants and the consequent want of the rich variety of autumnal tints seen in the forests of Europe gives an air of monotony to the woods, which so richly clothe the upper portion of the table-land. The general elevation of the table-land differs a little in the three principal divisions. That of the Koondah range may be estimated at 7,600 feet. The central portion at 7,100 or 7,200, and the Kotagherry division at 6,000.

Koondah Range and Neddimullas.	
Kuddrakad hill...Ft.	8,502
Avalanche bungalow..................	6,716
Avalanche Pass (top).................	7,745
Woodcock valley...	7,630
Makurtee peak......	8,402
Central Range.	
Head of Segoor Pass	7,204
Kuthutty bungalow	5,538
Daviosolay Betta (N of Ootacamund).	8,380
Dodabet (highest point of hills).....	8729.7
Kundanogay hill (opposite Rallia)	7,816
Ootacamund lake..	7,361
Tankerness cottage (Dr. Baikie) Ft.	7,416
Coonoor bungalow.	5,911
Daverbetta (opposite Coonoor).....	6,571
Kotagherry Range.	
Kotagherry (Dr. Eaton's house)...	6,571
Dimhutty bungalow..................	6,506
Orange valley (centre)..................	4,847
Bookul Betta (above do.)..................	7,267
Low Country adjoining.	
Mutapollium bunglow..................	942
Coimbatore palace.	1,483
Segoor village (foot of Segoor Pass)...	4,001

The great elevation of the Nelgiris, combined with their perfectly isolated position, equally influenced by both monsoons, unite in producing one of the most perfectly temperate and equable climates in the world. The mean annual temperature of Ootacamund is 58°-68°. The annual range is considerable, being equal in some years to 38°, the highest observed temperature in the shade being 77° and the lowest 39°. The mean daily range is 17°.

The following table presents a view of the most important points of climate compared with similar phenomena in Great Britain:

	Quantity of Rain.	Moisture No. of days.				Solar Radiation.		Temperature of Atmosphere in Shade.					
	Inches.	Fair.	Cloudy.	Showers.	Rain.	Minimum.	Maximum.	Minimum.	Maximum.	Mean Range.	Mean Minimum.	Mean Maximum.	Mean.
Neilgherries.	44	237	23	81	19	15·8	22·6	38	77	16·7	48·5	68	55·6
Gt. Britain	23	160	60	145		23·3	65	11	80	16·9	41·8	58·7	50·3

The mean temperature of the year, the mean maximum and mean minimum, bear about the same relation to each other as in Britain, but are about 10° higher, while the daily range is somewhat less. The highest observed temperature and the lowest in England are greatly above and below respectively, the corresponding points on the Neilgherries, that is to say, the extremes are greater. The number of days on which rain falls in England (exclusive of snow) greatly exceeds the corresponding number on the hills, only 160 fair days being left in the one case and 237 in the other.

At Ootacamund, mean height of barometer	23·018	Mean annual range,	0·495
Greatest range,	0·700	Mean daily range	0·040
		Greatest daily range	0·060

The hygrometrical state of the atmosphere varies from intense dryness (from January to May) to saturation, with moisture, during the monsoon, and evaporation is in almost direct ratio with the dryness of the air. January, February, and the half of March, are uniformly fair, clear, and dry. The nights are very cold, and frost is almost always to be found in valleys and sheltered situations towards morning, disappearing as the sun acquires power. The air in the shade is always cold, but the rays of the sun are very powerful. Rain seldom occurs before the end of March when the frost disappears; the air becomes milder and there are generally a few heavy showers. April and May are mild pleasant months with frequent heavy showers and thunder-storms. In June the S. W. monsoon sets in; in general 10 or 14 days later than on the Malabar Coast. At first the rain is pretty constant and heavy, but during the whole continuance of the monsoon, that is, till the middle or end of September, there are frequent intervals of most delightful weather. The temperature being peculiarly equable and the dampness very trifling. October is an uncertain month, being occasionally blustery and showery, occasionally very fine and dry according as the N. E. monsoon occurs early or late. November is showery and unpleasant, but after the occurrence of some heavy fogs in the early part of December, the frost sets in and the weather becomes dry, cold, and bracing. The seasons are subject to great fluctuations, almost as much so as in Europe. The climates of Kotagherry and Coonoor are considerably milder than that of Ootacamund, and there is also some difference in the seasons. The S. W. monsoon being comparatively light at both these stations, while the N. E. is heavier. The formation consists almost entirely of sienite in all its modifications, granite more rarely, covered in most places by a cap of lithomargic earth, in which the various constituents of the primitive rock can be distinctly traced in various stages of disintegration and decay. The latter in some places assumes the form of laterite or soapstone. The soil is of very various quality and composition. In the valleys and swamps it is generally of a deep black colour, and consists of disintegrated sienite (mostly hornblende) mixed with vegetable matter, very rich, and when thoroughly drained is highly productive. In the woods also there is a large admixture of vegetable matter and the soil is of great depth—on the sides of the hills again it is much thinner, more mixed with lithomargic earth, and consequently poorer. The soil is richer and more fitted for agricultural purposes towards the verge of the high ground, where the agricultural portion of the community (the Buddagah and Kothar) are exclusively located, and experience has taught them not to turn up the soil too deeply. Vegetables and fruit of every description are plentiful. The Buddagah cultivate barley, wheat, ragee, and a small species of millet in great quantities—a small grain called keerei-mow, (Amarantus tristis) poppies, garlic, onions and mustard—and without culture are wild oranges in one or two localities, the Brazil cherry, the hill gooseberry, strawberries, raspberries, bramblebleberries, and barberries. The Orchis mascula which produces the celebrated salep misree, is plentiful in certain localities. Of wild animals, are the tiger and cheeta, the elephant, the bison (Bibos cavifrons of Hodgson) the samber or black rusa (Rusa aristotelis of Cuvier) an undescribed species of wild goat, apparently the Capra ægagrus. The jungle sheep (Cervus muntjak,) the bear (Ursus labiatus) the wild hog, jackalls and wild dogs, also otters which are numerous in the large rivers. Porcupines, martens, two species of monkeys, hares in considerable numbers. In the ghauts and slopes towards the low country, the woodcock, solitary and common snipe, jungle fowl, spur fowl, peafowl and quail. Hawks in great numbers and variety and a black eagle are also to be found. The black bird, the thrush, wren and lark are the same as their prototypes in Europe. A very small fish is found in great numbers in the Pykarra river, and the deep pools are inhabited by kaboose of a large size. Crabs are common. A small harmless green snake is very common. Cobras are not uncommon in Orange valley and a rather large description of boa. Fleas are very troublesome at certain seasons and appear to breed in the ground.

The Todawara or Todalu are the oldest of the inhabitants, but of their origin, history, &c., nothing whatever is known. Their costume and physiognomy are peculiar. Their language is partly derived from the Hala or ancient Canarese. Each Mund or village, has a separate, and somewhat larger house set apart, and sacred, as a dairy, into which women are not allowed to enter. They are entirely nomadic and subsist by the produce of their herds, receiving also a sort of ground-rent in kind from the Buddagah and Kota who acknowledge them as the lords of the soil. They are polyandric, the brothers of the family having only one wife in common: female infanticide prevails; they slaughter a number of buffaloes at funerals attended with some ceremonies. They appear to be decreasing in number.

The Buddaga, by far the most numerous race on the hills, are the descendants of Mysore soodras, who, sometime in the middle of the 17th century, quitted their original location in Mysore to avoid the oppression of the rajah. They are almost entirely employed in cultivation—but they keep large flocks and herds of cattle and readily act as coolies, cowkeepers, &c. They are a most industrious race. Their numbers are increasing, and their villages are populous and thriving.

The Kotha are a race with habits like the chucklers below. They are rather looked down upon by the Buddaga from their eating carrion, but they are equally industrious, and are the universal artizans of the hills, making and repairing ploughshares and other agricultural implements, as also the silver ornaments worn by the Toda and Baddaga women and children.

The Erular and the Moola-Coorumbar are almost in a state of nature, inhabiting the wildest recesses of the jungles on the slopes of the hills, where they erect wretched huts, surrounded by a few plantain trees and a little wretched cultivation. They avoid mankind, and are regarded as sorcerers by the other inhabitants, who attribute to their agency every piece of ill luck that befalls their cattle or themselves. In the year 1835, after a severe murrain had prevailed among the cattle, the Coorumbars to the number of 50 or 60 were assembled to a feast, and in the height of their merriment were cruelly massacred by the Toda race, scarcely one escaping.

The experience of many years has undeniably proved the perfect adaptation of the climate to the sound European constitution and its great power of restoring to health those who have suffered from the various diseases produced by tropical climates. For confirmed liver-disease, and chronic dysentery, and for teething children, they are wholly unsuited. Little benefit is to be expected from a mere change to the Neilgherries without a prolonged residence there, and caution is required in guarding against peculiar effects of the climate. From the great elevation and consequent rarefaction of the air, heat is much more rapidly abstracted from the body at a corresponding temperature near the level of the sea. The power of the sun's rays or the difference between the temperature in the sun and in the shade is much greater than below, often amounting to nearly 30°: this is peculiarly remarkable early in the morning, and again after sunset when invalids or delicate persons are very subject to sudden chills, in the one case by coming into the house or shade, when heated by exercise in the open air, in the other by remaining outside after the sun has gone down. Allowance must also be made for the effects of diminished pressure of the atmosphere, increasing the quantity of blood circulated in the capillaries on the surface of the body, and more especially on the air cells of the lungs, by which the general circulation will be accelerated and the other effects of a powerful stimulus produced: to this cause may be attributed the malaise, head-ache, sleeplessness and other uupleasant sensations experienced by many delicate persons on their first ascent. Great attention is also requisite to clothing, diet, and exercise; and no invalid should omit to avail himself of the able medical advice to be had on the spot on his first arrival.

Ootacamund is picturesquely situated in the basin formed by the central chain of Dodabet, from which two considerable spurs run in a semi-circular direction to the west, and completely enclose it on all sides except the W. N. W. The subordinate hills and interjacent vallies have each its house perched at the summit or sheltered in the nooks, and the terreplaine of the valley is advantageously occupied by a long narrow lake formed by an artificial dam which closes it to the W. and retains all the waters of the basin. The site has been admirably closen, its central position giving it all advantages of climate while it is free from the suspicion of malaria which attaches to places nearer the edge of the ghauts, and it presents a great extent of level ground than almost any other point on the hills, the principal drive round the lake forming a circuit of from 6½ to 8 miles.

Kotagherry, 17 miles E. of Ootacamund, affords an agreeable relief at certain seasons when the cold at Ootacamund is too severe or during the prevalence of the S. W. monsoon. It is also generally preferred by those, who, from long residence in India or natural delicacy of constitution, are unpleasantly affected by the suddenness of the transition from the low country. This remark applies still more strongly to Coonoor, the climate of which is a shade milder than Kotagherry.—*Dr. Buist; British Almanac for* 1836 *and* 1838; *Daniel's Meteorological Essays; Dr. Benza, in the Madras Journal of Literature and Science, No.* 13; *Harkness' account of a singular Aboriginal race on the Neilgherries, London,* 1832; *Topographical Report on the Neilgherries, by Dr. Birch,* M.D., *Madras Journal of Literature and Science, No.* 20; *Baikie's Observations on the Neilgherries, edited by W. H. Smoutt, Esq., Calcutta,* 1834, *&c., &c.*" See India, Khtar, Buddagar, Kurumbur and Thodawar.

NEILGHERRY BOXWOOD, Syn. of Sarcococca trinerva.

NEILGHERRY BROWN MUNGOOS, Herpestes fuscus, *Waterh., Bl.*

NEILGHERRY BURROWS, see Cairn.

NEILGHERRY GRASS. This is a species of lobelia, which probably came from Java. the Lobelia succulenta of Blume, a Java plant. Wight, writing on the lobelias says: "There is a small cespitose species much cultivated in pots, by amateurs, under the strange name of Neilgherry grass.—*Mason.*

NEILGHERRY NETTLE.

Urtica heterophylla, *Rox.*	Herpah or Serpah, BHO-TEA.
Girardinia leschenaultii.	Theng Mah, CHINESE.
Hooroo, Surat of Assam.	

This is the most widely diffused of the large Indian Nettles being found in South Concan, along the Malabar coast; the Mysore, the Neilgherries, the valleys of the Himalaya, in Assam and Bumah. It is an annual plant, the sting of it produces intense pain, the bark abounds in fine, white, glossy silk like fibres, but these probably differ with the locality in which the plant is grown. Dr. Wight describes those of the Neilgherries, as a fine soft flax-like fibre, and fitted to compete with flax in the manufacture of even very fine textile fabrics. The Toda extract it by boiling the plant, and use it as a material for making thread. Mr. Dickson passed it through his machine and liquid, which rendered it like a beautiful, soft, silky kind of flax. He calls it a wonderful fibre, of which the tow would be useful for mixing with wool, as has been done with China grass. —*Royle.*

NEILGHERRY PIGMY SHREW, Sorex perroteti, *Duv.*

NEILGHERRY STRIPED SQUIRREL, Sciurus sublineatus, *Waterh.*, *Bly.*

NEILGHERRY TREE-MOUSE, Mus nilagiricus, *Jerdon.*

NEILGHERRY WILD GOAT, Hemitragus hylocrius *Jerd.*

NEILL, Sir James, an officer of the Madras Army, who rose in the Madras Fusilier regiment. He was the first to stem the tide of rebellion in 1857. A statue was erected to his memory in Ayr, his native place, and another in Madras.

NEILUNG, see Kunawer.

NEISWURTEL, Dan. Helleborus niger.

NEJD occupies nearly the centre of, and is the largest province in, Arabia, being, in its greatest limits, 640 miles in length from north to south, and 750 miles from east to west. On the east is the long strip of El Hassa, or Hadjar, on the north that part of Arabia Deserta called Tauf, the Hijaz on the west, with a part of Yemen on the south, and the desert of Ahkaf on the south-east. The surface, as the name implies, is elevated, but it is diversified with mountains, valleys, and plains. Some writers consider the mountainous district Nejd Arad as a separate province. The existence of a fresh-water lake at El Asha, and of several in Nejd, as ascertained by Captain Sadleir, has established the fidelity of Strabo in this particular. There are others, but of small size, in Arabia Felix, in Tehameh and in Oman, and one called Salome in Ahkaf. The Anezi, according to Burchardt, are the most powerful Arab nation in the vicinity of Syria, and of their brethren in Nejd he added, they are the most considerable body of bedouins in the Arabian deserts.—*Vol.* iii, *p.* 464, *of Trans. of the Bombay Lit. Soc.; Niehbuhr's Travels in Arabia, translated by Robert Heron, Vol.* i, *p.* 297; *Bulletin de la Société de Geographie de Paris*, 1843, *p.* 101; *Col. Chesney, p.* 571, *Euphrates and Tigris.* See Arabia, Aramæan, Beni, Wahabi.

NEJRAN, a province of Arabia. In the Koran, the burning of the christians there is strongly condemned. See Ælius gallus, Wahabi.

NEK-HKAT, Burm.

NEKMUNDUN, a venerated mahomedan saint.

NEKRA, Tel. Cordia myxa.

NEKRA, Hind. Canis pallipes, *Sykes.*

NEKSH-I-RUSTAM, see Kara oghlan, Naksh-i-Rustum, Babylon.

NEL, or Nella, Nelli, Nellu, Karn., Maleal., Tam. Unhusked rice, Oriza sativa, *W.*

NELA, Tam. A wood of a dark red colour, good for boat-work; tree produces a small fruit, which the natives eat raw.—*Edye, M. and C.*

NELA ALUMU, Tel. Rhynchosia nuda, *DC.*

NELA-AMIDA, Tel. Jatropha glandulifera.

NELA BENDA, Tel. Abelmoschus ficulneus, *W. and A.*, 196, *Ic.*, 154, or Hibiscus prostratus, *R.*, iii, 208, also Sida humilis, *Willd.*, *R.*, iii, 171, *W. and A.*, 223.

NELA CHEPPUDU, or Cheppu-tatta, Tel. Elytraria crenata, *Vahl.*, or Justicia acaulis, *R.*, i, 119; *Cor.*, 127.

NELA-CUMUL VAYR, or Nela gumul vayr, Tam. Root of Gmelina asiatica, *Roxb.*

NELA GULI, or Nela gulimidi, Tel. Slevogtia verticillata, *D. Don.* Adenema hyssopifolium, *W. Ic.*, 600—Gentiana verticillata, *R.*, ii, 71.

NELA GUMMUDU, or Bhuchakra gadda, Tel. Batatas paniculata, *Ch.*

NELA GURUGUDU, or Nela gulimidi, Tel. Slevogtia verticillata, *D. Don.*

NELA JAMMI, or Chinna jammi, Tel. Acacia cineraria, *Willd.*

NELA JIDI, Tam. Marking nut. Nelajidi nuna, Marking nut-oil.

NELA JIDI, or Konda amudam, Tel. Balicospermum polyandrum, *R.*: *W.*

NELA KALIGOTTU, or Kaligottu, Tel. Bignonia, *sp.* A small species; Q. Æschynanthus parasiticus, *Wall.*?

NELA KOBBARI, or Purusha ratnam, Tel. Ionidium suffruticosum, *Ging.*—*W. and A.*, 116; *W. Ic.*, 308—Viola suf., *R.*, i, 649.

NELA KUMUL, Tam. Gmelina asiatica, *L.*

NELAM PATA, Maleal. Grangea maderaspatana, *Poir.*

NELA MURA, or Nela cheppudu, Elytraria crenata, *Vahl.*—*R.* i, 119. Pid. Ind. writes Nela mira.

NELA MULAKA, or Nela mullaku, or Nela vakudu, Solanum jacquini, *Willd.*—s. diffusum, *R.* i, 568. The fruit of this var. is large and white, used as a vegetable.

NELA-NARŒGAM, Maleal. Naregamia alata, *W. & A.*

NELA NEREDU, Tel. Premna herbacea, *R.* iii, 80, syn. Bhu jambu, Bhui jamb. There is some confusion between Premna herbacea and Ardisia humilis—or Kaki neredu.

NELA NIRGANDA, Sans. Gendarussa vulgaris.

NELANJANUM, also Lanjanam, Tel. Antimony.

NELA-NUGA, Tel. Lagenaria vulgaris, *Ser.* var. Cucurbita lagenaria.

NELA PAGADAPU CHETTU, Tel. Phyllanthus, *sp.*, *Linn.* Perhaps P. niruri.

NELA PALA, or Chtri pala, Tel. Oxystelma esculentum, *R. Br.* This is applied to a variety common about Bejawada, running along the surface.

NELAPANI—? Curculigo orchioides.

NELA PIPPALI, Tel. Zapania nodiflora, *Lam.*—*Rheede*, x, 47.

NELA POKA, Tel. Calamus erectus, *R.* iii, 774? The words mean, "ground areca," and the botanical name is assigned conjecturally, the seeds of Cal. erectus being used for betel-nut.

NELA PONNA, Tel. Cassia, *sp.* Br. 682, says C. senna—Rheede, ii, 52, has Ponna tagara for C. sophora.

NELA POONA, Tam. Cassia lanceolata, *Royle.*

NELA SAMPENGA, or Veru sampenga, Polyanthes tuberosa, *L.*—*R.* ii, 166, *Br.* 1005.

NELA-SANIGHELU, Tel. Nut of Arachis hypogæa.

NELA TADI or Nela tati gudda, Tel. Curculigo orchioides, *Gærtn.*—*R.* ii, 144, *Cor.* 13—*Rheede*, xii, 59.

NELA TANGEDU, Tel. Cassia obtusa, *R.* ii, 334—*W. and A.* 891—*W. Io.*, 757.

NELA TAPPIDA, or Nela cheppudu, Tel. Elytraria crenata, *Vahl.*

NELA TSJIRA, Maleal. Portulaca quadrifolia.

NELA UMATA, Maleal. Datura fastuosa.

NELA USIRIKA, Tel. Phyllanthus niruri, *L.*—*R.*, iii, 659.—*W. Ic.*, 1894.—*Rheede*, x, 15. According to Roxb., P. madraspatensis is also called Nela or Nalla usirika.

NELA VAKUDU, or Nela mulaka, Tel. Solanum jacquini, *Willd.*, *β.* Fruit small, yellow.

NELA VAMINATA, or Kukka vaminta, Tel. Polanisia icosandra, *W. and A.* It may also refer to the smaller sp. of Cleome and would be especially applicable to C. burmanni.

NELA VAVILI, Tel. Gendarussa vulgaris, *Nees.*—*W. Ic.*, 468.—Justicia gend., *R.* i, 128—*Rheede*, ix, 42. Gandharasa, Sans., literally "essence of smell or perfume." The word does not appear to signify any particular flower. It occurs in Rumph. Amboina, iv, tab. 28, whence it has been adopted by Linn., Willd. and others. Roxb. applied the word to the incense obtained from Boswellia serrata the B. thurifera of Colebr.

NELA VELAGA, or Velaga, Tel. Feronia elephantum, *Corr.* var. This var. is common in and about villages. It is a small shrub with the petioles much winged.—*Br.*, 793.

NELA VEMBU, Tam. Andrographis paniculata, *Linn.*

NELA VEMU, Tel. Andrographis paniculata, *Wall.*—*W. Ic.*, 518.—Justicia pan., *R.*, i, 117.—*Rheede*, ix, 56.

NELAM PATA, Tam., Maleal. Grangea maderaspatana, *Poir.*

NELEM-PALA?—Wrightia tomentosa.

NELEM PARENDA, Ionidium suffruticosum.

NELE-PANAY KALNG, Tam. Curculigo orchioides. See Moosli.

NELI-POULI, or Kamarang, Averrhoa carambola.

NELI TALI, or Kedangu, Sesbania ægyptiaca.

NELI, Sans., Tel. Indigofera tinctoria, *L.*

NELITRIS PANICULATA, *Lindl.*, *DC.*

N. polygama, *Spreng.*	Eugenia polygama, *Roxb.* fl. ind., ii, *p.* 491.

A plant of Penang, *Voigt*, 46.

NELKAR, Hind. Dalbergia sissoo.

NELLA, Tel. Andrographis paniculata.

NELLA BUDINGA, Tel. Cucumis pubescens, *Willd.*, *W. & A.*

NELLA GIRI GILI GACH-CHA, Tel. Crotalaria linifolia, *Linn.*

NELLA GULI, Tel. Cicendia hyssopifolia, *Adams.*

NELLA-GULI-SIENDA, Tel. Cardiospermum halicacabum, *Linn.*

NELLA-JIDI, also Jidi-Ghenzalu, Tel. Marking nut. Semecarpus anacardium.

NELLA JIDI NOONA, Tel. Marking nut oil, also oil of Semecarpus anacardium.

NELLA JILLIDU, Tel. Calotropis gigantea.

NELLA KALAVALU, Tel. Hongay or Honge.

NELLA MADU, Tel. Terminalia tomentosa, *W. and A.*

NELLA-MANTHI, Maleal. Inuus silenus, *Jerdon.* Lion-monkey.

NELLA MOLUNGA, Tel. Solanum jacquini, *Willd.*

NELLA-PANNA, Curculigo orchioides.

NELLA PIKU, also Nelle pirkum, Tam. Cucumis tuberosus, *Heyne.*

NELLA POLEEKI, Tel. In the Nalla Mallai a light wood, of coarse grain, unserviceable except for temporary purposes.—*Mr. Latham.*

NELA PURUGUDU, Phyllanthus multiflorus, *Willd.*

NELLA UMATA, Maleal. Datura fastuoso, *Mill.*, *Roxb.*

NELLA ULIMERA, Tel. Diospyros chloroxylon, *Roxb.*

NELLE PIRKUM, Tam. Cucumis tuberosus.

NELLI, Maleal. Cicca disticha, *Linn.*

NELLI, Tam. Emblica officinalis, *Gært.*?

NELLI CHETTU, Tel. Premna esculenta, *R.* iii, 81, also Premna latiolia, *R.*, iii, 76, *W. Ic.* 869. Br., 512, refers to Usirika or Emblica and Phyllanthus confounding the Tamil with the Telugu name.

NELLIKA, or Boa malacca, a fruit of Japan which is preserved, as is also a fruit called Cherimelle. In this state the former tastes quite soft and tender, and is as large as a hen's egg. The pulp has a subacid taste.—*Thun. Trav., Vol.* ii, *p.* 292.

NELLI-KAI, Tam., Maleal. Fruit of Emblica officinalis, Emblic myrobalan.

NELLI-MARA, Can. Nelli maram, Tam. Emblica officinalis, *Gærtn.*

NELLI-POO, Tam. The flower, and Nelli-pallam, Tam. The fruit of Phyllanthus emblica.

NELLOO, Singh. A generic term for any one of the Acanthaceæ. See Acanthus.

NELLORE, a town, also a district in the Madras Presidency near the Bay of Bengal, 170 miles long, 70 miles broad and with 935,600 inhabitants. Its chief towns are Nellore, Ongole; the Pennar is its only river, but it has the Pulicat Marine lagoon, from the waters of which much salt is made by evaporation. The language spoken throughout the district is Telugu, but several races continue migratory or unsettled. The Yanadi race in the Nellore district are estimated to number 20,000. Red, yellow, purple, brown and grey sandstones occur in the Podelay, Panoor and Pedda Reddapully talooks, and from Pullaybootoo, fine grained sandstones. Nellore is in lat. 14° 27′ N., long. 79° 59′ E., 12 miles W. of the sea-shore. The mean height of the village, 80 feet.

NELLU, Tam. Unhusked grain of Oryza sativa, *Linn.*

NELLY, Tam. A Travancore wood of a light brown colour. Used for building in general.—*Col. Frith.*

NELLY MARAM, Tam. Emblica officinalis.

NELU, Tam. A Malabar wood of a dark-red colour, and considered good for boat-work; it produces a small fruit which the natives eat in a raw state.—*Edye, Forests of Malabar and Canara.*

NELU, Singh. The Honey plant, grows on Horton plains, Ceylon; the flowers emit a flagrant aroma resembling that of new honey. It flowers once in eight years, and bees then cluster on the blossoms.—*Sim's Ceylon.*

NELUMBALY, Tel. Nerium tomentosum.

NELUMBIACEÆ, *Lindl.* The sacred-bean tribe of plants consisting of 1 species of the genus Nelumbium. They are herbaceous plants, with very large leaves and flowers, inhabiting stagnant and quiet waters in North America, West Indies, the Caspian region, India, Persia, China, and Egypt. Writing regarding a Nelumbium of China, Mr. Fortune says no flower could be more beautiful or more majestic than the Nelumbium was at this season; looking down from a bridge, the eye rested on thousands of these flowers, some of which were white, others red, and all were rising out of the water and standing above the beautiful clear green foliage. The leaves themselves, as they lay upon the smooth surface of the lake, or stood erect upon long foot-stalks, were scarcely less beautiful than the flowers, and both harmonized well together. Gold, silver, and other kinds of fishes were seen swimming swiftly to and fro, and apparently enjoying themselves under the shade of the broad leaves. At another place he says, he once observed in the garden of a mandarin at Ningpo a very beautiful variety of the Nelumbium, N. vittatum, different from the red and white kinds of Nelumbium, its flowers being finely striped. It was evidently extremely rare in that part of China. They are abundant in all parts of the province of Kiang-nan, at Shanghae, Soochow and Nanking, where the ponds and lakes are often frozen up and the thermometer frequently sinks to within a few degrees of zero. During the spring and summer months the plants form and perfect their leaves, flowers, and fruit: in autumn, all the parts which are visible above water gradually decay, and nothing is left in a living state except the large roots, which remain buried deep in the mud, and they continue in a dormant state until the warmth of spring again calls vegetable life into action. The Lien-wha Nelumbium is cultivated very extensively in China for the sake of its roots, which are esteemed an excellent vegetable and are much used by all classes of the community. The roots attain their largest size at the period when the leaves die off; and are dug up and brought to market during the winter months in the north of China. The stalls of the green grocers are always loaded with them at that season of the year. Although in high repute amongst the natives, being served up with many of their dishes and forming part of others, they are not generally liked by foreigners. An excellent description of arrowroot is made from them, which is considered equal in quality to that which England imports from the West Indies. The seeds are also held in high estimation; they are commonly roasted before being served up to table. —*Voigt, p.* 9; *Fortune, pp.* 350-52.

NELUMBIUM, a genus of plants belonging to the natural order Nelumbiaceæ or Sacred bean. The blue lotus grows in Kashmir and Persia.

NELUMBIUM SPECIOSUM, *Willd., Roxb.*

Nymphæa nelumbo, *Linn.*
Nelumbo nucifera, *Gært.*
Tamara rubra, *Roxb.*

Komol; padma podu,	Beng.	Sacred bean,	Eng.
Komal,	„	Egyptian lotus,	„
Ponghuj,	„	Kungwel; kamala,	Hind.
The-kyah,	Burm.	Kanwal; padam; ambuj,	„
Lien-ngau,	Chin.	Kamal,	„
Kangwel,	Duk.	Lal kamal,	„
Red and white lotus,	Eng.	Safed „	„
Egyptian bean,	„	Kaul-dodah,	„
Pythagorean bean,	„	Kanwal dodah,	„

Bem tamara: Tamara,	MALEAL.
Nilofer,	PERS.
Bakla-kubti,	„
Kamala; padma,	SANS.
Sahastraputra,	„
Nelum,	SINGH.
Tamaray,	TAM.
Tamara; padmam,	TEL.
Erratamara padmam,	„
Tella padmamu,	„
Pundarikamu,	„
Ut-pala,	TIB.

Of this plant, there are two varieties (α) rubrum, the Rakto-padmo of Bengal, with rose-coloured flowers, and (β) album, the shwet-padmo with white flowers. The lotus grows throughout the East Indies, also in Persia, Tibet, China and Japan. The leaves and flowers of the plants spring from beneath the waters, and in Kashmir the broad leaves form a verdant carpet, over which the water-hens run. In the hot weather, the stalks are very commonly eaten by the poorer classes and boiled in their curries, and the seeds are strung together like beads, and are eaten raw, roasted or boiled. The flowers are a favourite offering at the Burmese pagodas. The fruit is as large as the closed hand forming an exact hemisphere, on the flat surface of which about twenty-four seeds are imbedded, which, when ripe, are black and hard. The stalks are, in Hindi, called Kanwal kukri, Kanwal gatha, nalru bheng. The long fine filaments contained within the cells of the stem are drawn out, and the thread spun from the filament, is used as the wicks of the lamps in pagodas, the seeds and roots are used by natives as food, either raw, roasted or boiled, and also as a cold remedy in cholera and indigestion, demulcent, said also to be diuretic and cooling. It is highly venerated by the hindoos but it is the more immediate attribute of Vishnoo, from being the prime of aquatic vegetables, and he a personification of water. It is also peculiarly sacred to Lakshmi, the wife of Vishnoo, who is sometimes called Kamala, or lotus-like: it is moreover an emblem of female beauty. This plant is the true lotus of the Egyptians, and the Nymphæa nilofer of Sir William Jones, nilofer being its Arabic name. The new blown flowers of the rose-coloured lotus have an agreeable fragrance; those of the white and yellow have less odour. There is a variety which is blue, a native of China, Cashmir and Persia. Its flowers are used by hindoos in their religious ceremonies. Every morning at Cashmir, vast numbers of these flowers, which had served in the hindoo rites flow down the river. Its boiled roots are eaten as a pot-herb by the natives; in Lahore, they are called Pe, in Cashmir Nadroo. In China, the nelumbium covers extensive marshes in the eastern and northern provinces, otherwise unslightly and barren. The root is two or three feet long, and pierced longitudinally with several holes; when boiled it is of a yellowish colour and sweetish taste not unlike turnip. Taro is used less than the nelumbium, and so are the water-caltrops and water-chestnuts.—*Malcolm's Travels in South-eastern Asia, Vol.* i, *p.* 183; *Powell's Hand-book, Vol.* i, *p.* 329; *Ains. Mat. Med., pp.* 162-251; *Honigberger, p.* 315; *William's Middle Kingdom, Vol.* xi, *p.* 44; *Emil. Schlagentweit, L.L.D.; Buddhism in Tibet, London,* 1863, *p.* 66; *Voigt; Roxburgh; Mason; Smith, p.* 139.

NELUMBO NUCIFERA, *Gært.* Syn. of Nelumbium speciosum, *Willd.* See Dyes.

NEMALI SIKHA, or Mayura sikhi, TEL. Actinopteris radiata, Adiantum melanocaulon, *Pid. Ind.*

NIMAR was literally a desert, when taken over by the British Government in 1818, its lands waste and its few people miserable and hopeless. In 1864, its people were well off.

NEMELAY, TEL. Pavo cristatus.

NEMESIA FLORIBUNDA, one of the Scrophulariaceæ plants which may be cultivated from seed in any rich light soil, the colour of the flowers is purple.—*Riddell.*

NEMI, a name of Krishna, he is called Arishta-Nemi, 'the black Nemi,' from his complexion. Krishna, before his own deification, worshipped his great ancestor Budha; and his temple at Dwarica rose over the ancient shrine of the latter, which yet stands. In an inscription from the cave of Gaya, their characters are conjoined; "Heri who is Budha." According to western mythology, Apollo and Mercury exchanged symbols, the caduceus for the lyre; so likewise in India, their characters intermingle: and even the Saiva sectarian propitiates Heri as the mediator and disposer of the 'divine spark' (jote) to its re-union with the 'parent flame:' thus, like Mercury, he may be said to be the conveyer of the souls of the dead. Accordingly, in funeral lamentation, his name only is invoked, and Heri-bol! Heri-bol! is emphatically pronounced by those conveying the corpse to its final abode. The vahan (qu. the Saxon van) or celestial car of Krishna, in which the souls (ansa) of the just are conveyed to Surya-Mandal, the 'mansion of the sun,' is painted like himself, blue; (indicative of space) Nem-nath and Sham-nath have the same personal epithets, derived from their dark complexions, the first being familiarly called Arishta Nemi, 'the black Nemi,' the other Sham and Krishna, both also meaning 'dark-coloured,' and when this is not only confirmed by tradition, but the shrine of Budha is yet preserved within that of Krishna at Dwarica, we have no reason to question that his faith prior to his own deification, was that of Budha.

NEMICHTHYS SCOLOPACEA, *Richardson.* A fish of the Archipelago, one of the Ophidiæ, scaleless with sharp-pointed teeth. *Adams,* 103.

NEMINATH, a deified saint of the Jains.

It was to counteract a fervour towards women that the jains of Western India set up their image of Neminath, a fact communicated in confidence to Colonel Tod by one of the sect.—*Tr. of Hind.*, *Vol.* ii, *p.* 45.

NEMI-TIRTHA, a ghaut, sacred to the memory of Choitunya for his having halted and bathed here in the course of his wanderings.—*Tr. of Hind.*, *Vol.* i, *p.* 8.

NEML, TURK. Ant.

NEMMA PUNDOO, TEL. Citrus aurantium, Orange.

NEMMI CHETTU, TEL. Dalbergia oojeinensis, *R.*, *Vol.* iii, *p.* 220; *W. Ic.*, *p.* 391.

NEMNATH, see Krishna, Nemi.

NEMOOKA ROOT, the roots of several species of Cissampelos, efficient substitute for Pareira.—*O'Shaughnessy.*

NEMOPHILA AURITA, one of the Hydrophyllaceæ, all annual plants, and require a great deal of moisture, growing and flowering in shady situations, the colours are white and purple, blue and dark-purple, they are natives of California, and North America. Nemophila insignis, and maculata are too tender to succeed well on the plains. N. maculata, the spotted variety, succeeds to a certain extent if sown after the heavy rains are past.—*Riddell; Jaffrey.*

NEMORHŒDUS PROCHOUS, syn. of Capricornis bubalina, *Hodgson.*

NEMORHŒDUS PROCLIVUS, *Hodg.*, syn. of Nemorhœdus bubalina, *Jerd.*

NEMROUD TEPESSY, a mound about 9 miles from Bagdad, a ponderous mass of ruin, which is called by the Arabs Tull Akerkouf, vulgarly Agergoaf, and by the Turks Nemroud Tepessy, both which appellations signify the mound of Nemroud, or Nimrod, not the tower of Nemroud, as it has been translated.—*Mignan's Travels, p.* 102. See Akarkouf, Babylon.

NEMUK, GUZ., HIND. Salt.

NEMUKA, HIND. Cissampelos.

NEMUK KA TEZAB, HIND. Muriatic acid.

NENDOON, SINGH. Dalbergia lanceolaria, *Linn. fil.* Yielding a hard, though coarse, open-grained, heavy Ceylon wood.

NENEK, see Kedah.

NEŒRA LAPIDA, *Cramer.* Limacodes graciosa, *Werter.* A moth common on the western side of Ceylon, with dark-brown wings, which is produced from a caterpillar that feeds on the carissa and stings with virulence.

NEOPHRON PERCNOPTERUS, *Linn.*

Vultur gingianus, *Daud.*
V. stercorarius, *Lapey.*
Percnopterus ægyptiacus, *Steph.*

Egyptian vulture,	ENG.
Dung bird,	„
Pharoah's chicken,	„
White-scavenger vulture,	„
Kal-murgh,	HIND.
Soongra, Soonda,	SINDHI.
Rechamah —?	
Pitri-gedda,	TAM.
Manju tiridi,	„
Tella borawa,	TEL.
Sind'ho,	of the Wagree.

This bird, one of the Neophroninæ, inhabits Europe, Africa and Asia, is common in the peninsula and in Central and Northern India, but is not known in Bengal. A single pair has been known to stray beyond its ordinary haunt so far as Britain. Its chief food is refuse of all kinds. This bird is evidently the 'Kite' of Major A. Cunningham's 'Ladak,' p. 205). He writes—"the eagle (cha-nak, or the 'black bird') and the kite (cha-kote, or the white bird) are common enough, and so is the large raven." A second species of this genus, the N. pileatus, inhabits Africa only.

NEOZA and Chilgoza, also Neor, HIND. Pinus gerardiana, Gerard's pine.

NEPAL. This kingdom is in Mid-Himalaya, between the snowy range and the valley of the Ganges. It is separated from Tibet by the Himalaya mountains and bounded on the south by the British territory. The mythological history of Nepal like that of Kashmir, commences with the desiccation of the valley, for ages full of water by a muni, called Nai muni, whence the name of the country Naipala, whose descendants swayed the country 500 years. The first authentic history is B.C. 844? years. Then the Kerrat tribe of eastern mountaineers B.C. 646. Then the Surya vansa race of rulers B.C. 178. The Ahir, or original sovereigns began in A.D. 43. The Neverit dynasty was restored in A.D. 470. It was one of this dynasty, Ragboba deva, who in A.D. 880, introduced the use of the Samvat era into Nepal. In the Newar year 731, A.D. 1600, Jaya Eksha Mall (or Jye Kush Mull) divided Patan, Khatmandoo, Banepa and Bhatgaon between his daughter and three sons, and one of the Bhatgaon race, in A.D. 1721, Ranjet Malla formed an alliance with Gurkha which ended in his own subversion and finally in that of all Nepal. The Gurkhali dynasty descended from the Udayapur Rajputs, occupied Kemaon and Noa kot for six or eight centuries prior to their conquest of Nepal in A.D. 1768.

Nepal lies between Kumaon on the west, and Sikhim on the east, at the foot of the Himalaya range, between the Himalaya and the Terai. It is 500 miles long; east to west 90 to 160 miles broad with an area of 54,500 square miles. The surface generally consists of valleys varying from 3,000 to 6,000 feet above the Bengal plains, the capital of Katmandoo is in an oval-shaped valley, 12 miles long from north to south, and from east to west 10 miles, long. 27° 42′ N., lat. 85° 18′ E., and 4,628 feet above the sea. Bhynturee, is in lat. 29° 35′ N., long. 79° 30′ E., and 5,615 feet. The slope to south and the valley is drained by the Ghogra, Gunduk, and Coesy. The geological formation of the hilly tract consists of limestone, hornstone, and conglomerat

Vegetable productions occur of most remarkable stateliness, beauty, and variety. The climate resembles that of southern Europe. The valley is bounded on the north and south by stupendous mountains. To the east and west by others less lofty, the western end defined principally by a low steep ridge, called Naga Arjoon, which passes close behind Sambhoo Nath, and is backed by a more considerable one named Dhoahouk. To the eastward the most remarkable hills are those of Ranichouk and Mahabut, but they do not reach the elevation of Phalchouk (the highest on the south), or of Sheopoori, which is by far the highest mountain. The bottom of the valley is uneven, intersected by deep ravines, and dotted throughout with little hills. The country is diversified by several inhabited valleys. The hills rise towards the culminating ridge of the Himalaya, consist of limestone, hornstone, and conglomerate. Owing to its elevation, Nepal enjoys a climate resembling that of South Europe. Snow lies on the mountain-chain which surrounds the capital, in winter, and occasionally falls in the valley. The whole region is well-watered. The Nepal kingdom extends for 500 miles along the Himalaya, from the western extremity of Sikkim to the eastern border of Kumaon, from which it is separated by the river Kali. Its capital, Kathmandhu, is 4,000 feet above the sea, and about thirty miles from the plains of India. The position of the axis of the Himalaya at this part of the range, has not been traced; but two giant masses project from the axis towards the Indian plain, the culminating peaks of which form a conspicuous feature from Kathmandhu and even from the Gangetic plain so that their elevation has been correctly determined,—that of Dhawalgiri being 27,600 feet, and that of Gossainthan 24,700 feet. By these masses, the whole of Nepaul is divided into three great river basins, that of the Karnali or Gogra to the westward, that of the Gandak in the centre and that of the Kosi or Aran to the eastward. Sheopore on the water-shed between the Gandak and the Kosi, is upwards of 10,000 feet. Nepaul lies betwixt the 27th and 37th parallels of latitude, separated from Tibet by the Hamalaya mountains and bounded on the south by the British territory. The mythological history of Nepaul like that of Kashmir, commences with the desiccation of the valley, for ages full of water, by a muni, called Nai muni, (whence the name of the country Naipala,) whose descendants swayed the country 500 years. Nepaul occupies a tract of country about seven hundred and fifty miles in length, and sixty to one hundred and seventy in breadth, situated between 26° 31′ and 30° N. lat. It is bounded on the north by a part of Tibet, from which it is separated by the Himalaya chain; on the east, by Bootan and the little state of Sikkim, from which it is separated by the river Teesta; on the south, by the British Indian province of Tirhoot, from which it is divided by the Terai, an immense forest, the eastern part of which is called the Moray district; and on the west, by the kingdom of Oude. The divisions of Nepaul are Jumla, Goorkha, Nepaul, Muckwanpore, and Morung. The principal rivers which traverse the territory are the Kalee and Surgoo, which, meeting at a place called Pramadee, form the Goggra and Gunduk. The Gunduk is supposed to rise in the Himalaya, and flows into the Ganges near Patna. The upper part of the river is called Saligramee, from the fossil ammonites, called saligram, which are found in it, and which the hindoos hold in veneration. To the extreme west of Nepaul, lies Almorah, a hill station, wrested from the Nepaulese in the wars of 1815-16; to the extreme east is Darjeling, another hill station, used by the Supreme Government of India as a sanatorium for invalids. The principal British cities and military stations which border on the Nepaul territory along the line of the Ganges, are, Berhampore (contiguous to the Morung district), Monghyr, Patna, Dinapore, Ghazeepore, Benares, Allahabad, Cawnpore, Lucknow, Futtighur, and Bareilly; the last-named town lying opposite to a Nepaulese fort called Doti, and a few miles from the hill station of Almorah. The Terai, or Turry, or Turyanee, is a long strip or belt of low level land. The word probably, signifies low or marshy lands, but it is sometimes applied to the flats lying below the hills in the interior of Nepaul, as well as to the level tract bordering immediately on the British frontier. It abounds with large and lofty forest trees, the chief of which are the Sal and the Bechiacori pine. Some of the Sal spars reach the length of seventy to eighty feet, and are generally considered unequalled for strength and durability. In this respect, however, they must yield to the teak, for there is this peculiarity in Saul, that it is seen to warp soon after having been employed in bulk for many years, rising into large fissures longitudinally, and falling a prey to the white ants. Small quantities of gold-dust are found in the Gunduk, which runs through the Terai, and Cassia lignea likewise produced in the jungle. It is named Singh Rowla, and is much used in Hindostan in spicery: the bark of the root does not differ widely from cinnamon, for which it has often been mistaken, but the bark of the trunk and branches possess little of the cinnamon flavour.

Enormous timber trees are found in the Terai. In addition to the Sal, and the Bechiacouri pine, are to be found the Sissoo, the Setti-saul, the Phullamical, an iron wood, the Kalikset, a sort of black wood, the Sajk, the Burra, the Sunni and the Moolta. Besides these, there is a small quantity of ebony. These woods constitute in a great measure the commercial wealth of Nepaul. Wood merchants congregate at the southernmost point of the forest near the river Gunduk, because of the facility presented by that river of floating the timber to Calcutta.

Beyond the Terai, and still bearing its name, is a range of hills of about the same width, at the northern base of which commences the Nepaul valley, nearly oval in shape, about twelve miles from north to south, and nine miles from east to west. Its circuit has been roughly estimated by the inhabitants at twenty-five coss, or from forty to fifty miles. The range of mountains to the north of the valley is stupendous; the ranges to the east and west are much less lofty, the immediate head of the valley to the westward being defined principally by a low, steep ridge covered with brushwood. At the foot of the northern range, situated upon the eastern bank of a small river called the Bishenmuttee, in lat. 27° 42′ N.; long. 85° E., stands the city of Khatmandoo, the capital of Nepaul. It is not the largest of the towns in the valley, but it is the residence of the rajah, or ruler of Nepaul. In length, Khatmandoo may measure about a mile; its breadth is inconsiderable, nowhere exceeding half and seldom extending beyond a quarter of a mile. The town is distinguished in ancient books, as Gorgoolputten: the Newar call it Yindes, whilst among the Parbuttia, or mountaineers, it is styled Kultipoor, an appellation which seems to proceed from the same source with Khatmandoo, and derived, it is believed, from its numerous wooden temples, which are among the most striking objects in the city. These edifices are not confined to the body of the town, but are scattered over its environs, particularly along the sides of a quadrangular tank, or reservoir of water. The houses are of brick and tile, with pitched or painted roofs. On the street side they have frequently enclosed wooden balconies of open carved work, and of a singular fashion; the front piece, instead of rising perpendicularly, projecting in a sloping direction towards the eves of the roof. They are of two, three, and four stories, and almost without a single exception are of a mean and poor appearance. The streets are exceedingly narrow, and very filthy.

The city of *Patun* is of the next importance. It occupies a rising spot of ground, situated about two miles S. by E. of Khatmandoo, and close to the confluence of the Munnohra, Tookcha and Bhagurutty rivers. The figure ascribed to it, is that of the Chucro, or wheel of Narain. Patun is called Yellodes by the Newar; and it is likewise occasionally distinguished from Deo Patun, by the appellations of Lallit-Patun and Lall-Patun. It is a neater town than Khatmandoo.

Bhatgong is perhaps still more superior to Khatmandoo, for though the least considerable of the three towns in point of size, yet its buildings in general have a more striking appearance; and its streets if not much wider, are at all events much cleaner than those of the metropolis, a distinction which it owes to its admirable brick pavement. Bhatgong lies E. by S. of Khatmandoo, at a distance of nearly eight road miles. Its ancient name was Dhurmapatun, and it is called by the Newar, Khopodes; by whom it is also described to resemble in figure the Dumroo, or guitar of Mahadeo. It is the favorite residence of the brahmins of Nepaul, containing many more families of that order, than Khatmandoo and Patun together.

Kirthipoor occupies the summit of a low hill, about three miles west of Patun. It was at one time the seat of an independent prince; and its reduction cost the Goorkhali prince so much trouble, that in resentment of the resistance made by the inhabitants, he barbarously caused all the males, whom he captured in it, to be deprived of their noses.

Chobar is also situated on an eminence, which with that of Kirthipoor, forms a kind of saddle hill.

Nepaul contains every variety of climate. The fourth of it lies in the hot plains of the Ganges, and the remaining three parts lie on the slope of the Himalaya from the elevation of five thousand feet up to the limit of perpetual snow. It is alleged to contain from forty-three thousand to fifty thousand square miles, and to have two million inhabitants. It may be called the Switzerland of India; but its area is equal to that of three Switzerlands, while the amount of its population is no more than one-third part as great. The height of Nepaul above the level of the sea is about four thousand feet. The thermometer notwithstanding this height, ranges to 87° its usual height about noon varies from 81° to 84°. A little after sunrise, it stands between 50° and 54°, but it is occasionally as low as 47. At nine in the morning, it fluctuates from 62° to 66°. The mean temperature in March is 67°. The seasons are pretty nearly the same as those of Upper Hindostan. The rains commence a little earlier, say in the month of May, and set in from the S. E. quarter; they are usually very abundant, and break up towards the middle of October. In the west of Nepal are the Gurang and Magar tribes, small, with features of an extreme Mongolian type, full of martial ardour and energy. They are known as the Goorkha soldiers. They have considerable intellectual ability. The lands of Nepaul proper are cultivated almost without exception by Newar who arrange themselves into several castes and orders, and their peasantry into first, second, third and fourth classes. The Parbattiah tribe, called Dherwara, cultivate the western lands at Nurkale, &c. Amongst the Nepaulese, the hindoo distinction prevails of brahmans and khetri with their various sub-divisions, viz.: of Newar, confined almost to the valley of Nepaul: the Dherwar and Margi, the husbandmen and fishermen of the western districts; and the Bhotiah who occupy generally Kachar, though some families are planted in the lower lands. The Bhama are said to be separatists from the Newar, who shave their heads like Bhotiah. To the eastward of Nepaul, some districts are occupied by Limbu, Naggankote and others. The great aboriginal stock of the inhabitants of the mountains east of the river Kali, as in Nepaul, is Mongol, the martial classes of Nepaul are the Khas, Magor and Gurung, each comprising a very numerous clan or race variously sub-divided. The Elthariah, who speak the Khas language, are descendants more or less pure of Rajputs and other Khetri. The Chepang, Haigu and Kusundu are three tribes residing amongst the other inhabitants of the valley. In Nepaul is a perfect maze of dialects. Beginning from the Singhaleela range we find Limbu or Kiranta which goes west as far as the Dudkoosi river, in longitude 86° 44′. Sherwill found the Gurung in the higher parts of Singhaleela, closely connected with whom are the Murmi. Along the lower hills are the Magar, who extend to the west as far as Palpa. Somewhere about here we should apparently place the Brahmu, Chepang, Hayu or Vayu, and Kusumbha. In Central Nepaul are the Newar, Pahri, and Brahmo, a dialect of Magar, also the Darahi or Dorhi, Danwar and Paksya. The Tharu live in the Terai, between Chumparum and the Khatmandoo valley, as far west as the river Gandak. These last four are classed among Indo-Germanic languages. The rest are Turanian, with more or less infusion of Hindi. The Parbattia or Paharia, a dialect of Hindi is spoken all over Nepaul and is the court language. West of this again comes the Palpa, then the Thaksya, Sunwar, and Sarpa, the dialects of Kumaon and Gurhwal, which carry us on to the Milchan of Kunawar, the Hundisi, and Tibarskad north of it. Dr. Hunter gives the Nepaul races as under:—

Nepaul, East to West.—Serpa; Sunwar; Gurung; Murmi; Magar; Khaksya; Pakhya; Newar; Limbu.

Kiranti Group, East Nepaul—Kiranti; Rodong; Rungchenbung; Chhingtangya; Nachhereng; Waling; Yakua; Chourasya; Kulungya; Thulungya; Babingya; Lohorong; Limbichhong; Balali; Sang-pang; Dumi; Khaling; Dungmali.

Broken tribes of Nepaul.—Darhi: Denwar; Pahri; Chepang; Brahmu; Vayu; Kuswar; Kusunda; Tharu.

The martial classes of Nepaul are, the Khas, Magar and Gurung, each comprising a very numerous clan or race, variously ramified and sub-divided. It has been calculated that there are in Nepaul no less than thirty thousand Dakhriah, or soldiers off the roll by rotation, belonging to the above three tribes. Their energy of character, love of enterprise, and freedom from the shackles of caste, are conspicuous, and in the opinion of competent judges, they are by far the best soldiers in India; their gallant spirit and unadulterated military habits might be relied on for fidelity.

The Newar compose the army, engross all situations of trust, whether civil or military, and are confined almost to the valley of Nepaul. The Dherwar and Mhargi are the husbandmen and fishers of the western districts; and the Bhootia, though some families of them are planted in the lower lands, occupy, generally speaking, such parts of the Kachar as are included in the Nepaul territories. The Bhama are a sort of separatists from the Newar, supposed to amount to five thousand; they shave their heads like the Bhootia, observe many of the religious rites, as well as civil costume of the latter, in a dialect of whose language they are said to preserve their sacred writings. To the eastward of Nepaul some districts are inhabited by Limboo, Naggunkot and others. The Newar are divided into several castes or orders, most of which derive their origin, like those among the more ancient hindoos, from a primitive classification, according to trades and occupations. The peasantry of the Parbattiah, or hill-people, are divided into four classes, denominated Awal, Doom, Seoom and Charam, literally first, second, third and fourth. The Awal peasants possess five ploughs and upwards; the Doom have from one to five; the Seoom are those who, without being proprietors of ploughs, are considered to be at the head of a few or more labourers; and the lands of Nepaul proper are cultivated, almost without exception, by Newar; those to the westward, as Noorkale, &c., by the Parbatty tribe, called Dherwara. The ryots or peasantry are distinguished also into Koohrya and Perja. The former are those settled in bertha proprietory, or other rent-free lands, and are not liable to be called on by government for any services, except the repair of roads, and attendance in the army upon particular occasions. The Perja, who occupy lands actually belonging to the prince, though perhaps in the immediate possession of jagheerdars, are, on the contrary, obliged to perform various services, both at the call of the jagheerdar and of the prince. The great aboriginal stock of the inhabitants of the mountains, east of the river Kali, as in Nepaul, is Mongol. The fact is inscribed, in characters so plain, upon their faces, forms, and languages, that we may well dispense with the superfluous and vain attempt to trace it historically in the meagre chronicles of barbarians. Lassa and Digurchee, in Thibet, two large cities, are great fur depôts ; they are only forty marches from Khatmandoo. Beautiful dresses made of furs are brought by the native merchants from these cities ; a fur cloak with thick silk lining, can be had for one hundred and fifty Moree rupees, in British money little more than ten pounds.

The mountainous parts of Nepaul are rich in mines of iron and copper. The copper is of a very superior kind, and before the opening of a trade between Great Britain and India, was preferred for consumption in the territories of the king of Oude to that exported from Britain. Lead mines, yielding also a proportion of silver, are to be found in Moulkote, and it is supposed that there are gold mines to the north, though as yet no traces of gold have been discovered excepting in the beds of the torrent which rush through Kachar to the eastward.

Katmandoo is situated at the junction of the Bhagmutty and Bishmutty, and contains a population of 30,000 inhabitants. A tradition is current in Nepaul that the valley of Katmandoo was at some former period a lake, and it is difficult to say in which character it would have appeared the most beautiful. The valley of Nepaul is almost unrivalled in its fertility, supporting as it does in comfort and plenty a population of 400,000 inhabitants, being 300 persons to the square mile. Throughout its whole length and breadth not a stone is to be found : it is well-watered ; its temperature is delightful, the thermometer in the hottest month seldom reaches 75°, in the coldest never falls below 30°. In phonology the Nepaul languages have a strong resemblance to each other and to the Abor. The Lepcha is more Tibetan in its terminals than the others, having about 70 per cent. of consonants, *m* forming no less than 14. *So-Khain*, "anything," becomes *tham*. The Serpa resembles the spoken Tibetan, having about 34 per cent. of nearly the same consonants. The other languages are more vocalic. All possess a considerable portion of nasals, with the exception of Sunwar and Magar. In Sunwar, Gurung, and Newar, *m* is absent or rare. Newari is the most vocalic of the whole, *ng* and *n* being almost the only consonantal terminals. In thus possessing labial finals, the Nepaul group is more consonantal than the east Gangetic languages, including Abor. In their phoregetic elements Serpa and Lepcha resemble spoken Tibetan.

The Gurung and Magar tribes are small, with features of an extreme Mongolian type, full of martial ardour and energy. They are known as the Goorkha soldiers. They have considerable intellectual ability. The Newar have Tibetan features with a fair and ruddy complexion. The language of the Magar, Gurang and Newar is chiefly Tibetan. Further east are the Keranti, Murmi and others.

The *Khas* or dominant race, according to Manu, are outcaste military tribes.

The *Goorka* race ruling in Nepaul, claim to be Rajputs, but Mr. Hodgson says they are bastard brahmans, descendants of brahman immigrants and women of the hills, said to be of mixed origin, but brave and fierce, and by the Chinese called Ku-ru Ka-li. Not only are they brave and skilful soldiers, but they are wonderfully advanced in the art of fabricating the implements of war : they cast their own ordnance, manufacture their own muskets, shot, powder, and cartridge-boxes; in fact, every instrument or weapon used in civilized warfare often clumsily enough, but capable of being used, with effect. The Goorka conquerors of Nepaul now compose the army; they have grants of land called jaghires, on which they live when not actually on service. They are a handsome and independant race, priding themselves upon not being able to do anything but fight; and have a free and sometimes noble carriage like the Tryolese. The Goorka and Bhutani, on the east, and the Lahuli and Kanawari on the west, dwelling amongst the valleys of the Himalaya, are according to Cunningham, mixed races, between the Bhot family of Tibet and the hindoo race of the south. In feature and figure, the true Goorka are always remarkable, from their broad Chinese or Tartar-like physiognomy, the small eyes, flat nose and meagre whiskers, as well as the stout square make and sturdy limbs. The Goorka, in every description of costume, and in all degree of raggedness, are to be seen mingled with inhabitants of Kumaon, Sirmor, and Gurwhal. In 1792, the Goorka race mastered the whole of the valley of Nepaul, and the hill country from Sikhim to the Gogra and a party of them crossed the Himalaya, and appeared suddenly before Teeshoo Loomboo. The Llama and priests hastily evacuated their convents, and fled to Lhassa, and the place was plundered by the Goorka, who retired immediately with their booty. The Tibetans applied to China for aid, and an army was collected for the punishment of this act of unprovoked outrage. The Goorka submitted unconditionally to the Chinese commander, who imposed a tribute and triennial mission to

Pekin, besides restitution of all the booty taken at Teeshoo Loomboo, and he took hostages for the performance of these stipulations. The rajah of Sikhim was at the same time taken under Chinese protection. Checked towards the east by these events, the Goorka extended their dominion westward, subjugating Kumaon, Sirinugur, and all the hill country to the Sutlej. When Lord Hastings commenced his administration, their dominion extended as far as the river Teesta to the east, and westward to the Sutlej, thus occupying the whole of the strong country in the mountainous tract which stretches on the northern borders of India, between that and the highlands of Tartary. They had acquired these territories during the preceding 50 years, from many disunited hill chiefs whom they dispossessed, exterminating the families as each raja fell before them. The early intercourse of the British Government with Nepaul was exclusively of a commercial nature. British political relations with it date from the invasion of the valley by the Goorka race under rajah Pirthee Narain. In 1767, the Newar rajah of Katmandoo, being hard-pressed by the Goorka, applied for assistance to the British Government. Aid was granted, and Captain Kinloch was despatched with a small force in the middle of the rainy season. He was, however, compelled by the deadly climate of the Terai to retire. The Goorka chief, meeting but a feeble resistance, overran Nepaul, and extinguished the Newar dynasty, and was eventually recognized by the British Government as rajah of Nepaul. For several years previous to 1792, the Goorka power had been extending their conquests in the direction of Tibet. They had advanced as far as Digarchi, the Llama of which place was spiritual father to the emperor of China. Incensed by the plunder of the sacred temples of Digarchi, the emperor of China despatched a large army to punish the Nepaul rajah and the Goorkas concluded an ignominous treaty with the Chinese within a few miles of their capital. War between the Goorka and the British was formally declared on 1st November 1814. An arduous campaign, in which the Goorkas fought most bravely and with much success, left the British in possession of the hills west of the Kalee, and the Goorkas disposed to treat for peace. Negociations were however, twice broken off by the Goorkas refusing to comply with the demand for the cession of the Terai, and hostilities were therefore vigorously pushed by the British Government till the 4th March 1816, when the Nepaulese commissioners delivered to Sir David Ouchterlony the treaty of Segowlee duly signed and executed. The hill lands east of the Nuchee, and part of the Terai between the Nuchee and Teesta rivers ceded under this treaty, were made over to Sikkim.

The murder of Guggun Singh, a favourite of the maharani and the massacre of thirty-one of the most influential chiefs in 1846, paved the way for the rise of Jung Bahadoor to the office of prime minister, and he was created a maharajah by the maharajah of Nepaul, and invested with the perpetual sovereignty of two provinces. He effected the marriage of a son and two daughters into the royal family of Nepaul. During the mutiny of 1857, and the subsequent campaigns, Jung Bahadur rendered assistance to the British in the re-occupation of Goruckpore, the recapture of Lucknow, and the subsequent capture of the rebels who infested the Terai. In consideration of these services he was created a Knight of the Grand Cross of the Bath, and under a treaty concluded on 1st November 1860, the tract of territory on the Oudh frontier, which had been ceded to the British Government in 1816, was restored to Nepaul. The Nepaulese usually estimate the population of Nepaul at 5,200,000 or 5,600,000, but it is probably not more than 2,000,000. The city of Katmandoo contains from 30,000 to 35,000 inhabitants. The area of the kingdom is about 54,000 square miles. Its revenue is unknown, but is supposed to be about 43 lakhs. The Goorkas pay no tribute to the British Government, but every five years a mission is sent from Katmandoo with presents to Pekin. Previous to the Nepaul war in 1814 the Goorkas had extended their conquests westwards as far as the Sutlej. By the 5th Article of the Treaty of 1815, the Nepaulese renounced all claim to the countries west of the Kali, and the British were left in possession of the whole tract of hills from the Gogra to the Sutlej. Kumaon and the Dehra Doon were annexed to the British dominions, and the rest of the territory, with the exception of Subathoo, Raengurh, Sundoch, and a few other military posts, was restored to the hill rajahs from whom it had been conquered by the Nepaulese. In Nepaul they use the bark of Photina dubia or Mespilus bengalensis for dyeing scarlet. Nepaul is said to contain 1,940,000 inhabitants, of which 500,000 are buddhists. The Nepaulese were defeated by Sir David Ouchterlony on the 28th February 1816, and the Nepaul war ended on the 12th March 1816. Nepaul ceded Kumaon by the convention of Almorah on the 27th April 1815.—*Sir John Shore, Lond. As. Trans., Vol.* ii, *p.* 30 ; *Thomas', Prinsep, p.* 270 ; *San. Com. Report*; *Smith's Five Years at Nepaul, Vol.* i, *p.* 63. See Buddha, India, Inscripticns, Katmandu, Khas, Krat, Lepcha, Limbu, Newar, Sanskrit, Shawl-goat, Tope.

NEPAL CHILLY, Capsicum frutescens, *Linn.*, also Capsicum minimum.

NEPAL HORSE-SHOE BAT, see Cheiroptera.

NEPAL PAPER PLANT, see Daphne cannabina, also Thymeleæ.

NEPAL PIGMY SHREW, Sorex hodgsoni, *Bly.*

NEPAL-WOOD SHREW, Sorex nemorivagus, *Hodg.*

NEPALA, Sans. Nepalam, Singh. Croton seed.

NEPALAM, Tel. Jatropha curcas, *L.—R.* iii, 686.

NEPALA VEMU, Tel. The exact translation of this name is "bitter croton." The Sans. syn. is Jwarantaka, which in *W.*, who renders it Medicago esculenta, is Jwarapah, p. 356, lit., "fever removing." The only plant answering this description is Croton cascarilla of S. America. The name would indicate the existence of a plant with similar properties in India. Some kinds of Phyllanthus have bitter roots, but are only used as diuretics. Croton and Jatropha possess drastic but not antifebrile properties.

NEPALEÆ, Hoon-Ling, Thib. Syn. of Picrorrhiza.

NEPALUM, Tel. Croton tiglium.

NEPENTHACEÆ, *Lindl.* The pitcher-plant tribe of one genus and six species. The pitcher-plant grows on grassy hills about Amwee, near the Jyntea hills and crawls along the ground.—*Hooker, Him. Jour.*, *Vol.* xi, *p.* 315.

NEPENTHES DISTILLATORIA.

N. indica, *Lam.* | N. phyllamphora.
Chu-long-tzo, Chin.

The natives of Amboyna believe that rain will fall if they empty the pitcher. N. ampulllacea, *Jack.*, and N. rafflesiana, *Jack.*, grow in Singapore. One species grows in Ceylon; several species occur in Borneo. The Dutch call this plant Kannekens kruyd, or the can-fruit, from its singular form.—*Pennant's Hindoostan*, *Vol.* i, *p.* 236; *Bennet.*

NEPENTHES of Homer (Odyss. iv, l. 221) supposed by some to have been hemp, Cannabis sativa. It has also been supposed that opium was the Nepenthe of Homer.—*Powell's Hand-book*, *Vol.* i, *p.* 321.

NEPERA, Singh. Caryota urens, *Linn.*

NEPETA AMBOINICA, *Linn.* Syn. of Anisomeles ovata, *R. Br.*

NEPETA CILIARIS, *Benth.*

N. leucophylla, *Bl.* | Zufa yabis, Panj.

It occurs in the Punjab Himalaya, at from 4,000 to 8,000 feet and is given in sharbat for fever and cough.—*Dr. J. L. Stewart*, M.D.

NEPETA DISTICHA, *Bl.* Syn. of Anisomeles ovata, *R. Br.*

NEPETA MALIBARICA, *Linn.* Syn. of Anisomeles malibarica, *R. Br.*

NEPETA RUDERALIS, Badranyboya, Panjab, *Powell's Hand-book*, *Vol.* i, *p.* 366.

NEPHELIUM, a genus of plants of the natural order Sapindaceæ. Under the Canarese and Mahratta names Andgeree and Yaroo, Dr. Gibson mentions a tree growing in Canara and Sunda, above the ghaut chiefly at the Nilcoond and southern jungles. Wood said to be serviceable in house-building. Mr. Thwaites notices in Ceylon, Nephelium bifoliatum, *Thw.*, a moderate-sized tree on the lower Badulla road from Kandy, at no great elevation which flowers in April; Nephelium eximium, a large tree, of the central province, at an elevation of 1,000 to 2,000 feet, flowers in May and fruits in July, and Nephelium erectum, *Thw.*, also of the central province, up to an elevation of 3,000 feet. Three species of the genus are celebrated for their fruits, viz., N. litchi, *Don.*, the litchi of south eastern Asia: N. longanum, the longan of China: and N. lappaceum, the rambutan of the Malay peninsula. Dr. Mason mentions a small inferior Tenasserim fruit as the red nephelium, eaten by the natives only, though belonging to the same genus which produces the famous lichi, and bearing its fruit in bunches like that. One of the indigenous Nephelium trees, a wild rambutan of Tenasserim, bears a fruit whose subacid is very agreeable to the palate, and much resembles that of the rambutan so famous at Malacca. Malays say it is the wild rambutan, and the tree certainly belongs to the same genus, the species known are N. lappaceum, lichi; longan, rimosum, rubrum, verticillatum and variabile.—*Mason; Thw. En. Pl. Zeyl.*, *Vol.* i, *p.* 57; *Voigt.*

NEPHELIUM LAPPACEUM, *Linn.*, *Mant.*

Rambut; Rambut-an, Malay.

The rhambut-an fruit is produced in bunches terminally; the pulp, which surrounds a seed of the size and flavour of a cob-nut, is transparent, and of a delicate sweetish acid flavour; it is in appearance not much unlike the fruit of the arbutus, but larger, of a brighter red, and covered with coarser hair or soft spines, from whence it derives its name. The part eaten is a gelatinous and almost transparent pulp surrounding the kernel, of rich and pleasant acid.—*Low's Sarawak*, *p.* 73; *Marsden's History of Sumatra*, *p.* 101.

NEPHELIUM LITCHI, *W. & A.*

Dimocarpus lichi, *Lour.* | Euphoria lichi, *Desf.*
Scytalia lichi, *Roxb.*

Tan-li: Lichi, Chin. | Kaleng ken: Lichi, Malay.

This tree, a native of China, is an evergreen, and grows to a large size. The fruit is of a dark-brown colour, and contains a glutinous yellow sweet soft of pulp; in British India it is not much prized—perhaps from its inferior quality to the Chinese fruit, which is much esteemed. The fruit ripens in March and

April. The tree grows in all parts of China. The sun-dried fruits are largely exported from Fuh-kien and Canton provinces being in demand as a marriage present or dessert at feasts. —*Riddell, Smith.*

NEPHELIUM LONGAN, *Camb.*

Euphoria longana, *Lam.* | Dimocarpus longan, *Roxb.*
Scytalia longan, *Lour.*
Lung-yen, Chin. | Poovuttu maram, Tam.

A tree of the peninsula of India, the Khassia hills, the Malay peninsula, Cochin-China and China. A moderate-sized tree, having a straight trunk and fine globular head. It occurs in Coimbatore, but is rare in the Bombay presidency, being confined to their Raee or greenwood jungles. In China, it grows in Fuh-kien, Kwang-tun and Kwang-si. It is more easily grown than the litchi. The fruit is globular, it is not equal to the Litchi. The wood is white, hard, and close grained.—*Drs. Wight and Gibson; Voigt, Smith, p.* 155.

NEPHRITE, jade, or axe-stone, the Yashm or Sang-i-yashm, so much valued in China, is found in Central Asia, New Zealand and Western America. See Jade.

NEPHRODIUM FILIX MAS, see Filix mas.—*Honigberger.*

NEPOTISM, see Polyandry.

NEPTUNUS PELAGICUS, and, N. sanguinolentus, species of Crabs.

NEPU, Tel. Fire.

NEP YAN, Burmese. Plantain, Musa paradisiaca.

NER, Hind. Skimmia laureola.

NERA, or Nerar, Tel.? of the Nalla Mallai, the Syzigium jambolana.

NERA, Hind. Rhododendron anthopogon.

NERA, Malay. Palm wine.

NERADI, Tel. Syzigium jambolanum, called Neradee in Kurnool, and is a very useful wood, of a light sepia colour, of medium hardness, and used generally as planks.

NERAMEDHA, see Kali.

NERAND GAUM, a town and river in Nagpore.

NERASI, Tel. Elæodendron roxburghii, *W. & A.*

NERASO, Uria. In Ganjam and Gumsur, a tree with an extreme height of 25 feet, and a circumferenee of 2½ feet. Height from the ground to the intersection of the first branch, 8 feet. It is tolerably common and burnt for firewood. Plough-shares are sometimes made of the wood. The bark is used medicinally for wounds.—*Captain Macdonald.*

NERBUDDA, a river of Central India, which rises in the dominions of the rajah of Rewah at Amarkuntak, a jungly table-land in lat. 22° 39′, long. 81° 49′ from 3,500 to 5,000 feet above the sea. It runs nearly due west with occasional bends, to the Gulf of Cambay, which it enters below the town of Baroach by a wide estuary, after a course of 801 miles. It receives the Herrun, Samarsee, 60 miles; Suktha, 70 miles; and about 60,000 square miles are drained. The river, notwithstanding the great width of its bed in some parts of its upper course, is scarcely anywhere continuously navigable for any considerable distance, in consequence of the innumerable basaltic rocks scattered over its channel. It is regarded as the boundary between Hindustan and the Deccan. Its ancient name as found in the Puranas is Rewa; and it bears a high reputation for sanctity. Local devotees sometimes place it above the Ganges; and there is a saying that, whereas it is necessary to bathe in the Ganges to obtain forgiveness of sins, the same object is attained by mere contemplation of the Narbada. The source is at Amarkantak, a massive flat-topped hill, forming the eastern terminus of that long mountain range which runs right across the middle of India from west to east. South of the Himalaya there is no place of equal celebrity so isolated on every side from habitation and civilisation. The river bubbles up gently in a very small tank in one of the undulating glades on the summit of the mountain. But soon the waters are reinforced by the countless springs which abound in those trap-rock formations, and after a course of some three miles from the source, the abrupt edge of the Amarkantak plateau is reached. There it tumbles over the ledge of a black basaltic cliff with a sheer descent of seventy feet, a glistening sheet of water against the intensely dark rock. These, the first, and perhaps the loveliest, of all the many falls of the Narbada are called Kapila-dhara. A short distance from the stream is another fall of lesser height called Dudhdhara, or the 'Stream of milk,' the myth being that once the river here ran with that liquid. Thus far the river's course constantly interrupted by rocks and islands, has been frequently tortuous. But below Ramnagar for several miles down to Mandla it flows in a comparatively straight line with an unbroken expanse of blue waters, between banks adorned with lofty trees. These pools or reaches (called "doh" by the natives) in many of the rivers of the Central Provinces are reckoned as gems in the landscape. The doh or pool of the Narbada, between Ramnagar and Mundla, is quite the finest of them all. The banks for a considerable distance between Mundleysir and Chiculdah are from forty to seventy feet high, and consist, independent of a thin upper layer of rich vegetable mould, of two distinct strata of alluvium, the upper which is very light coloured contains a great quantity of indurated marl, and is strongly impregnated with muriate of soda or common salt, which the natives extract by lixiviation and subsequent evaporation by the sun in shallow compartments near the banks, and they sell it to the poorer classes, particularly the Bheels, in the neighbourhood. This stratum is usually from thirty to forty feet thick. The one on which it reposes, and from which it is divided by a strongly marked horizontal line, and a difference of colour (this last being of a redder hue) contains a very large proportion of carbonate of soda in general, but slightly contaminated by the muriate. This bed rarely exceeds ten or fifteen feet thick, and rests immediately on the basalt forming the bed of the river. In the dry season, both these salts form a thick efflorescence on the surface of the bank, and this alone is collected by the natives. That from the lower bed forms an article of export for the use of the washermen, &c., &c., but the soda itself is not extracted like the common salt, nor is its value but in the above way known. The bed of the Narbada, consisting for a considerable portion of its course of basaltic rocks gives rise to numerous shallows and small falls. Of these, the principal are, one at Deyree, where the river is much contracted, a second at Semadarah, a little below Mhysir, and a third at the Hurn Pahl, or Deer's Leap below Chiculdah, whence, till its entrance into Guzerat, the stream finds its way contracted to within half its usual breadth between two hilly ranges, its course being much impeded, so as to render navigation impracticable, by large masses and elevated ridges of the rock. Passing higher up the stream from Mundleysir, the northern bank, after about thirty miles becomes rocky and precipitous and consists of gently inclined beds chiefly of greenstone slate, containing interposed mica in small grains. But the island of Mundatta and part of the opposite bank appear mostly to consist of hornstone slate of a reddish or greenish grey and sometimes porphyritic. Above this, for a considerable distance is, on each bank, a very wild woody tract, resembling that already noticed below Chiculdah, excepting that the river is in general deep and less obstructed by rocks. This part consists of a succession of low hills and deep ravines, and water-courses is covered with high thick forests, and is scarcely capable of being travelled in most parts for seven or eight miles from the river by any but foot-passengers. Iron ore abounds, but the country being almost desolate, it is only smelted at Kantcole and Chundgurh, for the supply of the Indore and neighbouring markets. It is of a good quality, but from the imperfect mode of working the metal is little valued, excepting for common purposes. The hilly tract below Chiculdah is better populated, chiefly by wild Bheel tribes, and nearer Broach on the southern bank are the Rajpeeply hills inhabited by the coolie tribe. In these hills are situated the several cornelian mines. From Burwaee to Chiculdah, the whole valley from the Satpoora to the Vindya mountains, is nearly level, well-watered, cultivated and inhabited. At Jubbulpoor and in the neighbourhood of Saugur, fossil mammalia, shells and silicified palms have been recently discovered. Fossil shells have also been found in some of the trap hills, which have broken up the sandstones near the sources of the Taptee. This river is separated from the Narbada by a range of basaltic mountains; and having the same direction as the Narbada, its whole course appears to be in the basaltic formation.—*Central Provinces Gazetteer ; Dr. Copland, Vol.* i, *of the Bombay Literary Transactions Jour. of Asiatic Soc., Vol.* xiii, *pp.* 516-517. See N. W. corner of Map.

NEREDI-CHETTU, Tel. Calyptranthes caryophyllifolia. Neredi-pandoo, Tel. Its fruit.— *Willd. ; Swartz.*

NEREDU, Tel. Eugenia jambolana, *Lam., R.* ii, 484, Syzygium jam. *W. & A.*

NEREMJENA, near Patun Sangee in Nagpoor.

NEREOCYSTIS LUTKEANA, one of the algæ, forms dense forests in Norfolk Bay and all about Sitcha. Its stem resembles whipcord and is often 300 feet long and terminates in a large air vessel, 6 or 7 feet long, and crowned with a bunch of dichotomous leaves, each 30 or 40 feet in length. The sea otter when fish-fishing rests on the colossal air vessels of this giant sea weed, and its stems furnish fishing tackle.—*Hartwig.*

NERGUNDI, Beng. Vitex negundo, *Linn.* ; *Roxb. ; W. Ic.*

NERIJA DICHOTOMA, *Roxb.* Syn. of Elæodendron roxburghii, *W. & A.*

NERIJA MANU or Nerasi, Tel. Elœodendron roxburghii, *W. & A.*

NERIKU, Tam. See Olay.

NERINJI, Tam. Neringil, Maleal. Tribulus lanuginosus, *Linn.*; *Roxb.*; *W. & A,*

NERION PODODENDRON, Gr. Syn. of Nerium oleander.

NERITA, a genus of Gasteropodous mollusca, the type of the family Neritidæ.

NERITIDÆ, a family of molluscs, as under :

Gen.—Nerita, the Nerite, *rec.* 116, sp. *fossil,* 60 sp.
Sub-genera.—Neritoma, *fossil.*
Neritopsis, *rec.* 1 sp, *fossil,* 20 sp.
Velates, *fossil.*
Pileolus, *fossil,* 3 sp.
Neritina, Fresh-water nerite, *rec.* 76 sp. *fossil,* 20 sp.
Navicella, *rec.* 18.

NERIUM ANTIDYSENTERICUM, Syn. of Wrightia antidysenterica. See Connesi seed, Connessi bark, Dyes.

NERIUM COCCINEUM.

Scarlet oleander.
Wrightia coccinea.
Nerium coccinea.
Soorkh-kanel, Hind.

Common in gardens at Ajmeer and highly ornamental. In Tenasserim, European compounds are occasionally scented with this useful shrub, whose orange-red flowers have the grateful fragrance of the pine-apple.—*Genl. Med. Top., p.* 186; *Mason.*

NERIUM CORONARIUM, *Ait.*, and N. divaricatum, *Linn.*, syns. of Tabernæmontana coriara, *R. Br.*

NERIUM GRANDIFLORUM, *Roxb.* Syn. of Cryptostegia grandiflora, *R. Brown.*

NERIUM ODORUM, *Ait.*

Nerium odoratum, *Lam.*
„ indicum, *Mill.*
Nerium oleander, *Lour.*

Lal kharubi, red var.	Beng.
Shwet „ white „	„
Kanera	of Chenab.
Kaner,	Duk.
Rose-Bay oleander,	Eng.
Sweet scented „	„
Spurge laurel,	„
Νηριον Ροδοδενρον -Ροδοδαφνη,	Gr. of Diosc.
Kaner-gandara,	Hind.
Rakt-kaner, *red var.*,	„
„ karbir,	„

Gandehra	of Kulu,
Kanher,	Mahr.
Jovana arali,	Maleal.
Khar-zahra,	Pers.
Ganhira	of Ravi.
Karrabira,	Sans.
Karavera,	„
Arali,	Tam.
Ghenneru kusturi-patte,	Tel.
Gandere,	Trans Indus.

There are two varieties of this shrub, one with white flowers, the other with red, it grows wild, but is cultivated in every garden of the East Indies. In the Dekhan, the double red and white grow wild on the banks of rivers, bearing both white and red flowers; the root is poisonous. There are two other varieties very commonly met with bearing double flowers both red and white, and by budding the red colour on the opposite one in several parts of the same stalk, a very pretty appearance may be given to the shrub. The yellow congener is called the Exile—introduced from America. Grows easily from cuttings. The whole plant is impregnated with a dangerous principle which has not as yet been insulated, though many attempts have been made to procure it. Its activity and volatility are very great; it is even a popular belief that the vapour of the flowers in a close apartment will prove poisonous. Amongst hindoos, its flowers are sacred to Siva. The single white is called in Hindi sufaid-kurpud, the single rose-colored lal-kurpud and the beautiful large double rose variety is called pudma-kurpud. The root, the bark and the leaves are officinal, and are poisonous. The root contains a yellow poisonous resin, tannic, acid, wax, and sugar, but no alcholoid or volatile poison. The bark and flowers contain the same poisonous resin which is most abundant in the liber or inner bark, it is very soluble in carbonate of soda, and though not volatile is carried over mechanically when the plant is distilled with water. The root is frequently resorted to, for the purpose of self-destruction by the women of India when tormented with jealousy. The root of the hill-plant is much more violent than that of the garden, and in the hills is considered poisonous. Jealous women so frequently have recourse to it that, it is proverbial among the females of the hills, when quarrelling, to bid each other go and eat of the root of Kaner. In a case of poisoning by common oleander (Nerium odorum), a man about 35 years old swallowed an ounce of the expressed juice, and immediately fell senseless on the floor. He did not recover, even by vigorous treatment, from a state of collapse, under 40 hours, and during that time had constant spasmodic seizures of the whole body. The stalks are said to be used as hookah tubes. The powder of the dried leaves is given in colic and used as an errbine. A wash is made from the bark which is used in itch and for destroying vermin. Externally the leaves and bark have been used (and sometimes even internally) as a remedy in herpes and itch. The rasped wood is employed as rat's-bane. The wood itself is used by some eastern nations as the best material for gunpowder charcoal.—*Powell's Hand-book, Vol.* i, *p.* 360; *Eng. Cyc.; Drs. Riddell; Irvine, p.* 186; *Ainslie's Mat. Med., p.* 70; *Honigberger, pp.* 316, 326; *O'Shaughnessy, p.* 445; *Mason.*

NERIUM PISCIDIUM, *Roxb.*

Eschaltum piscidium, *Wight.* | Echalat of Sylhet.

This is common in the Khassya and Sylhet mountains, where it forms an extensive perennial climber. Its bark contains a large quantity of fibre, which the natives use for the same purposes as hemp. Dr. Roxburgh, in steeping some of the young shoots in a fish pond, in order to facilitate the removal of the bark and to clean the fibres, found that many, if not all the fishes, were killed: hence the specific name which he applied. Dr. Wight formed the plant into a new genus, Echaltum. The whole family of "Apocynaceæ," termed "dog-banes, to which this belongs, are truly so.—*Royle, Fib. Pl., p.* 302; *Roxb., Vol.* ii, *p.* 7; *O'Shaughnessy, p.* 445; *Voigt, p.* 525

NERIUM TINCTORIUM, *Roxb.* Syn. of Wrightia tinctoria, *R. Br.* See Dyes.

NERIUM TOMENTOSUM, *Roxb.* Syn. of Wrightia tomentosa.—*Rom. & Sch.*

NERKA, Gondi. Canis aureus, *Linn., Bly., Ell.*

NERMADA, a name of the Nerbudda river. See Inscriptions, Salagrama.

NERO-DA-UGNER-LE-SCARPE, It. Blacking.

NERO DI FUMO, It. Lamp black.

NERRELOO, Singh. A tree of the central province of Ceylon, the wood of which weighs lbs. 56 to the cubic foot and is said to last 40 years. It is used in common house-building. —*Mr. Mendis.*

NERUDIAR, in Malabar, a caste of salt-makers and fishermen comprising the Vettuver and Mukaver, or Mukwa castes.

NERURI—? Phyllanthus neruri.

NERVALAM, Tam. Croton tiglium; Nervallum cottay, Tam. The seed.

NERVOSE ERANTHEMUM, Eranthemum pulchellum.

NERWALLAH, the ancient capital of Guzerat. See Camala devi.

NESHR, also Chal, Hind. Eagle. See Neshr.

NESHTRI, see Hindoo.

NESOKIA-HUTTONI, *Bly.* Syn. of Nesokia hardwickei.—*Jerdon.*

NESOKIA INDICA, *Jerd.* Syn. of Mus providens.—*Elliot.*

NESR, Arab. Eagle. It is the Near of the Hebrews, and Nesher of the Chaldeans.

NESSIA, a genus of snakes of the family Acontiadidæ which may be thus shown :

Fam. Acontiadidæ,
Acontias layardii, *Keb.*, Colombo.
Nesia burtonii, *Grey*, Ceylon.
„ monodactyla, *Bell*, Ceylon.

NEST, Eng. Ger.

Ghonsala, Ghar,	Hind.	Nido,	Sp., Tam.
Nido; Nidio; Nidiata,	It.	Yiwah,	Turk., Tel.

The nests of birds greatly vary. Those of the weaver bird, tailor bird, honey-sucker and oriole, are made with much art. The edible nest of the colocalia swallow is formed of inspissated saliva in caverns: swallows, swifts, bee-eaters and weaver birds build in companies.

NESTOR, see Simiadæ.

NESTORIAN, a christian sect in Kurdistan and Mesopotamia, so called from Nestorus, who was Bishop of Constantinople in the 5th century and whose doctrines were spread with much zeal through Syria, Egypt, Persia, India, Tartary and China. Nestorian Tiyari women and girls bathe unrestrained in the presence of men, in the streams that pass their doors. See India, Kurdistan, Mesopotamia.

NET.

Netz,	Ger.	Jaling,	Malay.
Jhal,	Hind.	Pukat, Panauk,	„
Rete, Reticella, Ragma,	It.	Red,	Sp.
Jala,	Malay.	Agh,	Turk.

Net-making or the art in which the fabric is required to be transparent, but in which the fibres are decussated and retained in their places by knots, that the interstices may retain their form and size, and prevent objects from escaping, seems to have been known in the earliest ages in Egypt, and is practised with the greatest skill throughout the E. Indies in great variety, from a few to fifty fathoms in length. Those from Singapore are made with cotton, and others with the fibre which is very similar to, if not identical with, that forming the so called China grass. Nets are woven also of hempen thread, and boiled in a solution of gambier (Uncaria gambier) to preserve them from rotting. The smacks which swarm along the Malay coast go out in pairs, partly that the crews may afford mutual relief and protection, but chiefly to join in dragging the net fastened to theirboats .In the shallows of rivers, rows of heavy poles are driven down, and nets secured to them, which are examined and changed at every tide. Those who attend these nets, moreover, attach scoops or drag-nets to their boats, so loaded that they will sink and gather the sole, ray, and other fish feeding near the bottom. Lifting nets, 20 feet square, are suspended from poles elevated and depressed by a hawser worked by a windlass on shore; the nets are baited with the whites of eggs spread on the meshes. There are, also, Casting nets, and Siene nets. The Rami fibre, Trap fibre, cotton and hemp are all employed in net-making.—*Royle, Arts, &c., of India, p.* 505. See Fisheries.

NETAR, Hind. Low land.

NETAVIL MARAM, Tam. Antiaris innoxia, *Blume, Rumphius.*

NETAVIL MARAM, or Chundao, Tam. Lepuranda saccadora, a very common and the most gigantic tree of all in the Wynaad jungles. Coramboor bags or sacks are made from the bark: wood not much used.—*McIvor, M. E.*

NETELDOEK, Dut. Muslin.

NETER, Heb. Soda.

NETHERLAND, a name in use for a European country, called Holland, occupied by the Dutch, also for Belgium. The Dutch have large possessions in the Eastern Archipelago. See Archipelago, Dutch Possessions.

NETI BIRA, or Nune bira, Tel. Luffa pentandra, *R.*, iii, 712.

NETI DONDA, or Tiyya donda, Tel. Bryonia umbellata, *Klein.*

NETTLE. This name is applied to plants which when touched impart a stinging sensation. They are classed by botanists under the natural order Urticaceæ of Endlicher, which comprises the genera Ampalis, Antiaris, Artocarpus, Batis, Bœhmeria, Broussonetia, Cannabis, Conocephalus, Dorstenia, Epicarpurus, Ficus, Lepurandra, Morus, Parietaria, Pouzolzia, Procris, Trophis, and Urtica. Of the species of the genus Urtica, of which there are known about twenty, many sting, as also do those of Boehmeria.; Urtica and Boehmeria furnish useful fibres, and the Broussonetia papyrifera, a paper-like bark. See Urticaceæ.

NETTLE FIBRE, see Decaschistia crotonifolia.

NETTE PALE, Tam. The country gooseberry tree, the fruit is one of the most powerful acids of India. The tree grows to about twelve inches in diameter, its wood is not of any use.—*Edye, Mal. and Can.*

NETTAPUS COROMANDELIANUS, *Gme-*

lis. The white-bodied goose teal or cotton teal of British India, Ceylon, Burmah and Malayana, is a pretty little goslet, it is unwary and familiar, frequents weedy and grassy tanks, flies with rapidity, and utters a cackling call. It breeds in holes of old trees, ruined houses, temples, chimneys, and lays eight or ten small white eggs. It is the Bernicea girra of Gray and Dendrocygnus affinis of Jerdon, and is 13 or 14 inches long.

NETU, also Neru, Tel. Water.

NEUERA ELIA, a mountain summit in Ceylon, taking its name from Nuwara, Singh., an imperial residence, and elia, light. It was first visited by English officers in 1826, and by 1829, Sir Edward Barnes had opened it as a sanitarium. It is 6,222 feet above the sea, and, on its north, mountains rise 2,000 feet higher still. Its temperature ranges from 36° to 81°, with a mean daily variance of 11°, the average at noon being 62°, and the highest observation of the unexposed thermometer 70°. The quantity of rain falling has perceptibly decreased of late years, probably owing to the extensive clearing of the surrounding forests, to prepare them for coffee planting. Its highest peak is Pedu-ru-talla-galla, 8,280 feet in elevation which derives its name from the plants which grow there amongst the rocks (galla) and are substituted for the (" talla") leaves in making mats (pedurn). It is a favourite place of resort from the commencement of January to the middle of May. At that time the rainy season commences, and visitors rapidly disappear.—*Baker's Rifle, pp.* 32-33; *Tennent's Ceylon.*

NEUR, Hind., of Kotgarh, Cupressus torulosa, twisted cypress.

NEUROPTERA (from *νεῦρον*, a nerve, and *πτερὸν*, a wing), one of the orders into which the Insects class is divided. It may be illustrated by the Libellula or dragon-fly; Ephemera or May-fly, and Phryganea or alder-fly. The following are E. Indian genera and species:—

. Order Neuroptera.

Sec. Necromorphostica.
Sub-Sec. Planipennes.

Ascalaphus tesselatus, *Westwood*, East Indies. Expansion of wings, 2¾ inches, black.
A. segmentator, *Westwood.* East Indies. Expansion 3 inches, yellow.
A. canifrons, *Westwood*, East Indies. Expansion 1¼ inches, brown.
A. dentifer, *Westwood*, East Indies.
A. javanus—? Java.
A. angulatus, *Westwood*, Assam. Expansion 3 inches.
A. obscurus—? East Indies, Expansion 2¼ inches.
Myrmeleon singulare, *Westwood*, East Indies. Expansion 4 inches, buff coloured.
Chauliodes subfasciatus, *Westwood*, Sylhet. Expansion 1-5-6ths. inches, blackish.
Nemoptera filipennis, *Westwood*, Central India. Expansion nearly 1 inch, dull fulvous.
Mantispa nodosa, *Westwood*, Assam. Expansion nearly 2 inches.

NEVA LEDI, Tel. Vitex leucoxylon, *R.*, iii, 74.

NEVALI ADUGU, Tel. Vitex arborea, *R.*, iii, 73.

NEVARI DHANYMU or Nivari dhanyamu, Tel. wild var. of Oryza sativa, *L.*

NEVERIT, see Nepal.

NEWAL, Hind. Herpestes griseus, *Geoff.*, *Bly.*

NEWALA, Hind. Vitis indica.

NEWAR, a race who occupy the great central and fertile valley of Nepaul. They use well-built houses. The native Achar is selected as their priests. They eat beef and drink alcoholic liquors. They burn their dead. On the 11th August, the Newar farmer distributes mashed rice to the frogs. The Newar are the cultivating peasantry, have Tibetan features with a fair and ruddy complexion. The language of the Magar, Gurang and Newar is chiefly Tibetan. Further east are the Karanti, Murmi and others. The Newar are divided into several castes or orders, most of which derive their origin, like those among the more ancient hindoos, from a primitive classification, according to trades and occupations. The Newar are more skilful artisans than the Ghorka, but their talent does not lie in the same direction. The Newar excel also in bell-making; it is the trade of the land; they are all bell-makers from their youth, and proofs of their skill are exhibited hanging at the corners of pagodas, swinging from the roofs of houses, surmounting dagobas, in fact, the device upon a Nepaulese banner should be a bell. In jewellery they are no less expert, and are elaborate workmen in all metals. A coarse paper is manufactured by them from the bark of a tree, which is first reduced to a pulp and then spread over a sheet and dried. They are as excellent agriculturists as tradesmen, and the rich soil of the valley is not allowed by the industrious peasants to lie fallow a moment longer than is necessary. There are not, however, many Newar employed as Nepaul soldiers, and the army is chiefly composed of Muggur, Gurung, and Krat. The Newar women, are lady-like in their appearance, when compared with some of the Bhotia tribe. In an account of Nepaul in 1803, Colonel Kirkpatrick observes that " though the Newar have round and rather flat faces, small eyes, and low spreading noses, they bear no resemblance to Chinese features;" but there is a great similarity of the mass of the lower orders to the Chinese. Their imperturbable good humour, unaffected simplicity, their picturesque dwellings and sturdy limbs, plainly prove them a hill race. This class of the inhabitants of Nepaul are a cheerful, happy race.—*Oliphant's Journey,* *pp.* 73, 74, 134; *Colonel Kirkpatrick's Account of Nepal.* See India, Nepal, Saurashtra.

NEWARA, HIND. Herpestes griseus, also malaccensis, *F. Cuv.*, *Bly.*

NEWBERRY, see Leedes.

NEWBOLD, Captain T. D., an infantry officer of the Madras Presidency, known for his continuous contributions on the geology and history of parts of Southern Asia. Capt. Newbold rose in the 12th M. N. I., was a distinguished geologist, and most accomplished orientalist and scholar, Assistant to the Resident at Hyderabad. *Ob.* 1850. Wrote on the Beryl mine in Coimbatore, in Edn. New Phil. Jl., Vol. xx, 241; Valley of Sondoor, Mad. Lit. Trans. 1838, Vol. viii, part I, 128; Temperature of the springs, wells, and rivers in India and Egypt, Phil. Trans. and re-published Edin. New Phil. Jl., 1845-46, Vol. xi, 99; Geological notes on the Southern Mahratta Country, in Bl. As. Trans. 1845, Vol. xiv, part 1, 268; Osseous breccia and deposits in the caves of Billa Soorgum, Southern India, Ibid., 1844, Vol. xiii, part 2, p. 610; Visit to the bitter lakes, Isthmus of Suez, in Lond. As. Trans. 1845, Vol. viii, 355; Geological notes from Masulipatam to Goa; On the Alpine glacier, iceberg, diluvial, and wave translation theories, with reference to the deposits of Southern India, in Bl. As. Trans., Vol. xiv, part 1, 217; Geological notes across the peninsula of Southern India, from Kistapatam; Ibid., 398; History of the Persian poets, in Mad. Lit. Trans., Vol. ii, 245; Summary of the geology of Southern India, in Lond. As. Trans. 1845, Vol. viii, 138, 213; Essays on the metrical compositions of the Persian poets, with a notice of their poetry, Mad. Lit. Trans., Vol. iii, 113, 232; On the code and historical MSS. of the Siamese; On the progress of Buddhism to the eastward; Ibid., Vol. vi, 117; Recent fresh water deposits near Kurnool, in Bl. As. Trans., 1844, Vol. xiii, 213; Account of the Mahomedan Kings of Acheen; Ibid, Vol. iv, 117; Notice of Malayan code; Ibid, 390; Site of Hai, or Ai, royal city of the Canaanites, in Bom. Geo. Trans., Vol. viii, 335; A biographical notice of him appeared in the *Bombay Times*, May 1850.—*Dr. Buist's Catalogue.*

NEW CALEDONIA, see India.

NEWEL FRUIT, Calyptranthes caryophyllifolia.

NEW GUINEA or Papua, a great island on the eastern border of the Eastern Archipelago. Its north coast is generally high; towards the sea, there is low land, but a little way inland, a chain of mountains extends parallel to the coast and elevated in some places 4,000 or 5,000 feet above the sea. It is the great seat of the Papuan race, and is 1,500 miles in extreme length, or nearly double that of Borneo; but its superficial area is probably less than that of the latter island (200,000 square geographical miles), as there is every reason to believe that the south coast of New Guinea, immediately opposite to the gulf of Carpentaria in Australia, forms a deep indentation similar to the Great Bay on the north coast, there being a space of two degrees and a half of longitude in which the land has not yet been seen. Of this unexplored space, 118 miles, or four-fifths of the whole, were taken possession of by proclamation, in the name of the king of Holland, in the year 1828. As the commanders of Her Majesty's ships employed in the Surveying service are said to have general instructions not to interfere with coasts claimed by foreign powers, unless the interests of navigation absolutely require it, this in some degree accounts for the fact that so large a space of coast, within 600 miles of a European settlement that has been established more than three centuries, remains still unknown to civilized nations. The names by which the island is known to Europeans and Asiatics, New Guinea and Tanna Papua, both distinctly refer to the leading peculiarity of the race by which the coasts are inhabited. The most striking geographical feature of the great eastern peninsula consists in a back-bone of lofty mountains, which apparently extends throughout its length. Their practice of standing up to paddle their canoes is repeatedly noticed by Lieutenants Kolff and Modera, and it seems to be general throughout the coasts of New Guinea. The brown-coloured natives of the Archipelago all sit, or "squat," while paddling their canoes, excepting the Baju Laut, or Sea Gypsies, who stand like the Papuans, and give as a reason for assuming this posture, the superior facilities it affords them of seeing turtle, and of chasing them when discovered. The trade with New Guinea and the Eastern Islands, (commonly called the Bugis Trade,) and the Trepang fishery on the north coast of Australia, is carried on chiefly in vessels called Padewahkan. These leave Macassar and the other ports of Celebes, for the Eastern Islands during the westerly monsoon, returning with the south-east trade wind. The northern part of this island, that is to say, the portion lying to the N. W. of the range of mountains already alluded to, partakes of the rugged and broken character of the volcanic islands of the Indian Archipelago, but the south-western part is low and undulating, and we may conclude that it bears considerable resemblance to the northern coasts of Australia, since the several Dutch navigators who explored the gulf of Carpentaria, and who are in the habit of coasting this part of New Guinea on their way to Australia, considered them as being portions of the same continent' and they were thus delineated in our maps until Cook passed through Torres Strait and decided the question as to their insularity. A very interesting account of the S. W. coast of New Guinea, is given in Modera's "Narrative of the voyage of the Dutch Corvette 'Triton' in the year 1828," when this coast was explored with a view to forming a settlement: and contains information which bears upon this point. Its S. W. part is known to native traders as Papua-kowiyee and Papua-Onen: it is inhabited by the most treacherous and blood-thirsty tribes, and up to the present time traders continue to be murdered there. The Papuan races of Mysol, Salwatty, Waigiou, and some parts of the adjacent coast, have become peaceable. On the S. W. coast, however, and in the large island of Jobi, the Papuan race are in a very barbarous condition and take every opportunity to rob and murder. The race in the interior of Dori are called Arfak, they are savages. The Papuans of Dori hang the skulls of the Arfak under the eaves of their houses, which are built in the water, on posts, and led up to by rude wooden bridges. There is a large council chamber at Dori, supported on larger posts, on each of which is a rude carving of a naked man or woman with other revolting carvings near. The people of Dori resemble those of the Ke and Aru islands, many of them are very handsome, tall, well-made, with well cut features and aquiline noses. Their colour is a deep brown, often approaching to black, and their frizzly hair is combed up into a mop-like form by means of a long six-pronged fork. The language spoken at Dori is not understood by the Papuans at Humboldt Bay. The Dori people are great carvers and painters. Their food is roots and vegetables with fish and game as a luxury. The Arfak or hillmen of N. Guinea are generally black but some are brown like the Malay. Their hair, though more or less frizzly, is sometimes short and matted, instead of being long, loose and woolly. Mr. Earl describes the features of the N. Guinea Papuans as of a decidedly negro character:—broad flat noses, thick lips, receding foreheads and chins, and that turbid colour of what should be the white of the eye which gives a peculiarly sinister expression. Their complexion is usually a deep chocolate colour sometimes closely approaching to black, but certainly a few shades lighter than the deep black that is often met with among the negro tribes of Africa. The many Papuan tribes in N. Guinea, are generally in a state of warfare with each other and return from their warlike expeditions with heads. They are superstitious and worship a wooden deity called Karwar, 18 inches high, whom they consult on all occasions. A widow remains in the family of her deceased husband. The negroes of N. Guinea are in various states of civilization. Some of the rudest dwell in miserable huts and seek a bare subsistence by the chase or the spontaneous productions of the forest. There are, however, other negro tribes living on the coasts who have made some advance in civilization. These dwell by whole tribes in huge barn-like houses raised on posts, like those of the wild inhabitants of Borneo, but ruder. Their beard is crisp. The forehead is high and narrow; eyes large, dark-brown, or black: nose flat and broad: mouth large, lips thick and teeth good: few have regular features, and most are apathetic. The ordinary men wear a waist cloth made of the bark of a tree, called "mar," which is wrapped round the waist and passed between the legs. Women wear a short sarong to the knee, generally of blue cloth. Men and women tattoo their bodies on occasions, by pricking the skin with a fish bone and rubbing in lamp black. The Dori people are a seafaring people and are expert swimmers and divers. Their prahus have outriggers and are excavated from the trunk of a single tree. Their food consists of millet, obi, maize, a little rice, fish and hog's flesh and fruits. Sago is imported in small quantities. Theft is considered a grave offence: they are chaste and marry one wife. The dresses of the chiefs among the natives of Dori consist of the saluer, or short drawers of the Malays, and the kabya, or loose coat of calico, with a handkerchief tied round the head. The common men, and the chiefs themselves, when not in the presence of strangers, wear only a chawat, or waist cloth of the bark of the fig, or of the paper mulberry tree, beaten out like the bark cloth of the Polynesians. The Papuans inhabit the shore, the Arfak dwell in the mountains and interior. Both these main classes are divided into different tribes, who are generally in a state of hostility with each other. The Papuans of Dori resemble those of Mysole which is called Long Island in the English charts, and lies about ten miles to the east of Dori. In general they are short in stature, the most 5¼, very few 5½ feet high, but muscular and well-made. Their colour is dark-brown, inclining to black in some. Two Albino children were seen there (of the same mother) with white skin, rather passing to yellow, with some brown spots on the back and with white crisped hair and blue or green eyes. The Papuans of Dori are generally affected with skin-diseases, in some the skin looks as if it were covered with scales (ichthyosis.) The hair is black and crisped. It has a reddish tint at the outer ends. They usually wear the hair the full length to which it will grow, which makes their head, from a distance, appear twice its actual size. In general they bestow little care upon it, so that it has a disorderly appearance, and gives them a wild aspect. There are some, however, whose hair, whether through art or naturally, is smooth and even, as if it had been clipped. The men wear a comb in their hair, consisting of a piece of bamboo having 3 or 4 long points on the under side, like a fork, running into a point above and generally carved. This comb, which is stuck in obliquely at the side, has a small strip of coloured cotton fastened at the top which hangs out like a streamer. The women do not wear this ornament. The beard is strongly crisped but short, the hairs of the beard are sometimes pulled out. Most Papuans have a high but small forehead, large dark-brown or black eyes, flat broad noses, large mouths with thick lips and good teeth; many, however, have thin crooked noses and thin lips, which gave them a European physiognomy. They pierce the ears, and wear some ornaments in them, or their tobacco, which they roll in pandan leaves and of which they are great consumers. The appearance of the Papuans is lazy and stupid; most of them are very ugly, only a very few have regular features and a lively aspect. The dress of the chiefs is the before-mentioned kabaya, breeches and handkerchief, which they have some difficulty in fastening on their stiff crisped hair. The rest of the men are wholly naked, with the exception of a chawat or waist cloth. This, which is composed of the bark of a kind of fig tree beat out, is called by them mar, and is wrapped round the middle, drawn through between the legs and fastened behind. The women wear a short sarong, generally of blue cotton, which hangs to the knees, or a kind of breeches with very short legs. The body is otherwise entirely uncovered. Some however wear the sarong to above the bosom. The children of both sexes go entirely naked until the age of puberty. All wear rings on the arms composed of fish bones, shells, copper, silver, twisted rattans or rushes. These last, of the breadth of two fingers and usually red-coloured, are put on the arm at an early age, and adhere tightly to the skin as the limb grows. The men mostly wear a similar band of rattan on the wrist of the left hand, but much broader and which sits loose on the wrist, in order to prevent the skin being stripped off by the hard string in shooting with the bow. They tattoo themselves on different parts of the body after the death of one of their relations, for instance, on the cheeks and under the eyes after the death of the father; on the breast for the grandfather; on the shoulders and arms for the mother, and on the back for a brother. The women also tattoo, but chiefly after the death of one of their female relations. The figures appear to be chosen at will; mostly like those on two-crossed klewang, or two curls running into each other. This tattooing is performed by young girls, by pricking the skin with a fish-bone and rubbing in soot. Large scars are seen on some, as if they had been burned. The number of such scars on one person are sometimes as many as ten, and are probably used as ornaments.

The weapons of the Papuan consist chiefly of bows and arrows, the spear, klewang, and parang, as well as the shield for protection. The bows are formed of bamboo or of a kind of very tough red wood; the string rests in two notches near the ends and is made of rattan. The bows which they use in war are 6 or 7 feet long, those for ordinary use are mostly 3 or 4 feet. The arrows are formed of reeds, a little shorter than the bows; they have very long tapering points of bamboo, fish bones, pointed bones or wood hardened in the fire; sometimes, but not generally, these points are of iron. Most of the points have sharp barbs, which generally produce incurable wounds, especially in the case of those who have no knowledge of the healing art, and leave the cure to nature. They do not apparently use poisoned arrows. The points are put into the arrows and fastened with thread, being often subsequently blackened. They generally have a great quantity of arrows in readiness for use. The spears, like the arrows, have barbed points and are generally 8 to 10 feet long, and frequently have, just below the point, a small bunch of cassowary feathers. The klewang and parang, which they make themselves, or purchase from ships, are of the usual form. The shield is of wood, four-sided, 5 to 6 feet high, 2 broad, somewhat bent out at the edge and furnished with a handle at the back. They are generally carved on the outside and ornamented with the figure of a Papuan in a sitting posture.

The flora of these countries is rich in Filices, Scitamineæ, Aroideæ with edible roots, Convolvulacea and Solanaceæ. The Gramineæ furnish Saccharum, Milium, Oryza, Zea, the beautiful Phalaris arundinacea. Amongst the fruit trees were seen Carica papaya, Musa paradisiaca, Bromelia, Ananas, Citrus aurantium in great quantity, Canarium commune, Terminalia catappa and Myristica moschata. Along the shore there are Rhizophora, Myrobalanus, Mangium, Avicennia, Barringtonia, Elæocarpus, Xanthoxylum, Celastrineæ, Ficus, Ricinus, Artocarpus, Calamus, Flagellaria, Bambusa, Acacia, and Casuarina. More than 150 kinds of insects, Scarabei, Buprestides, Curculionides, and also beautiful Lepidopteres and Hemipteres. This country is also rich in beautiful coloured Arachnides. Amongst the birds there are found Psittacus galeritus, Phlyctolaphus sulphureus, Psittacus aterrimus and species of Buceros. Of the birds of Paradise are the brown-feathered with beautiful white and orange-coloured feathers on the sides; the wholly black with long tail and large bent beak; a small yellow kind with orange-coloured breast; another kind red, with two pens projecting from the tail, with a small green coloured curled bunch of feathers at the ends. Epimachus magnus, a bird of the coasts of New Guinea, is the Upupa magna, *Gm.*, and U. superba, *Lath.* Its tail is 3 feet long, and its head-feathers are lustrous steel-blue. The mammiferous animals are few in number. Only some wild hogs, and a species of marsupial, Perameles doryanus, about the size of a rat, with scanty reddish hair like bristles, an extended pointed snout, short tail, and a pocket on the belly in which it carries its young ones. At Dori the inhabitants were found by Lesson and Duperrey to be quiet and inoffensive. Not a single Malay, or Bugis, or Ceramese settlement exists on N. Guinea though several are scattered over the outlying islands; the principal being at Salwatty, a large island, forming the apparent north-west extremity of New Guinea, from which it is separated by a very narrow strait. The statement often found on maps that New Guinea is "inhabited by Papuans and Malays," is therefore incorrect. The whole northern peninsula of New Guinea, as well as the islands of Wagiou, Salwatty and Balauta, are exceedingly rugged and mountainous. There is a continued succession of jagged and angular ranges of hills, and everywhere behind them, ridge beyond ridge stretch far away into the interior. Over the whole country spreads an unvarying forest, of a somewhat stunted appearance, broken only by the very widely-scattered clearings of the natives on the lower slopes. Near Dori the loftier mountains retire a little backward, and seem to reach their greatest altitude in the Arfak range, which the officers of the Coquille ascertained to have an elevation of 9,500 feet. Dori harbour, or bay, is formed by a long, low promontory, curving round towards the Arfak range, which rises abruptly from the opposite side of the bay. Towards the extremity of this promontory is situated the village of Dori, and opposite, at about a mile, is the inhabited island of Mansinam, and a smaller one uninhabited. The inhabitants of Dori live always on the coast, or more properly in the sea, as they always build their houses at or below low water-mark, raised on posts, and reached by a rough and tottering causeway from the beach. The natives of the interior do not differ perceptibly in physical character, but have a distinct language, and are called "Arfaki" by the Dori people. Their houses are very similar, but are raised 12 or 15 feet high, on a perfect forest of thin poles, a few of which are put diagonally, and prevent the whole from falling with the first wind. The people of Dori are fishers and traders, the Arfaki are agriculturists. The former catch turtle and tripang, which they sell for beads, knives and cloth, and purchase of the Arfaki their rice and yams, plantains and bread-fruits and numbers of tame cockatoos and lories, which they sell again to the Ternate and Tidore traders. All these natives have the characters of the Papuan race very strongly marked; the flat forehead, heavy brows, and large nose, with the apex bent downwards; are almost universal, as well as the harsh curly hair, which often forms an enormous stiff mop, and is then highly esteemed. It has, in fact, a very grand and imposing effect. The colour of the skin varies greatly. In general it is a dirty black, or sooty colour, but varies to a fine brown which is often quite as light as that of the pure Malay races. In mental and moral characteristics the Papuans differ remarkably from the Malay races. They are much more impulsive, and do not conceal their emotions and passions. They are inquisitive, talk much and loudly, and laugh boisterously; reminding one of the negro character, as much as of the negro form and aspect. The natives of Dori are not to be trusted in anything where payment is concerned. If they do not actually steal, it is only from fear of consequences. They are, however, not a fair sample of the New Guinea tribes, having been too much in contact with the lowest class of mahomedan traders with whom they find it necessary to take every advantage in self-defence. They possess the rude artistic genius of so many of the Oceanic tribes, decorating their household utensils and the prows of their canoes with elaborate carving, and the posts of their council-house with obscene caryotides. The language of the Dori people resembles that of the Aru and Ke islands in containing a large number of monosyllabic words, as well as others excessively polysyllabic, offering a remarkable contrast to the striking dissyllabic character of the whole Malayan group of languages. The principal article of trade on the northern coast of New Guinea is a fragrant aromatic bark, called mussoey, which is carried to Java where the natives extract an oil of great reputed efficacy as a remedy for various disorders. This is obtained only at one locality, Wandammen, deep in the great bay. Besides this, tortoise-shell is an important article of trade, with a small quantity of beche-de-mer and sago.

Adi or Ai Island, near New Guinea, is the Pulo Adi of the Malays, Wessels Eylandt of the Dutch, and is in lat. 4° 19′ S., long. 143° 47′ E., (East Point). Pulo Adi is separated from the large island of which Cape Katemoun forms the S. W. extremity, by a straight 8 miles wide, which seems to be full of dangers, and should only be ventured upon with the greatest caution.

Modera is about 25 miles in length lying to the N. N. E. of the great Ke, distant about 60 miles, and is the south-westernmost of a group of high islands which, until lately, were considered as forming a part of New Guinea. The inhabitants are Papuans, and as they do not bear a high character among their neighbours, they are rarely visited except by traders from Goram and Ceram Laut, who have found means to conciliate them. The sea is unfathomable at a short distance from the island, but there are several indifferent anchorages on the north side. No vessel should attempt to visit the island for purposes of trade without previously obtaining a pilot at Goram, who will also act as interpreter, the natives not being acquainted with the Malayan language. Wild nutmegs, trepang and tortoise-shell are to be obtained here, but not in sufficient quantities to tempt a European vessel to visit the island for purposes of trade, particularly as these articles can be obtained more readily at some of the adjacent ports of New Guinea. Red calico, parang or chopping knives, coarse cotton shawls and handkerchiefs, with iron, Java tobacco, muskets and gun-powder, are the principal articles in demand. The chief traffic is in slaves which are distributed among the neighbouring islands of the Archipelago, and are sometimes carried as far as Bali and Celebes. This probably accounts for the deficiency of other articles of export.

Aiou or Yowl, is a group of islands situated about 70 miles W. N. W. from the Cape of Good Hope, on the west coast of New Guinea, and 30 miles N. E. from the island of Waygiou in the Gillolo passage. The group consists of circular low isles, 16 in number. The largest lies in about lat. 0° 25′ N., long. 131° 0′ E. The group is surrounded by an extensive coral reef, nearly a degree in circumference, the south-western portion of which is separated from the main reef by a narrow, but deep channel. Aiou-Baba, the largest of the group, lies on this detached portion of the reef and is about 7 miles round and 500 feet in elevation. The north-eastern or larger reef, which contains the islands of Abdon and Konibar, with several coral islets, is said to have an opening on the N. W. side which admits large vessels within the reef, but if this be the case, the harbour is not frequented, there being no temptation in the way of refreshments to induce large vessels to put in there. The inhabitants, who are Papuans, are few in number and occupy themselves almost exclusively in fishing and in catching turtle, with which the lagoons within the reef abound. The chief exports are tortoise-shell of good quality, which is obtained here in large quantities, and trepang. These are purchased by Chinese and sometimes European traders from Ternate, in Moluccas, the ruler of which place assumes supreme authority over all those parts of the coast of New Guinea which his subjects have been in the habit of visiting for purposes of trade. The traders to Aiou all employ small vessels, which alone are adapted for going within the reef of Aiou-Baba, their chief resort. They bring red and white calicoes, thick brass wire, old clothes, glass beads, and all sorts of ornamental finery which the Negroes of New Guinea delight in as much as those of Africa. The natives are tolerably friendly to strangers, but must not be trusted too much, as they are inclined to be treacherous and revengeful, which is the case, indeed, with all the Papuan tribes. A vessel visiting these islands for purposes of trade should always be provided with a native of Ternate or Tidore to act as pilot and interpreter.

Ansus island is inhabited by Papuans. Their houses, built on posts, are placed entirely in the water. At very low water only is the beach partially uncovered. This beach consists of mud, in which the mangroves grow luxuriantly and completely obstruct a landing. The gardens, from this cause, are situated on the surrounding islands, principally on an island with a high beach lying opposite to the kampong. The Ansus Papuans wear their hair in tufts. Their appearance is good-natured, faces regular, eyes beautifully black, the mouth broad with beautiful regular teeth, and the forehead high but narrow. Many have thin lips and finely curved noses, which give them a more European physiognomy. The men are generally handsome and well-formed, stout, without being too thick, strong and muscular; the women very good-looking; and some children with very regular soft faces, and long pendant curling hair.

The *Arru* group of islands is situated on the northern verge of the Great Australian bank, and extends from N. to S. about 100 miles; but as the eastern side of the group has not been explored, its limits in that direction are uncertain. Some of the southern islands are of considerable extent, but those to the north, lying close to the edge of the bank, are rarely more than 5 or 6 miles in circumference. The land is low, being only a few feet above the level of the sea, except in spots where patches of rock rise to the height of 20 feet, but the lofty trees which cover the face of the country give to it the appearance of being much more elevated, Coral reefs extend from the shores of all the islands, and in the eastern parts of the group these are often of great extent. The islands are divided from each other by narrow channels, some of which are of great depth, and in one of these there is said to be a whirlpool of so formidable a description that the natives will not venture to approach it even in their larger vessels. Upon the whole, it is evident that this group has not been left quite untouched by the convulsion which has shaken its neighbours, a circumstance that might naturally be expected from its position on the very edge of the bank, and in the close vicinity of the volcanic chain, the Great Ki Island being only 60 miles distant.

Brumer Island is on the south coast of New Guinea, the women are tattooed on the face, arms, and front of the body, but generally not on the back, in vertical stripes less than an inch apart, and connected by zigzag markings. On the face, these are more complicated, and on the forearm and wrist they are frequently so elaborate as to resemble lace-work. The men are more rarely tattooed, and then only with a few lines or stars, on the right breast. Sometimes, however, the markings consisted of a double series of large stars and dots stretching from the shoulder to the pit of the stomach. In the great Island of New Guinea, with its savage negro population, and with the same deficiencies, the presence of any kind of writing is not reasonably to be looked for.—*Earl's Papuan, pp.* 40, 71, 121, 131 ; *Mr. Logan, in Jour. Ind. Arch., p.* 321 ; *Wallace, Vol.* ii, *p.* 62 ; *Crawfurd's Malay Gram. and Dic., Vol.* i, *p.* 143 ; *Bikmore, p.* 204 ; *McGillivray's Voyage of the Rattlesnake, Vol.* i, *p.* 262 ; *Lubbock's Orig. of Civil., p.* 44 ; *Notes of a Voyage to New Guinea, by Alfred R. Wallace, Esq.*, F. R. G. S., *in Journal of the Royal Geographical Society, Vol.* xxx, *pp.* 172 *to* 174 ; *Horsburg, Wallace's Archipelago*, ii, 62, 180-200 ; *Journ. Ind. Arch. June* 1852, *pp.* 330-3. See Aheta, birds, India, Negrito, Negro races, Negros, Pitt Strait.

NEW HEBRIDES. In Tana, the colour of the native skins is a shiny black, and their bodies covered thinly with hair, or a kind of down. Some have black or brown crisp hair ; but that of the greater number is twisted and tied up into an immense number of thin cords, the ends being frizzled out, about two inches from the extremity, where the colour is a sandy-red. The nose is generally rather flat, and the eyes of a chocolate colour ; the ears of almost all being pierced, and flat rings of tortoise-shell and other trinkets hanging from them. They wear universally the wrapper, the end of it being, in many cases, tied up by a narrow band of some kind of plait, passing round the hips, and producing a much stronger effect of indecency, according to our notions, than the total absence of clothing would have done ; the more so, that this strange garment serves as a pocket, wherein to deposit a pipe, piece of tobacco, or any such article that they may obtain by traffic. Several women were seen fishing on the reefs which line the eastern side of the bay ; and they were dressed in a petticoat reaching to the knees. The features of the men would not be disagreeable, but for the common custom of daubing their faces with black-lead, to which a thick plastering of red ochrous earth was generally added. The Conus textilis, *Linn.*, found at Aneiteum, of the New Hebrides, bites and injects a poisonous acrid fluid into the wound, occasioning the part to swell, and often endangering life.—*Captain Elphinstone Erskine, Islands of the Western Pacific, p.* 306.

NEW IRELAND. Captain Keppel mentions that the water, where he anchored, was so beautifully clear, that in forty fathoms deep the coral shells, and seaweed growing at the bottom could be distinctly seen, and give it all the appearance of a beautiful submarine garden.—*Keppel's Ind. Arch., Vol.* ii, *p.* 208.

NEWSPAPER PRESS, the first English newspaper was published at Calcutta on the 29th January 1780. There are now several hundred newspapers printed in British India, in the European and many of the vernacular tongues.

NEW TESTAMENT, a sacred book of the christians.

NEWUJ, a river near Bhopalpoor in Rajgurh.

NEW ZEALAND, in the South Pacific Ocean, between Australia and N. America, consists of two large and several small islands lying between L. 34½ and 47½ S., and L. 166½ and 178¾ E., is 800 miles long from North to South and 120 miles broad, with an area of 99,969 English square miles=4,703 German square miles. It was discovered towards the close of the 18th century by Captain Cooke, a British navigator. Its two chief Straits are named after Cook and Foveaux. The first human inhabitants of New Zealand were the ancestors of the Maori. Two races of human beings, a brown and a black-skinned, inhabit the islands scattered over the Pacific Ocean. The brown race occupy all the islands from the Sandwich group in the northern hemisphere to New Zealand in the southern, and from the Tonga group in the west to Easter Island in the east. The black race people occupy the islands extending from the Fejee to New Guinea both inclusive. Certain physical features distinguish each race. Those with brown complexions have generally lank hair and scanty beards, and speak essentially the same tongue, although divided into many dialects ; while the black race, numbering several varieties of men and speaking several distinct languages, have frizzly but not woolly hair, and abundant beards. French naturalists call the islands which the black race occupy Melanesia, or the islands of black men, while

Polynesia is applied to the islands peopled by the brown race. Intermixture has occurred between the black and brown races at their points of junction; 300 miles across the trade wind, from the Fejee islands to the Tonga islands, being a a voyage of no difficulty to a maritime people. The Polynesians, or brown-skinned race, have been again subdivided into Micronesians and Polynesians proper. The former occupy the Pelew, Caroline, Marianne, and Tarawa islands, and the latter the Sandwich, Navigators, Marquesas, Tonga, Society islands, the Dangerous Archipelago, Easter island, and New Zealand. The Micronesians are distinguished from the Polynesians proper by their low stature, their language, Mongolian conformation, and absence of the system of Tapu or Tabu. Between the Micronesians and the Polynesians proper there is as much difference as there is between Dutchmen and Englishmen. Ethnologists have clearly established that the Polynesians proper are sprung from the Malay family of the human race, and Mr. Hale, the best authority on the migrations of the Polynesians, is of opinion that the Samoa or Navigator's islands were first occupied, and that from them all the other Polynesian islands were peopled. For ages Malay fleets have habitually resorted to Australia, and at the present day 200 Malay proas according to Captain King, annually frequent the northern coasts of that continent to fish. For, although ignorant of the compass, the Polynesians have names for the cardinal points, and steer by the stars. It was this grand principle of selecting a course which brought the Malay fleet to Navigator's islands. From the Malay and Polynesian custom of giving new places similar names to those from which they came, evidence is furnished that the Malay route to Polynesia just given is the correct one. New South Wales and New Zealand derive their civilized names from a modification of this law. It will be observed that several places in the Indian Archipelago have analogous names to Samoa or Savii, the Polynesian name of the Navigator's islands, Sama in Malay signifies "like as," Samoa, "all together." Thus in close proximity to Timor, there is a small island called Samoa; the southern extremity of Timor is called Sammow, and there is a Sumbava, Sama, Java, and other names in the Archipelago resembling Samoa in sound. Even the birthplace of the Malays, Sumatra, the derivation of which term is unknown, cannot fail to strike both the eye and the ear. From the remains of some Hindoo and Jewish customs among the New Zealand branch of the Polynesian race, and the entire absence of anything like mahomedan customs, it is inferred that the Malay migration from the Indian Archipelago to Polynesia took place after the hindoo influence began to prevail there, and before the arrival of the mahomedan traders and settlers from Arabia. Indian colonies were established in Java in the first century after Christ. According to Javanese annals, the first arrival of the hindoos in the Indian Archipelago from Western India occurred about A. D. 800, and the mahomedans tradition to the Archipelago began in A. D. 1278. The date of the last migration is probably correct, that of the hindoos being more distant is uncertain. From these two great events, it is inferred that the Malay ancestors of the Polynesians left the Indian Archipelago soon after the commencement of the christian era. No light is thrown on the origin of the New Zealanders from the name Maori which they call themselves. This word, rendered by linguists "native," is used in contra-distinction to pakeha, or stranger. But the Rev. Mr. Maunsell thinks the New Zealanders have sprung from different islands, in consequence of three lingual peculiarities. The Ngapuhi nation, living in the neighbourhood of the bay of islands, pronounce *h* as if it were *sh*, and Hongi is rendered by them Shongi. The Taranaki natives do not pronounce the *h* at all, but supply its place by a curious jerk in the voice; *hei* becomes *ei*, and *hohoro*, *orra* in their mouths. Some tribes in the Bay of Plenty do not give *Ng* the singular nasal sound of good Maori linguists, and in its place use *Na*. The physical form of the Polynesians, to whom the name of New Zealanders can now be given is as follows. In stature they almost equal Englishmen, and they are taller than the inhabitants of the temperate countries of the continent of Europe, the average height of the male sex being five feet six inches and a quarter. Chiefs by birth are not taller than free-born men, but they are taller and better developed than slaves. The tallest New Zealander seen was six feet five inches and a half. In bodily weight and girth of chest New Zealanders are equal to Englishmen; ten stone avoirdupois being their average weight without clothes. Their bodily shape is peculiar, and this peculiarity consists in having longer bodies and longer arms with shorter legs than Englishmen of similar stature. The lengthening of the arms occurs in the fore-arms, and the shortening of the legs in the bones below the knee, the leg bones of New Zealanders are indeed an inch and a half shorter than these bones are in Englishmen. Their long bodies are produced by the size of the spinal bones and the cartilages between these bones. The inferior extremities of New Zealanders are stout, but in consequence of the shortening below the knee, the calves of their legs look unusually high up; and in walking they turn in their toes, take shorter steps, and move in narrower paths than Englishmen. The feet of the New Zealanders are short and broad, and the arch of the foot is often badly developed; their hands are small and tapering. The head-hair is abundant and generally black, but some have hair with a rusty-red tinge. This red tinge, which is likewise found in the head-hair of other Polynesian races, has been ascribed to the use of alkaline washes, but such is not the case among the New Zealanders. A few have lank head-hair, a few frizzly, but the majority have dark hair with a slight wave in it. The head-hair looks coarse, but when washed, oiled, and brushed, it assumes a raven darkness and a downy softness. Their beards and whiskers, since the custom of extracting the hair has fallen into disuse, are occasionally considerable; but on the trunk it is scanty, and they look with wonder at the hairy frames of Englishmen. Few New Zealanders become bald, although many are grey. Like all people living in a simple state, the New Zealanders have good teeth. The nose is short and broad, with an imperfect bridge, but there are some good noses, and many Rotorua natives possess a Jewish style of features. The skin is of an olive-brown colour, not unlike a seasoned filbert, but it has many shades, some New Zealanders being so fair that blushes can be detected on their faces, while others are so dark that the tattoo marks are seen with difficulty. The white parts of New Zealanders' eyes less clear than those parts are in Englishmen; the pupil is dark and large, the iris is brown, never blue, even half-castes rarely have blue eyes, although the progeny of half-castes and Europeans have blue eyes frequently. The mouth is coarse, the face broad, and the upper lip long. The forehead is high, narrow, retreating, and pyramidal; the skin is cool, and the circulation of the blood is slower than in Englishmen. The size and darkness of the eyes of New Zealanders give to their countenances an air of gravity. In youth the expression is generally open and happy; in middle age sleepy, morose, and thoughtful; while in the old this last expression almost amounts to sadness. From want of intellectual cultivation, there is not much individuality of features, and the soul's emotions are but slightly reflected in their faces. Travellers have perceived a peculiar and distinctive odour among different races of men. Chinese houses are redolent of musk, hindoo towns of garlic, and New Zealand huts are characterised by the smell of dried fish. The females are less handsome than the males, although the young are invariably pleasing. The women have very long eyelashes, and the habit girls have got of casting them, as if from lassitude, over the bright restless eyes, throws into their faces an indescribable mildness, while their soft voices give a peculiar sweetness to their language. There is, indeed, a pathos about their voices when speaking, a plaintive pathos when allusions are made to persons dear to them, and an indifference and ease of manner unknown among many other races, which are alike charming to hear and pleasant to see. The New Zealanders are a mixed race, and may be divided into brown, reddish, and black. Out of a hundred persons eighty-seven have brown skins, with black, straight, and waving hair: ten have reddish-brown skins, with short frizzly, or long straight hair, having a rusty-red tinge in it; and three have black skins with dark frizzly hair, which does not, however, spread over the head as in negroes, but grows in tufts which if allowed to join, twist round each other and form spiral ringlets. Among some tribes the black and reddish men are more numerous than among others. Chiefs are generally brown-coloured, occasionally reddish, rarely black. Every tribe, however, comprises the three varieties, all speak the same language, and all arrived in New Zealand at the same time. Crozet accounted for this mixture of men, by supposing that New Zealand was formerly inhabited by a black race similar to the Australians, but there is not a tittle of evidence to support this opinion. Most races of men have endeavoured to improve the human body by disfiguring it, in which art the New Zealanders have out-stripped all others. First among the New Zealand list of disfigurations is tattooing, a Polynesian word signifying a repetition of taps, but which term is unknown in the language of the New Zealanders; moko being the general term for the tattooing on the face, and whakairo for that on the body. Tattooing is the most ancient personal disfiguration on record, and it is likewise the most universal. Dampier in 1691 brought to England the first tattooed south Sea islander, a man who was well-known in London as the painted prince, at which place he died of small-pox. The present generation of male New Zealanders tattoo their faces, hips, and thighs; and the women their lips, chins, eyelids, and occasionally straight lines, the offspring of each woman's fancy, are drawn on their bodies. Every line has a name, and among distant tribes the tattoo marks are alike, although the figures tattooed are not made up of the same number of lines. And among the New Zealanders it is a mark of rank to have the streaks of a fish carefully cut on their bodies. The New Zealanders dislike, as much as eastern nations glory in, hairy faces; and consequently the hair was eradicated from various parts of their bodies with the aid of shell pincers, beards on tattooed faces are not picturesque, and the proverb of "no wife for the hairy man," made young men carefully pull out every indication of beard or whisker. Its tertiary strata contain remains of the giant bird the Moa, and the genus Dinornis, and Palapteryx. It has coal, gold, copper, iron, chrome ore and graphite. It is remarkable for its wingless birds, of the Apteryx species. Earthquakes are frequent, especially in the volcanic line between Tongariro and White Island, where on lake Tarawera, not a single month passes without at least one slight shock. The root of Pteris esculenta, formerly formed the chief aliment of the New Zealand natives. The Kauri (Dammara australis); the Kahikatea (Podocarpus dacrydioides) and the black birch, the Tawai (Fagus fusca) are the chief forests, but mixed with them are the following trees;

Podocarpus totara or totara.
„ spicata or matai.
Dacrydium cupressinum or Rimu.
Phyllocladus trichomanoides or tanekaha,
Knightia excelsa or Rewarewa.
Elæocarpus hinau, the Hinau.
Edwardsia microphylla, the Kowai.
Dammara australis.
Dacrydium cupressinum or Rimu.
Podocarpus dacrydioides, and P. ferruginea.
Metrosideros robusta.
„ tomentosa.
Vitex littoralis.
Hartighsea spectabilis.
Knightia excelsa.
Mira salicifolia.

Amongst the largest forest trees are Metrosideros robusta or Rata, the trunk of which frequently measures 40 feet in circumference; the Kahikatoa (*Leptospermum*), Tawa (*Laurus*) Pukatea (*Laurelia*), Karika (*Corinocarpus.*) The Dammara australis furnishes the best ships' masts, and spars, and its gum is largely exported, its timber to the value of £34,376 and its gum to £20,776. The oldest trunks attain a diameter of 15 feet, a height of 100 feet to the lowest branches and 150 to 180 feet to the crown, trees of 60 to 80 feet to the crown are probably 250 to 300 years old. The New Zealand flax or Phormium tenax, is a flag-like plant. The blossoms contain a sweet honey juice, and each plant will produce nearly half a pint. At the root of the leaves is a semi-liquid gum-like substance which serves for sealing wax and glue. Its relative tenacity is.

European hemp, 11.
„ flax, 16.
New Zealand flax, 23.
Silk, 34.

The best part of the leaf furnishes the flax, by water steeping, drying, braked, swingled, and combed.

The wingless birds Apteryx australis and A. mantelli, A. owenii and A. maxima occur. The Dinornis giganteus now extinct, was about 9½ feet high, and the D. elephantopus. The Palapteryx ingens, 6½ feet high. The people are known as Maori and are about 45,000, but are rapidly diminishing in number. They are of the Melanesian or Papuan race.

Captain Elphinstone Erskine heard it asserted that there did not exist in 1845 many New Zealand males of twenty years of age who had not, in their childhood, tasted of human flesh. In New Zealand the natives produce a most brilliant blue-black dye from the bark of the Eno tree, which is in great abundance. Some of the borders of the native mats, of a most magnificent black, are dyed with this substance. It has been tried in New South Wales; but, although found well suited for flax, hemp, linen, or other vegetable productions, it could not be fixed on wools or animal matter. It is of great importance that chemical science should be applied to devise some means of fixing this valuable dye on wool. As the tree is so common, the bark could be had in any quantity at about £3 10*s.* a ton; and tweed manufacturers are in great want of a black dye for their check and other cloths.—*Captain Elphinstone Erskine Islands of the Western Pacific, p.* 275; *Thomson's Story of New Zealand, Vol.* i, *pp.* 51-78; *Humboldt's Dissertation on the language of Java*; *Latham*; *Pritchard*; *Williams*; *Von.-Hochsteller's New Zealand*; *Ethnology and Physiology of the United States Exploring Expedition from* 1838 *to* 1842, *by Horatio Hale, Philadelphia,* 1840.

NEW ZEALAND PINE, Agathi australis.

NEW ZEALAND SPINAGE, see Spinage.

NEW ZEALAND WHALE, Balæna antartica.

NEYADASSE-GASS, Singh. Eurya japonica, *Thunb.*

NGA BAGI, Burm. Swietenia chickrassa.

NGA-DERN, see Karang bollang.

NGA-DJU, the name of the inhabitants on the Kahayan or Dyak river in Borneo.

NGANNAM, a name of Anam or Annam.

NGAN-TSOING-SHA, Burm. A bast of Arracan. See Linden.

NGARI, a territory which embraces the whole of the upper valley of the Sutlej, from the Manasarovara lake to the crest of the Porgyal mountain. See Gnari, India, Nari, Shawl-goat.

NGA THIN-GYEE, Burm. Ficus cordifolia.

NGA YOUK THI, Burm. Capsicum.

NG-HYET-PRA, Burm. Plantains.

NGOO-BENG, Burm. In Tavoy, a strong wood used for posts and planking.—*Dr. Wallich.*

NGOO-THA, Burm. Cassia species.

NGU-SI, Burm. Cassia lignea.

NGY-SOUNG-THA, Burm. A Tenasserim wood of maximum girth 3½ cubits and maximum length 22 feet. Abundant all over the provinces. When seasoned it floats in water. It is a wood of no durability or strength; splits readily, with a short grain, and is only fit for firewood.—*Captain Dance.*

NHAN,—? Sesamum orientale.

NHARUI. Lieutenant Pottinger states that the races occupying Baluchistan are divided into two great classes, severally known by the appellation of Belooch and Brahui, and that these again are sub-divided into an infinite number of tribes, who take their names from the chief under whom they serve, the district or country to which they belong, or the traditions whence they derive their descent. The Beloochee partakes considerably of the idiom of the Persian and at least one-half of its words are borrowed from that language, but greatly disguised under a corrupt and unaccountable pronunciation. The Brahuiki, on the contrary, is so dissimilar in its sound and formation, that he did not recollect to have marked in it a single expression in any way approaching to the idiom of the Persian. It contains a portion of ancient hindoo words. The contour of the people of these two classes is as unlike, in most instances, as their languages, provided they be descendants of a regular succession of ancestors of either; but the frequent inter-marriages which take place amongst them have tended in some degree so to blend together the peculiar characteristics of both, that in many families, and even whole tribes, they have ceased to exist. The Beloochee branch, in the first instance, from the original class of that name, into three principal tribes, called Nharooi, Rindi and Mughsee. The Nharooi, principally inhabit that portion of Beluchistan, which lies to the westward of the desert, and there are likewise khels of them at Nooshky and in Seistan. See Beluchistan, Kelat, India, Wooshky.

NHIATRANG BAY, on the coast of Cochin China, is large, there are a river and town of same name, where silk is manufactured.

NIALA NEMIKI, Tel. Sypheotides auritus, *Latham.*

NIALA, or Nialo, Hind. Polygonum tortuosum.

NIAMCHO, Hind. Astragalus, *sp.*

NIA MUSLI, Beng., Hind. Curculigo orchioides, *Gœrt.* See Moosli, Musli.

NIAN, Bhot. Ovis ammon, the wild sheep of Ladak. It is fleet, and agile and graceful.

NIANGNA, Hind. Ribes leptostachyum.

NIAR, Hind. Rhamnus virgatus.

NIARGAL, Hind. Oxytropis macrophylla.

NIAS, see India.

NIBO—? Anticharis arabica.

NIBONG, Malay. Caryota urens, *Linn.*, or Palma brava. At the time of Pigafetta's visit, the town of Borneo was built of wood on strong and substantial posts; it is now constructed entirely of nibong, which soon decay, and is thatched with the nipah leaves, (Nipa fruticans) of which the sides also are composed. —*Low's Sarawak, p.* 150. See Neebong, Nipa, Thatch.

NIBU, Beng. Citrus bergamia, *Risso*, also the lemon Citrus limonum.

NIBUTTI of the buddhists is identical with the nivertti or moksham of the brahmans, and possibly analagous to the Apolutrosis and exanastasis of St. Paul. Nibutti means the release from re-appearance in a material body. —*Taylor.* See Inscriptions.

NICANDER, see Conium maculatum.

NICANDRA INDICA.

Winter Cherry,	Eng.	Kaknaj,	Hind.

Said to be diuretic and purgative, useful in ulcerations of the bladder.—*Powell's Handbook, Vol.* i, *p.* 364.

NICANDRA PHYSALODES, *Gœrtn.*

Atropa physalodes, *Linn.*

Is said to be diuretic.—*O'Shaugh., p.* 460.

NICARAGUA WOOD or Peach wood.

Nicaragaholz,	Ger.	Bois de Nicarague,	Fr.
BluthoItz,	„	Legno sanguigno,	It.
Bloed-haut,	Dut.	Palo de sangre,	Sp.
Bois de sang,	Fr.	Pao sanguinho,	Port.

McCulloch's Commercial Dictionary, p. 851.

NICANOR, Lieutenant of Antigonus, (305, B. C.) seized the whole of Media, Parthia, Asia and all the countries as far as the Indus. See Affghanistan, Greek, Asia, Kabul.

NICATOR, see Greeks of Asia.

NICHI HAMA, see Suhoyum.

NICHNI, Hind. Rhododendron anthopogon.

NICHOLSON, Dr., Bombay Medical Service, wrote an account of the Kooree, or Eastern branch of the Indus, showing the probable changes of its course, and the manner in which the old channels have been blocked up, in Bom. Geo. Trans., Vol. vi, 111; Account of the Island of Perim, in Bom. As. Trans., Vol. i, 10. Of the submerged city of Balabhipura, in Lond. As. Trans., 1852.

NICHOLSON, John, a Bengal military officer. He was a Deputy Commissioner in the Punjaub Civil Commission when he was suddenly called upon to assume a high military command in the attacking force. As a Civil Officer, his reputation was of the very highest, he was in every place where he could be of the least possible assistance, and he effectually supervised every official in his district. This extraordinary man had more influence with his subordinates than perhaps any native of Great Britain in the East has ever had. One class of natives actually termed themselves "The Nicholsanee Fakeers." A native speaking of him said, "The sounds of his horse's hoofs were heard from Attock to the Khyber." In an official report of the Punjaub Government, this sentence occurs, "Nature makes but few such men, and the Punjaub is happy to have had one." Nicholson was employed in the Affghan war of 1838 to 1842, and fell at the re-taking of Delhi.—*Tr. of Hind., Vol.* ii, *p.* 368.

NICIAS, see Greeks of Asia.

NICKEL, a brilliant white metal resembling silver: ductile and malleable, and capable of receiving a high polish. It is usually procured from speise, a compound of the metal with arsenic, found associated with cobalt in Germany. Alloyed with copper, it forms argentane or German silver; and is besides used in making mariner's compasses, and for other purposes. Nickel and cobalt, occur near Saffragam, in Ceylon.—*Waterston*; *Faulkner.*

NICOBAR ISLANDS lie between 6° 50′ and 9° 20′ North latitude, and 92° 50′ and 94° 10′ East longitude. The group consists of nine smaller islands and some smaller ones. The most southern are called respectively Great and Little Nicobar. The island is more than 2 miles long and 8 across in the widest part. The Danes formed a settlement on this group in 1756, but abandoned it 12 years after. In 1864, Captain Steem Bille, the Commander of a Danish Corvette, having reported to his Government the present unhealthy state of these nominal possessions of the Danish crown, and the great expense which would attend any attempts to make them inhabited by Europeans, His Danish Majesty came to the determination of finally abandoning all right to the islands. The Officiating Superintendent of Marine, in his letter to Government, dated the 13th January states that Mr. Mackey speaks very favorably of the Nicobars as a field for colonization, and is of opinion, that if the jungle were cleared away, and other sanitary measures adopted, the Nicobars would become as healthy as Penang; an opinion in which the Officiating Superintendent adds, he has every reason to concur. The surface of these islands is hilly. At the southern harbour of Great Nicobar, the nearest hill on being measured was found to be 1,575 feet above the level of the sea. There were others in the interior, of a greater height. In Little Nicobar, some of the hills are supposed to be about 1,000 or 1,200 feet above the sea-level. The island of Bompoka rises abruptly from the beach to the height of 750 feet. Pulo Cobra is a small high island, bristling with cocoanut and betel-nut trees. Little is known of the interior of these islands. At Great and Little Nicobar "not a cleared spot is to be seen, except here and there a slip of land. A large quantity of coal was obtained from the natives of Little Nicobar, also on Trice Island, at low-water. Lignite or half-charred wood when burned emitted a strong sulphurous vapor. Coal was also found at Busch Island, at Pulo Condul, on the north-east side of Great Nicobar, and at the southern bay of the same island. The coal, though collected in various parts of the Nicobars, seemed to be very much alike in their nature, though differing a little in appearance. They burn with little flame. They seem to bear both in appearace and chemical properties, a near resemblance to the pitch, or cannel coal of the Little Tenasserim river. The amount of the whole population spread or scattered over the Nicobar Archipelago does not exceed the moderate number of 8,000 souls of whom about 2,000 inhabit Car-nicobar. Theressa had a population of about 500 souls. The Nicobarians are strong and capable of carrying very heavy burdens, some of them carrying without any trouble 200 cocoanuts. The language used is polysyllabic, abounds in vowels and its pronunciation is harsh and far from harmonious. The chief food is the pulp of the cocoanut, yams, plantains, papayas, fowls, and above all pigs, which abound in those islands. It is not uncommon to see round a single hut, 40, 50 or 60 of them. The quantity of pigs killed and eaten is almost incredible. The Nicobarians though voracious, separate the grease from the flesh, and keep it separately for culinary purposes; they never eat, or rather devour any part but the flesh, and that for a single festival day. There was seen and counted 75 large pigs killed for satiating the wolf-like appetite of the inhabitants of an inconsiderable district of Theressa Island. In this respect, the Chinese could not be a match for the Nicobarians. The Nicobar Islands are called by the Malays, the Sambilang or Nine Islands. Eight or nine of them are of considerable size, the others, nine or ten in number, generally small. They extend N. N. W. and S. S. E. about 53 leagues; having several safe channels between them. They are unhealthy to Europeans, who are subject there to attacks of remittent fevers. Car Nicobar, is the most northern of the group. Its centre is covered with long grass. The names of the other islands are Batty, Malve, Chowry, Theressa, Bompoka, Katchaee, Nancowry, Canmorta, Trincuttee, Tillangching, Sombreiro, Meroe, Little Nicobar Island and Great Nicobar Island. The people are described as having a dark skin, the sclerotic coat of the eye, yellow; flat faces, and scanty beards. Their chief aliment consisting in hogs, poultry and cocoanuts. They worship the Ividi or genii of the hills and woods, and their priests are called Malain. The specimens of the languages of Carnicobar and the Nicobar Islands offer dissimilarities. The Nicobar Islanders appear to have been an early colony of the Mon race in its pure or more west Chinese and less Indian condition. They are flatter faced and more oblique eyed than the Rakhoing and Mon, in this resembling the more sequestered hill tribes of the Burman race. In some islands, they have been much mixed with Malay colonists. Nicobar phonology is allied to that of the Silong and Simang. The Nicobar people, probably migrated from Sumatra, but the interior of Great Nicobar island is occupied by a Negro race. Calœnas Nicobaricus, the Nicobar pigeon is of great size and s[illegible]ndour; its appearance and habits exhibit a near approach to the gallinaceous birds. It lives chiefly on the ground, runs with great swiftness, and flies up into a tree when disturbed. Its nest is of the rude platform construction usual among the pigeon family, one of them was built in a tree about ten feet from the ground and contained a single white egg. The Great and Little Andaman Islands and the Little Cocos, and their dependencies, and the Island of Nancowry, the Islands of Great Nicobar and Car Nicobar, with those lying near them, including Tillanchong, have been created into a Chief Commissionership.—*Selections from the Records of the Govt. of India, Home Dept., No.* 25, *pp.* 66-67 ; *Jour. Ind. Arch., Vol.* iii., *No.* 5, 1849, *page* 272 ; *Macgillivray's Voyage, Vol.* i, *page* 244 ; *Horsburgh, Latham.* See India, Malacca, Monsoons.

NICOLAIEFF, see Kherson.

NICOLO-DI-CONTI, or in Latin, De Comitibus, a Venetian of noble family, who, when a young man, resided as a merchant in the city of Damascus. In what year he started from thence in his travels to the East, is not precisely known ; but it seems to have been about A.D. 1419. He passed through Persia, sailed along the coast of Malabar, visited some parts of the interior of Hindustan, and also the islands of Ceylon, Sumatra and Java. He afterwards went to the south of China ; and on his return passed along the coasts of Ethiopia, sailed up the Red Sea, crossed the desert and reached Cairo, where he lost his wife and two children, and returned to Venice in 1444, after twenty-five years' absence : and as a penance for having apostatised to the mahomedan religion, the Pope Eugene IV., required him to relate his adventures to Poggio Bracciolini, the Pope's Secretary, and the original Latin appeared in the fourth book of Poggio's treatise, de Varietate Fortuni, libri quatuor, Paris, 1723. He visited Cambay, Vizianagur, Palgonda, St. Thomé, Ceylon, Sumatra, Tenasserim, Ava, Java, thence to Quilon, Cochin, Calicut, Socotra and homeward.—*Ind. in* 15 *Cent.*

NICOL PRISMS, see Gums and resins.

NICONOR, see Kabul.

NICOTIANA, a genus of plants belonging to the order Solanaceæ. Loudon has 14 species. Lindley 31, but the following are the better known, and all are recognised tobacco plants ;

N. angustifolia, *Ruiz & Pav.*, Chili.
N. bonariensis *Lehm.*, Buenos Ayres.
N. fruticosa, *L.* the N., frutescens *Cav.*, India.
N. glutinosa, *L.*, of Peru. It is the N. militaris, *L.* Tabacus viridis, *Mönch* : Sairanthus glutinosus, *G. Don.*
N. multivalvis—? Columbia river.
N. nana—? Rocky mountains.
N. paniculata, *Linn.*, N. viridiflora of *Cav.*, Peru.
N. persica, *Lind.*, Persia ; Shiraz tobacco.
N. plumbaginifolia, *Viv.*, the N. cerinthoides of *Vittm.*, Rio Grande.
N. quadrivalvis, *Pursh.*, N. America, Missouri river.
N. repanda—? Cuba, Havannah tobacco.
N. rotundifolia, *Lindley.*, Swan river.
N. rustica, *Linn.*, Europe, Asia, Africa, America, English tob., Godavery tob., Syrian tob.
N. tabacum, *Linn.*, the N. havanensis of *Lag.*, America.

The genus Nicotiana contains about 14 species, most of them yielding tobacco for smoking, and many of them cultivated in the gardens of Europe. The name Nicotiana was given these plants after Jean Nicot, of Nimes, in Laugue-doc, who was an agent of the king of France at Portugal, and there procured the seeds of the tobacco from a Dutchman who had procured them in Florida. Nicot sent them to France in 1560. Tobacco was the name used by the Caribbees for the pipe in which it was smoked, but this word was transferred by the Spaniards to the herb itself. Tobacco leaves when properly dried have a greenish yellow colour, a strong pleasant smell and acrid taste ; taken into the stomach, by persons not habituated to its effects, violent vomiting, diarrhæa, and collapse are occasioned. N. quadrivalvis has capsules with four valves ; it grows near the Missouri River, and is there smoked by the natives. N. multivalvis has capsules with many valves ; it is cultivated by the Indians on the Columbia River for smoking. It is a fetid plant, and the calyx, the most fetid part, is selected by the Indians for smoking. N. nana, a small species of tobacco, is a native among the rocky mountains of North America, and is smoked by the Indians. N. repanda is a native of Cuba, and is said to furnish the tobacco for making the small cigars known as Queen's. The Macuba tobacco, which grows in Martinque is deemed the finest, and next to it in esteem is the Cuba tobacco. Nicotiana macrophylla, or Orinoco Tobacco, is a herbaceous plant, with ovate-acute leaves clasping the stem ; throat of corolla inflated, segments short-pointed. The stem rising from 5 to 7 feet high. It is a native of America, and is frequently used for smoking, the milder Havannah cigars are said to be made from it. The Havanah, Persian, Manilla and Maryland tobaccos have been extensively introduced into the Peninsula of India. The English smoke more of the strongest tobacco than any nation in the world. *O'Shaughnessy, p.* 471 ; *Eng. Cyc.*

NICOTIANA PERSICA, Shiraz tobacco, is

a herbaceous plant, clothed with clammy down, with the leaves of the root oblong, those of the stem acuminate and sessile; corolla salver-shaped, with a long tube, and rather unequal segments. This tobacco is milder than that produced by the N. tabacum, and but a small quantity is consumed in England.—*Eng. Cyc.*

NICOTIANA RUSTICA, *Linn.*

Kakkar-tamaku,	CHENAB.	Salonica tobacco,	ENG.
Tseang,	CHIN.	Tabac-pausse,	FR.
English tobacco,	ENG.	Banerm-tabak,	GER.
Syrian „	„	Tamaku,	HIND.
Godavery „	„	Kandahari tamaku,	„
Turkish „	„	Kalkatti tamaku,	„
Latakia „	„	Tabac-comaroso,	SP.

This plant is a native of Europe, Asia, Africa, and America, but grows on the coast of the Mediterranean, and thence finds its way into India, where it is highly valued. It has a herbaceous square stem, with petiolate ovate quite entire leaves; tube of corolla cylindrical, longer than the calyx; segments of the limbs roundish, obtuse. It was the first species that was introduced into England for growth from America. It grows very well in that climate, and in some places is almost naturalised. The tobaccos of Salonica and Latakkia, which are much esteemed, appear to be the produce of N. rustica. From the extensive range of climate and difference of situation which this plant occupies, its characters suffer considerable change; hence a number of varieties have been described. Dr. Hooker writing of this species, says, to wind up the feast, we had pipes of excellent mild yellow Chinese tobacco called "Tseang," made from Nicotiana rustica, which is cultivated in East Tibet and, according to M. M. Huc and Gabet in West China. It resembles in flavour the finest Syrian tobacco, and is most agreeable when the smoke is passed through the nose. Under various names, it is cultivated at many other places in the Panjab, Multan, Hoshiarpur, Delhi, Hurriana, &c., also in the gangetic Doab, Gudh, &c., it appears to be this species that is grown to some extent in Cooch Bahar, Rungpur, and Assam, *Eng. Cyc.*; *Dr. J. L. Stewart*, M.D.; *Punjab Plants*; *Hooker Himm. Journal.*

NICOTIANA TABACUM, *Linn.*

N. havanensis, *Lag.*

Bujjir bhang,	AR.	Tambaku,	HIND., MALAY.
T'sha,	BURM.	Tumbaku,	MALEAL.
Tobacco,	ENG.	Tamaku,	„
Common tobacco,	„	Sahastra-patra,	SANS.
Virginian tobacco,	„	Dhumra-patra,	„
Herbe-a-la-reine,	„	Doon-kola,	SINGH.
Sweet scented tobacco,	„	Poghei,	TAM.
Tamakhu,	HIND.	Poghaku,	TEL.

This species is said to have been imported from England in the time of Akbar. It is a herbaceous plant, with acuminated oblong-lanceolate sessile leaves, lower ones decurrent; throat of corolla inflated, segments of the limb pointed. This plant is a native of the West Indies, where it first became known to the Spaniards, and of Virginia, where the English first became acquainted with its properties. Of the various species it is that which is most commonly cultivated in gardens as an ornament. It is largely cultivated in Europe for the purpose of smoking. It is grown over all the plains of the E. Indies in the Himalaya up to 7,400 feet at least on the Chenab to 11,000 feet. The other species are however in some cases preferred. Schrank has described a large number of varieties of the common tobacco, varying in the size and form of their leaves, as well as the colour and form of their corollas. This species is the one most commonly employed for making tobacco and cigars. Mr. Royle mentions on the authority of the Persian works on Materia Medica, that it was introduced into India in A. H. 1014 (A. D. 1605) towards the end of the reign of Jelal-ud-din Akbar padshah. From India tobacco probably found its way to the Malayan peninsula and China, though Royle quotes the authority ot Pallas, Loureiro and Rumphius, who think tobacco was used in China at a period anterior to the discovery of the New World. The common tobacco of India (Nicotiana tabacum) is much imported into Tibet, where it is called "Tumma," (probably a corruption of the Persian "Tumak'hu,") and is said to fetch the enormous price of 30*s.* per lb. at Lhassa, which is sixty times its value in India. Rice at Lhassa, when cheap sells at 2*s.* for 5 lbs.; it is all bought up for rations for the Chinese soldiery.—*Eng. Cyc.; Drs. Mason, Hooker, Him. Jour., Vol.* iv, *p.* 232.

NICOTRIS, the queen mother of the king of Babylon; she counselled resistence against Cyrus, but after a seige of two years, Cyrus drained the Euphrates into the trenches which he had dug around the city, and his soldiers entered it, through the bed of the river, and opened the gates for the rest of his army, A.D. 504.

NIDAM PAINI, MALEAL. A Malabar tree which means long Paini. It grows to about two feet in diameter, and seventy feet high, and produces a sort of varnish which is used with wood oil for painting wood. The natives use the spars for rafting timber down the rivers, and for the yards of small vessels. It is a wood of little value being neither strong nor durable. —*Edye, Forests of Malabar and Canara.*

NIDAM SHETTI, MALEAL. Memecylon amplexicaule, *Roxb.*

NIDANA, SANS. A first cause, from nee, prep. and da, to give. Nidhee, SANS., from nee, prep. and dha, to place.

NIDI DI TUNCHINO, IT. Edible bird-nests.

NIDOS DE LA CHINA, SP. Edible bird-nests.

NIDRA, TEL. Desmanthus triquetrus, *Willd.; W. and A.; R.* ii, 552.

NIDS DE TUNKIN, Fr. Edible bird-nests.

NIDUNGANAD, see Kummaler.

NIEBUHR, a Dane, a traveller on the shores of the Red Sea and between Bombay and Abushahr, remarked strange alterations in the sea, which once appeared white, like a plain of snow; at another time, fiery, &c.—*Voy. en Arab. T.*, ii, *p.* 71. (*Amst.* 1780).

NIEBUHRIA LINIFOLIA, *Linn.*

N. linearis, *DC.* | Capparis linifolia, *Roxb.*

A Coromandel plant, one of the Capparidaceæ, it has a greenish dark-purple flower.—*Roxb.; Voigt.*

NIEBUHRIA OBLONGIFOLIA, *DC.*

Capparis oblongifolia, *Fors* | C. heteroclita, *Roxb.*

Morinika bhusarkara, Tel. | Patta tige, Tel.

A plant of the Peninsula of India, of Agra and Dehli. *Roxb. Voigt.*

NIECHAK, Hind. Hippophae rhamnoides.

NIEPERE PALM—? Caryota urens.

NIESCHAKA, Sans. Alangium hexapetalum, *Linn.*

NIE-TAL, see Kwang-tung-chi.

NIFT-I-ROOMI, Pers. Bitumen.

NIETNER, a resident in Ceylon, about A. D. 1850, who wrote on the coffee plant and its enemies. He stated that a fungus had done enormous damage in the Ceylon coffee plantations. When a coffee tree is attacked by the bug, it is deprived of its sap and its nourishment, whilst the fungus which never fails to attend on the bug prevents restoration by closing the stomates through which the tree breathes and respires. Bug, he tells us, existed on the estates to an incalculable extent,—none are believed to be quite free from it. Whole estates are seen black with bugs, *i. e.*, with the fungus: and, he asks, "am I wrong in saying that if there was no bug in Ceylon, it would at a rough guess produce 50,000 cwts. of coffee more than it actually does." The value of this quantity on the spot being about £125,000, this sum represents the aggregate of the annual loss by bug sustained by the Ceylon planters.

NIGAL, Hind. Arundinaria falcata.

NIGALA, Punjab, Beng., Hind. Arundinaria utilis.

NIGAND, Hind. Ecylpta erecta.

NIGAND BABRI, Nigand panr, Hind. Ocimum basilicum.

NIGAR. Richard Andree gives a very complete view of the spread of anthropophagy in the Erganzungsblattern. The motives of this hideous aberration are extremely varied. Besides mere sensual gratification and hunger brought on by the dearth of other animal food, the passions of revenge and hatred, as well as religious precepts and gloomy superstition, play an important part in historical times. Anthropophagy has been gradually disappearing, but in one single instance (that of the Bassuto people) the habit had newly arisen, having been previously unknown. Anthropophagy has vanished with the people themselves from among the Iroquois and Algonkin; it has disappeared from among the people of the high plains of Anahuac, the Indians of Peru, and most Brazilian races. It is increasingly circumscribed in the Southern Ocean by the dying out of the cannibal race and the pressure of white settlers. The number of cannibals is still, however, very considerable. The following figures are, of course, only proximately correct, but they afford a stand point from which to take a census of the class:—The Batta of Sumatra, according to Friedman, may be reckoned at 200,000 souls; the cannibals of the Nigar Delta at 100,000; the Fan, according to Fleuriot de Langle, at 80,000; the cave-dwellers of the Bassuto country (about a tenth of the whole population), at 10,000; the Niam-Niam at about 500,000; the Miranha and Mesay, according to Marloy, at 2,000; other South America cannibals at 1,000; the Australian aborigines at 50,000; the Melanesians (without including New Guinea), 1,000,000. This calculation gives a total at the present of 1,943,000 human beings addicted to anthropophagy, a number in no degree exaggerated, but which actually represents the 690th part of the whole population of our planet, or 0·14 per cent. A native paper of British India in A. D. 1870, stated that a person has been transported for life by the Session Court at Jhansie, on a charge of eating dead human bodies stolen from graves. It is said that he had lived on this fare for a number of years.—*P. M. Gazette.* See Aghora, cannibals.

NIGELLA SATIVA, *Linn.*, var, indica, *DC.*

Shoonez,	Ar.	Magrila,	Hind.
Hub-sindi,	„	Kalonja,	„
Kal-jira,	Beng.	Kalungi,	„
Sa-mung-net,	Burm.	Siah-dana,	Pers.
Kulunjen,	Duk.	Tukhm-i-gandana,	„
Small fennel flower,	Eng.	Krishna jirakæ,	Sans.
Devil in a bush,	„	Musavi,	„
Devil in a mist,	„	Kaloo-dooroo,	Singh.
Melanthion,	Gr.	Karin siragum,	Tam.
Kalunjen,	Hind.	Nalla jilakara,	Tel.
Kala-jira,	„		

This is a native of the south of Europe, Egypt, Barbary, and the Caucasus and is extensively cultivated in India. The seeds, resembling coarse gunpowder, are triangular, slightly compressed, obtuse above with oblique bases, rugose, black externally, internally of a greenish white hue. The capsules are polyspermous, oblong, and pointed at the side. The seeds are of strong aromatic odour, and flavour resembling sassafras or cubebs. These properties are due to an essential oil, of which the seeds yield from 5 to 10 per cent. The nigella seeds have been long used in medicine, and were praised by Hippocrates as a tonic condiment. At present they are chiefly employed by the native Hakim and Baida, as aromatic adjuncts to purgative or bitter remedies. In Bengal they are given to nurses, in the belief that they increase the secretion of milk, and facts tend to corroborate that opinion. In eruptions of the skin, the seeds reduced to powder and mixed with sesamum oil, are much used as an external application. The seed will seldom be prescribed in substance. The tincture is a useful, warm stimulant, and may be added conveniently to numerous draughts and mixtures intended for other purposes. The popular mode of giving the nigella to nurses is by mixing the powdered seed with curry, to which however it communicates a very heavy and disagreeable flavour. The price of the seed in the bazaars is from one to two annas the seer = 2 lbs. avoirdupois. The tincture of it is stimulant and diaphoretic. Dose, half a fluid drachm to two drachms. To prevent injury to furs, feathers, books, papers and clothes that are lodged in trunks, book cases, &c.; it is useful to place along with them small packets of camphor; or little cups of camphor dissolved in alcohol; packets of Nigella sativa, the "kala jira" of the bazaars: pieces of the roots of the Aconitum ferox, the dreadful "bish;" "Ati Singeea bish," or bishnak of the bazaars, may also be used, but its highly poisonous effects on animal life, require its use to be had recourse to with the greatest precaution. Cups of carbolic acid are useful. The oil from N. sativa seeds, is a clear and colourless but rather viscid oil. It is employed principally as a medicine. It is called jungle jeerah oil in Mysore.—*O'Shaugh. p.* 164; *Beng.Phar., p* 430.

NIGELLA SEED.

Shunez,	Ar.	Kulinji,	Guz.
Mugrela,	Beng.	Kala-jira,	Hind.
Kolunjun,	Duk.	Kolinji; Kali-jira,	„
Kulanji seed,	„	Siah danah,	Pers.
Fennel flower seed,	Eng.	Krishna jiraka,	Sans.
Small „ „	„	Kaloodooroo,	Singh.
Hub-us-swad,	Egypt.	Carin siragum,	Tam.
Gemein nigelle,	Ger.	Nulla jilakara,	Tel.
Melanthion,	Gr.		

These seeds have a great resemblance to coarse gunpowder, are triangular, slightly compressed, obtuse above with oblique bases, rugose, black externally, internally of a greenish white hue. They have a strong aromatic odour, and flavour resembling sassafras or cubebs. They are used in medicine by the natives, as an aromatic adjunct to purgative or bitter remedies; and also in curries and pickles.

NIGER, Anglo-Latin. The black seeds of Sesamum orientale.

NIGER, Lat. Black.

NIGER, see Indigo.

NIGGI, Hind., of Kulu, &c., Daphne cannabina. It is the Jeku of Basahir; and the Sannarkat of Cashmir.

NIGGI, also Tulenni, also Phul golunla, Hind., of Ravi, Hamiltonia suaveolens, *Roxb.*, also Daphne oleoides, (bhat) niggi, Hind., is the Wikstræmia salicifolia.

NIGHANTI, Sans. A Glossary of the Vedas.

NIGHT OF POWER amongst hindoos, the 7th night, of the 7th month, of the 77th year, of a man's age, is termed Bhimaratri, or Night of Power! and is considered the end of his natural life. After that, a hindoo is considered exempt from all instituted observances.—*Wils. Gloss.*

NIGHT-BLOWING CEREUS, or Night-flowering Cereus, Eng. Cereus glandiflorus.

NIGHTINGALE. Dr. J. D. Hooker, in his Himalayan Journal, twice notices "the Nightingale," as having been heard by him; but at a time of the year at which no real nightingale ever sings. The true nightingale regularly ceases to sing, somewhat abruptly, about the beginning of the month of June, and this alike whether it has young to tend in the wild state, or when confined in a cage; and captive nightingales re-commence their song, if in health and vigour, about January, and continue in full song for two months or more before their wild brethren arrive from their southern haunts. This bird never sings out of season. Dr. Hooker's "nightingale" refers to some other bird, and most probably to the Shama. "On the 4th October," he remarks, "I heard the nightingale for the first time in the season;" and when at Pemiongchi (a former capital of Sikhim), in January, he notices that "nightingales warble deliciously night and morning, which rather surprised us, as the minimum thermometer fell to 28°, and the ground next day was covered with hoar frost. These birds migrate hither in October and November, lingering in the Himalayan valleys till the cold of early spring drives them further south to the plains of India, whence they return north in March and April." But among the numerous collections of Sikhim birds examined, no specimen of a nightingale has ever occurred: nor is the bird enumerated in Mr. Hodgson's lists of the species inhabiting that region. The Calliope camtschatkensis, a delicate little bird much like a nightingale, but with a brilliant ruby-throat, which is not rare in the vicinity of Calcutta during the cold season, arrives "early in April, with the snowfleck, in the Lower Kolyma district" in Northern Siberia, as we are told by Von Wrangell; that is to say, before the last of them have left Bengal: but it is remarkable that this bird has never been seen in the very numerous collections from the Himalaya examined hitherto; though another and non-migratory species of the same genus (C. pectoralis), peculiar, so far as known to the Himalaya, is of common occurrence in such collections. It is, however, enumerated in Mr.

Hodgson's list of the birds of Nepal: the C. camtschatkensis does not seem to breed extensively on this side of the snow; although the Bengal birds may not have to find their way quite so far as to Northern Siberia to pass the summer. The nightingale of the English residents in Ceylon is the dayal-bird or dial-bird (Copysychus saularis). The more sombre plumage of the female which is seldom seen with the male, except during the breeding season has deceived many. The song of this species is rich and sweet, and it frequently imitates the notes of other birds. In habits familiar, it is a common tenant of the gardens, where it pours forth its welcome notes in the afternoon or early morning, and like its rival redbreast, sings a bar, and then waits a short time for another individual to reply.—*Blyth in Indian Field; Adams.*

NIGHT JAR OF CEYLON, Caprimulgus asiaticus.

NIGHT SHADE OIL, Oil of Atropa belladonna.

NIGRAHA-ST'HANA, Sans. Nigraha signifies disfavour, and st'hana, place.

NIGAMANA, Sans. A sure decision, from nee, prep., and gum to move.

NIHA POLYNESIAN FAMILY, see India.

NIHAL, amongst the Gond, a helot race.

NIHANG, the Sikh sects, and Nihang believe in Nanak Baba; but the manners and dress of the latter are quite different from those of the former. The Nihang sect were careless of their own lives, and consequently of those of others.—*Mohun Lal's Journeys, p.* 9.

NIJA, Hind. Saccharum semi-decumbens.

NIJNI, Hind. See Injni.

NIJRAN, see Kaffir, Nejran.

NIJROW. The natives of Nijrow, who have assumed the name of Tajik, have become better mahomedans than they were in the time of Baber, and their valour and difficult country have generally been sufficient to preserve their independence. They are numerous and well armed, having all muskets. The Pashai families in the vicinity of Nijrow are a distinct community, but on a good understanding with their neighbours. Their largest village is Hishpi, and they are represented as extremely hospitable. Here, as in other valleys, are abundance of mines and caves.—*Masson's Journeys, Vol.* i, *p.* 222.

NIKAH, Ar., Hind., Pers. Marriage, amongst mahomedans, Nikah namah, the marriage certificate. In Arabia, Egypt, and Persia the nikah is the principal marriage ceremony. In India, a marriage confined to the nikah, is deemed disreputable, or it is with some person of inferior rank. In the case of a spinster of equal rank, the shadi or rejoicings lasting for five days put all the religious ceremonial of the nikah into the shade. The nikah engagement, though inferior to marriage, is still respectable. It is common where the condition of the parties is too unequal to admit of one more public. Nikah and Shadee are often in India used synonymously, as meaning the marriage or the marriage ceremonial of the mahomedans. The Nikah, however, is the form of words used by the Kazee in uniting the couple and the shadee or rejoicings, are all additional, and may be lengthened or curtailed at the will of the relatives. About Delhi, the ceremony of Nikah would appear to be styled "Burat." The Shadee ceremonial in India is generally used only where the bride is a spinster and of equal rank with the husband.—*Malcolm's Central India, Vol.* i, *p.* 368.

NIKAIA is identified by Genl. Cunningham. with Kabul, The town of that name on the Hydaspes, is identified with Mong.

NIKAKSHA, see Ravana.

NIKALOO, see Kazzilbash, Kajar.

NIKARI, Hind. Castanea indica.

NI-KEI, Japan. Cinnamomum loureirii.

NIKEPHOROS, see Greeks of Asia.

NIKHARNA, Hind. Bleaching.

NIKKI, Hind. Small.

NIKKI BEKKAR, Hind. Grewia rothii,

NIKKI JAPHROTI, Hind. Baliospermum indicum.

NIKKI KANDER, Hind. Rhamnus persica.

NIKU, Hind. Rhododendron campanulatum.

NIL, Singh. Sapphire.

NIL, Arab., Beng., Hind., Pers., Singh. Indigo, also Indigofera tinctoria, *Linn.*, also blue color. When used in the Panjab for indigo, it is usually written with the word "kabuda" after it, to distinguish it from the word "til," which, in vernacular, differs only in one point.

Nil ka bij, the seeds.

Nil safa or Nil wilayiti, Prussian blue, Ferrocyanade of iron.

NIL, or Lil, Hind. Portax pictus, *Jerdon.*

NILA, or Naila jidi, Tel. Semecarpus anacardium, *Linn.*

NILAB, from nil 'blue,' and ab 'water;' hence the name of the Nile in Egypt and in India. Sind or Sindhu, appears to be a Scythian word. Sin, in the Tatar, tsin in Chinese, 'river.' Hence the inhabitants of its higher course termed it aba sin, 'parent stream;' and thus, very probably, Abyssinia was formed by the Arabians; 'the country on the Nile,' or aba sin.—*Tod's Rajasthan, Vol.* i, *p.* 212.

NILA BARUDENA or Valoothala, Tel. Solanum melongena, Brinjal.

NILA CHIRA, Maleal. Portulaca quadrifida, *Linn.*

NILA GHIRIA, also Nila ghiria khurne, Sans. Clitoria ternatea.

NILAGIRI, see Inscriptions.

NILA-HUMMATU, Datura fastuosa.

NILA KAI, Panjab. Trichodesma indicum, *R. Br.*

NILAKANTAH, a name of Siva, from his having a blue throat, in consequence of having drank the poison produced at the churning of the ocean.—*Cole, Myth. Hind., p.* 390. See Vidya, Vishnu.

NILAKIL, Hind. Gentiana kurroo, *Wall.*

NILAKRAI, Hind. Crozophora tinctoria, also Trichodesma indica, also Cynoglossum micranthum.

NILAM, Hind., Malay. Sapphire.

NILAM, Hind. Ballast.

NILAM, Tam. Public auction.

NILAMBARAM, Tel. Barleria cœrulea, *R.* iii, *p.* 39, the blue Barleria, also some species of Eranthemum.

NILAM-PALA, Maleal., Tam. Wrightia tomentosa, *Rom. et Sch.* A Malabar tree that grows to about twelve or fifteen inches in diameter: it is not of much consideration; it produces a small fruit which is used by the natives medicinally.—*Edye, Forests of Malabar and Canara.*

NILAN, Hind. Crozophora tinctoria.

NILA NIRGANDA, or Nila nirghoondi, Sans. Justicia gandarussa.

NILANJANAM, Tel. Sulphuret of antimony.

NILA PALA, Tam. A small tree of Malabar, the wood of which is very close-grained; it is used in house-work. The root is used as a medicine, and applied in cases of rheumatism; this tree in Travancore, is sacred.—*Edye, Forests of Malabar and Canara.*

NILAPANAG KALANGU, Tam. The root of Curculigo orchioides, *Gœrt.*

NILA THARI, Hind. Cuscuta macrantha.

NILA TUTIA, also Neela tutia, Hind. Blue stone: Sulphate of copper, Blue vitriol. This is extracted from copper ore. The stone is pulverized and is thrown into earthen vessels filled with water, and allowed to stand during the night, after which the liquid is poured into another vessel and the crystals of blue vitriol obtained by spontaneous evaporation of the liquid in the same way as alum.—*Powell's Hand-book, Econ. Prod. Punjab, p.* 67.

NILA USARIKA or Nila usharika, Tel. Phyllanthus niruri, *Lam.*

NILA VALUTHANA, of Rheede. Syn. of Solanum melongena, *Linn.*

NILA-VAVILI, Tel. Vitex trifolia.

NILA PANA, Maleal. Curculigo orchioides, *Gœrt.*; Cassia lanceolata, *Royle.*

NILA-VOOLLA, Feronia elephantum.

NIL-BANDAR, Beng. Inuus silenus, *Jerdon.* Lion-monkey.

NILE. The rains from the mountains to the south of Abyssinia, flowing through Meroe, Ethiopia, and Nubia, reach Egypt in the middle of June, when the Nile begins to rise at Syene. The little plains which fringe its banks through the Thebaid to a greater or less width are first overflowed, and, during the months of August, September and October, the fields in the Delta become a sheet of water, leaving the villages on the raised mounds standing like so many islands in the ocean. Why there was most water in the Nile in the dryest season of the year, was a subject of never-ceasing inquiry with the ancient travellers and writers on physics. Thales said that its waters were held back at its mouths by the Etesian winds, which blow from the north during the summer months; and Democritus of Abdera said that these winds carried heavy rain clouds to Ethiopia; whereas the north winds do not begin to blow till the Nile has risen. The Nile begins every year to rise about the middle of June, and continues rising 40 or 50 days; it then falls by degrees, till, in the end of May, next year, it is at the lowest. The causes of its rise are now well known. During the hot months of the year, rain falls every day in Habbesh or Abyssinia, and all that rain-water is collected into the Nile, which, from its entrance into Egypt till it reaches the sea, runs through a wide vale. It does not rise alike high through all Egypt. At Cairo the full height is at least 24 feet above its ordinary level. At Rosetta and Damietta it is only four feet. At Cairo, the Nile being confined to one channel, between high banks, must necessarily rise to a much greater height than nearer the sea, where it is divided into two streams, after running over so much barren ground, and forming so many lakes. The branch upon which Rosetta stands, is only 650 feet broad; and that by Damietta, not more than 100. As soon as the Nile begins to rise, all the canals intended to convey the waters through the country, are shut and cleaned. They are kept shut, however, till the river rise to a certain height which is indicated by the Nilometer in the isle of the Rodda. A shaikh attends for this purpose, by the mikkias, and gives notice, from time to time, of the rising of the river, to a number of poor persons who wait at Fostat for the information, and run instantly to publish it in the streets of Cairo. They return every day to Fostat, at a certain hour, to learn from the shaikh, how many inches the river has risen. And its rise is every day proclaimed in public, till it reaches the fixed height, at which the canals are permitted to be unlocked; the usual tax is then paid for the waters, to the sultan, and a good year expected. The canal at Cairo is first opened, and then, successively, all the other great canals down to the sea. Between the dyke of the canal of Cairo, and the Nile, a pillar of earth is raised, nearly of the height to which the waters of the rivers are expected to rise. This pillar is called Anes, or the bride, and serves as a sort of Nilometer, for the use of the common people. When the waters enter the canal, this bride is carried away by the current. A like custom, which prevailed among the ancient Egyptians, has subjected them to the imputation of sacrificing every year a virgin to the Nile. Nukta signifies in Arabic, both a drop and the time of the sun's entering the sign of Cancer; at which season, the great rains fall in Abyssinia, which occasion the swelling of the Nile.—*Sharpe's History of Egypt, Vol.* i, *pp.* 4, 401; *Niebuhr's Travels, pp.* 67-71. See Iran, Siam, Vishnu.

NILESHWAR, see India.

NIL-GAI, or Nil-gao, HIND. Portax tragocamelus, is one of the largest and most magnificent of known antelopes being upwards of 4 feet high at the shoulder; it resides in the dense forests of India, is a vicious animal, of very uncertain temper, and even when domesticated is both violent and changeable.

NILGIR, HIND. The munal pheasant, Lophophorus impeyanus.

NILGHIRI and Kurg mountains to the north of the Coimbatore valley, rises abruptly to 8,000 feet elevation as the Nilghiri range, and is continued northward as the mountains of Kurg at nearly the same elevation. The rain-fall which is excessive to the westward, is much diminished before reaching the axis of the chain at Dodabetta, it is 100 inches; and at Utacamund only 64 inches.

Dimhutty		6,166 Ft.	64·0 F.
Kotagherry		6,407 „	63·4
Utacamund	64 rain.	7,197 „	61·0
Dodabetta	100	8,429 „	56·0

The Toda dialect has special affinities with the Tamil, and the Badaga of the same hills have also some dialectic peculiarities. Further north the Koorg mountaineers have their own dialect, the Kodagu. The insular languages of the S. Indian province, or those of Ceylon, the Laccadives and the Maldives, also belong to the Dravidian family. The closely connected Tamil and Malayalam of the south, of which Todava and Kodagu may be considered as sub-dialects, the Telinga of the east, and the central Karnataka, appear to have exterminated or absorbed the numerous continental dialects, of the former existence of which the physical evidence of a multitude of distinct tribes having been scattered over southern India, in its barbarous era, leaves no doubt. That the Dravidian race did not bring with it into India the civilization which the present great southern nations possess, as the Arians certainly did theirs, appears to be little questionable when we consider the antique character and affinities of the dialects of the Male, Orond, Khond, and Toda, the very archaic and barbarous character of many of the customs of the widely separated tribes which speak them, and, above all, the nature of the relationship of these dialects to those of the civilized nations, which is inconsistent with the hypothesis that the former originated in the metamorphosis of non-Dravidian dialects of rude aboriginal tribes, through the influence of the intrusive and dominant race. The known ethnic facts of all kinds lead us directly to the conclusion that the uncivilized Dravidian-speaking tribes are no other than genuine Dravidians who have, in great measure, escaped the culture which the more exposed tribes have received, and thus preserve a condition of the race certainly not more barbarous than that which characterized it when it first entered.—*Journ. Ind. Arch., No.* IV, *and April and May*, 1853, *p.* 208. See India, Neilgherries.

NILI CHETTU, TEL. Indigofera tinctoria, *L.*

NILI-KAI-MARA, CAN. Nili-kai-maram, TAM. Emblica officinalis, *Gærtn.*

NILINI, TEL. Indigo.

NIL-ISBAND, HIND. Clitorea ternatea.

NILIUM—? Panicum miliaceum, millet.

NILJAPA, HIND. Blue. Hibiscus striatiflorus.

NIL-KALMI, BENG., HIND. Pharbitis nil, *Choisy.* Ipomæa cærulea.

NILKANTH, HIND. Gentiana kurroo, *Wall.*, also Clitorea ternatea.

NILKANTH, a name of Siva. See Vishnu.

NILKANTHI, HIND. Ajuga bracteata, also Crozophora tinctoria, also Crozophora plicata.

NILKATTEI, HIND. Helioteropium brevifolium.

NILKATTA RODU, SINGH. Clitorea ternatea, *Linn.; Roxb.*; *W. & A.*

NILLA-PANE, TAM. Curculigo orchioides, *Gært.* See Moosli, Musli.

NILLA TIRTAVA, MALEAL. Ocymum sanctum, *Linn.*

NILLE MAKAREYA, see Ceylon, Suryavansa.

NILHO, SINGH. A Ceylon plant. When the blossom of the nilho fades, the seed forms; this is a sweet little kernel, with the flavour of a nut. The bees now leave the country, and the jungles suddenly swarm, as though by magic, with pigeons, jungle-fowl and rat. At length the seed is shed and the nilho dies.—*Baker's Rifle, p.* 305. See Golunda rat.

NILLUR, HIND. Vitis quadrangularis or Cissus quadrangularis, *Wall.* Nillur-ka-binj, DUK. Its seed.

NIL NARAY, TAM. Bustard: Otis tarda.

NILAGURH or Hindor. The chief of this, belongs to a Rajpoot family. A sunnud was granted in 1815. The population at the last census was 49,678. The revenue amounts to Rupees 60,000.

NILOFAR, Hind. Nymphæa lotus, N. alba, N. pubescens, the edible lotus is nymphæa edulis, nilofar bekki, the root, nilofar tukhmi, the seeds.

NIL-PITCHA, Singh. Guettarda speciosa, *L.*

NIL PADMA also Lila phool, Hind. Nymphœa cyanea.

NIL-SAFA or Nil wilayiti, Hind. Prussian blue.

NIL-TACH the Jay, is sacred to Rama.

NILTAVA MEDANOPS, the verditer fly-catcher, appears in spring, and is one of the most common fly-catchers.

NILUM, Maleal. Indigofera anil.

NILUPARAJITA, Beng. Clitoria ternatea, *L.*

NILUVU PENDALAM, Tel. Dioscorea alata, *i. e.*, upright or standing yam from its oblong tubers.—*L.; R.* iii, 797*; W. Ic.* 810*; Rheede* vii, 38.

NIMAR is the westernmost district of the Central Provinces of British India. On the east it marches with the Hoshangabad district, the Chhota Tawa, and its tributary the Gangapat to the north and the Guli to the south, marking its boundary almost from point to point; on the north it touches the territories of the ponwar of Dhar and of the maharaja Holkar; and on the west it is bounded throughout by the dominions of Holkar. On the south it meets the Khandesh collectorate of the Bombay presidency and the border of West Berar. The modern district has an area of about 3,340 square miles. Nimar has always been, as it still is, a border land. The aboriginal inhabitants even belong to two distinct divisions—the Bhil and Koli of Western India here meeting the Gond and Kurku of the Eastern Central Provinces. Hindoo sacred literature states that Mahishmati, the modern Maheswar, a city of Prant Nimar (now Holkar's), was the capital of the Haihaya kings. The Haihaya are said to have been expelled by the brahmans, who established the worship of Siva, in the form of the Linga Omkar on the island of Mandhata, in the river Narbada. We next read in Rajput poetry of the country being ruled by the Chauhan Rajputs who held A'sirgarh, though their capital was at Makavati (Garha Mandla.) They were supporters of the gods of the brahmans, and appear to have been at last overcome by the Pramara Rajputs who established the great buddhist kingdom of Malwa. A branch of this family called Tak held A'sirgarh from the beginning of the ninth to the close of the twelfth century of our era. Several times during this period the Tak of A'sir are mentioned by the poet Chand, as leaders in the hindoo armies battling in Northern India against the mahomedan invader. During this period the Jain religion—was paramount in Nimar, and numerous remains of finely-carved temples, &c., yet remain at Wun, Barwani, and other places in Prant Nimar, and at Khandwa and near Mandhata in the modern district. Before the invasion of the mahomedans, the Chauhan again seem to have recovered A'sirgarh and the southern part of the district. In A. D. 1295, sultan Ala-ud-din, returning from his bold raid in the Deccan, took A'sir, and put all the Chauhan to the sword, excepting one, whose descendants were afterwards the rajas of Harauti. The present rana of Piplod in Nimar also claims descent from the A'sir Chauhan, and his pretensions are in great measure supported by his genealogy and family history. Northern Nimar about this time came into the possession of a raja of the Bhilala tribe, and his descendants are still to be found in the chief of Bhamgarh, Mandhata and Silani. The historian Ferishta relates a story of a shepherd-chief called A'sa, ruling over all Southern Nimar at the time of the invasion of the mahomedans, and building the masonry fort which was called after him A'sirgarh (from A'sa and ahir, a herdsman). The tale, however seems doubtful. In A. D. 1370, Malak Raja Faruki obtained Southern Nimar, then unconquered, from the Delhi emperor, and after establishing the mahomedan power in the Tapti valley, was succeeded by his son Nasir khan, who assumed independence established the Faruki dynasty of Khandesh, in A. D. 1399. He captured A'sirgarh (according to Ferishta from A'sa Ahir), and founded the cities of Burhanpur and Zainabad, in honour of the mahomedan shaikhs Burhan-ud-din and Zain-ud-din, on opposite banks of the river Tapti. The Faruki dynasty held Khandesh, with their capital at Burhanpur, during eleven generations, from A. D. 1399 to A. D. 1600. Their independence was, however, of a very modified sort, as they were throughout under the suzerainty of the more powerful kings either of Gujarat or Malwa, and whenever they ventured to throw off their vassalage, or attacked their neighbours, were quickly brought to their senses by a force which they in no case successfully resisted. In the later disputes, between the nizam and the peshwa, Nimar was often plundered by the latter, until, by the treaty of Munge Pattan, northern Nimar became the peshwa's in A. D. 1740. Baji Rao peshwa, however died the same year at Raver on the banks of the Narbada, which he was just about to cross on a second invasion of Hindustan. His cenotaph of variegated sand-stone is still to be seen at Raver. Eight years later his great rival A'sof Jah died at Burhanpur. The Pindhari in Nimar, had their chief camps in the dense wilds of Handia, between the Narbada and the Vindhyan range. Chitu, the most daring of their leaders, usually frequented the jungles of Irwas and Limanpur, due north of Nimar. In 1817 the British troops attacked the Pindhari and drove them out of these haunts. Chitu himself, after fleeing to Pachmarhi and A'sirgarh, being again driven to the haunts he knew so well, was killed by a tiger in the Sita Ban jungle of Limanpur, a place still well known to British sportsmen as a sure find for tigers. The population of Nimar numbers 1,90,440 souls, of whom 34,805 are Bhil, Kurku, &c. There are scarcely any Gond in Nimar. The population of Nimar also consists of Dher, Mhang and other non-hindoos. 18,446

Europeans..................	402
Brahmins.................	6,983
Hindoo immigrants........	1,18,508
Mahomedans.............	18,279

The best cultivators in Nimar are the Kunbi, Gujur, Mali and Rajput races. The language is a mixture of Hindi and Marathi, with a good many Persian words, and it is written in a peculiar current Devanagari character.—*Central Provinces Gazetteer.*

NIM, ARAB., BENG., HIND., MAHR., PERS. Azadirachta indica, and species of Melia.

Nim-ka-chal, HIND. Margosa bark. Bark of species of Azadirachta and Melia.

Nim-ka-phool, DUK. Flowers of Melia azadirachta.

Nim ka tel, HIND. Oil of Margosa seeds.

NIM-SIM, HINDI. Boundaries of lands, a grant on copper plate enumerating revenues (hasil) contributions (burar), taxes, dues (lagut be lagut,) trees, shrubs, foundations and boundaries, (nim sim): the sovereign can only alienate the revenues (hasil), and not the soil. The nim-sim is almost as powerful an expression as the old grant to the Rawdons:—

From earth to heaven,
From heaven to hell,
From thee and thine,
Therein to dwell.

—*Tod's Rajasthan, Vol.* i, *p.* 564.

NIMACH, in L. 24° 27' 5, L. 74° in Rajanda, 5 miles north of Mhow.

NIMA QUASSIOIDES, *Hamilton.*

Simaruba quassioides, *Don.*

Bera, puthorin,	CHENAB.	Pesho, Birjo,	SUTLEJ.
Mathu, Mont	„	Khashbar,	„
Berning,	RAVI.		

A tall straggling plant common in places in the Punjab Himalaya from the Sutlej to the Chenab, at from 3,000 to 9,000 feet. It is browsed by goats and sheep, and in Chumba the leaves are applied to itch. In some parts the red fruit is eaten. It was discovered in Nepal by Dr. Hamilton, and is stated by Dr. Royle to exist in Turanda, on the banks of the Sutlej, in more than 31° of north latitude. Dr. Royle has also met with it in valleys in Gurhwal, in a valley near the town called Thankot. It has elliptical oblong leaflets, which are acuminated and serrated. The corymbs are trichotomous. It is as bitter as the quassia of South America. In general appearance and intense bitterness this tree is closely allied to the Simarubeæ. The wood is light-coloured and very bitter, and although it has not as yet been subjected to experiment, we are led from analogy to entertain the most confident opinion of its proving a perfect substitute for the West Indian article. It rises to near the snow line of the Himalaya mountains. The wood has long been used for killing insects, and latterly recommended in fever by M. Macardieu.—*Don, Dechlamdeous Plants ; Lindley, Flora Medica ; in Eng. Cyc.; O'Shaughnessy, page* 269 ; *Ind. An.*, 106 ; *Dr. J. L. Stewart.*

NIMAK, HIND. Salt.

Nimak-guman, coarse rock salt of the hill states.

Nimak-ustifrag, said to mean tartar emetic.

Nimak-kalri, the reh salt, a salt of soda.

Nimak-maniyari, HIND. Salt residue in glass-melting = to Kachlun.

Nimak-nali, fused salt in long pipes.

Nimak-safed, white salt.

Nimak-sambar, salt of Sambhur lake.

Nimak-shisha, crystal salt.

Nimak-shor, coarse salt educed in the process of making saltpetre.

Nimak-sinda, salt from Sindh.

Nimak-sonchal, black salt. See Kala nimak.

Nimak ka-tezab, sulphuric acid.

See Salt, Reh. Kalr.

NIMA PANDU, TEL. Syn. of Citrus bergamia, *Risso.*

NIMAWAT, see Sanakadi sampradaya, Hindoo.

NIMBA, also Nimbamu, SANS. Azadirachta indica, *Ad. Juss.*

NIMBADITYA, see Sanakadi sampradayi.

NIMBALKUR, a powerful Mahratta family, whose estates are in Kolapore.

NIMBAMU, SANS. Azadirachta indica, *Ad. Juss., W. & A.*

NIMBAR, HIND. Acacia leucophlœa, also Senecio laciniosus.

NIMBARA, MAHR. Melia superba.

NIM-BHUR or Nimber, HIND. Zizyphus.

NIMBOOKA, SANS. Citrus bergamia, *Risso & Poit., Roxb., W. & A.*

NIMBORA, BENG. Ionidium suffruticosum, *Ging.*

NIMBU, HIND. Citrus acida, bergamia, *Risso.*

Bajauri nimbu, is Citrus medica.

Mitha nimbu, is Citrus limetta.

The nimbu tree supplies the images of Vishnu in his different forms; also of Doorga, Radha, Lukshmee, Shiva, Guroodu, Choitunyu, &c. None of the wooden images are kept in private houses, but in separate temples. They are generally from one to three cubits in height. —*Ward's View of the Hindoos, Vol.* ii, *p.* 12.

NIMBU JAMBIRA, Hind. Citrus limonum.

NIMBUKA, Beng. Citrus limonum, *Risso.*

NIMBU-WULEE, see Hot-springs.

NIM-CHAH, a half-breed race, on the southern slope of the Indian Caucasus, between the Affghans and the higher peaks. They speak a language related to the Indian tongues, but possessing some curious affinity to Latin. In the lower country, the people near the debouchure of the Kashgar river, speak a mixed tongue called Lughmani. The people in Kashgar submit quietly to their rulers. From all times the Kashmir valley has been the retreat from the heats of India, for the conquering races, and it is not improbable that bands of their followers may have preferred to remain in the valley.—*Campbell, p.* 146.

NIMCHAK, Hind. Well-curb.

NIMICHAKRA, see Kasambi.

NIM-GILO ?—Menispermum.

NIMI CHAMBELI, Hind: Bignonia suberosa.

NIMI LADAGOO, Tel. See Nameluddoogoo.

NIMIRI, Tel. Terminalia paniculata, *W. & A.*

NIMI MUKA, Hind. Clypea hernandifolia, *W. & A.*

NIMITTA, Sans. A cause.

NIMMA, Tel. Citrus bergamia, *Risso and Poit., var. a. R.* iii, 390; *W. & A.* 344, *var* 3. Common or Bergamotte lime.

NIMMA GADDI, or Chippa gaddi, Tel. Andropogon schœnanthus, *L.*

NIMMA TAYI, Tel. Ceropegia bulbosa, *R.* ii, 27; *Cor.* 7; *W. Ic.* 845. The Yanadi and Chenchu eat the roots.

NIMMA TULASI, Tel. Ocimum gratissimum, *L.*, a Tulasi with the scent of a lemon.

NIMO, see Indus.

NIMOOKA, Beng. Clypea hernandifolia.

NIMROD had two sons, one of whom, Yoktan, proceeded southwards about B. C. 4500 or 5000, and formed and founded there 13 principalities. Nimrod's name is connected with all the cities and towns as far as the highlands of Kurdistan and even Phrygia.—*Bunsen, Vol.* iv, *p.* 412.

NIMROUD, the mound wherein sculptures have been discovered at this ancient place is not far from the Tigris, and about four hours' distance from Mosul. Xenophon, in his account of the retreat of the 10,000, makes mention of a pyramid in a town called by him Larissa. It is most probable that the mound marks the site of that place, which the Turks generally believe to have been Nimrod's own city; and one or two of the better informed with whom Rich conversed at Mosul said it was Al Athur or Ashur, from which the whole country was denominated. The villagers of Deraweish still consider Nimrod as their founder. The village story-tellers have a book they call the "Kisseh Nimrod," or Tales of Nimrod, with which they entertain the peasants on a winter night. Over the ruins at Nimroud, Mr. Layard discovered ancient tombs, of a race unknown and of which he could not assign any date. Many of the vases, necklaces, and ornaments have a resemblance to those of the Egyptian tombs. Two or three purely Assyrian cylinders were also discovered in the tombs. Mr. Layard considers that the mode of burial which is there evidenced, more nearly resembles that adopted by the early Persians. Cyrus and Darius were buried in Sarcophagi in troughs. Darius in one of Egyptian alabaster. The alabaster πυελος or tub, in which Darius was buried, is mentioned by Theophrastus. The Assyrians, like the early Persians may have buried their dead entire, and preserved the bodies in honey or wax. (Herod, lib. i, c. 140, Arian de Bello, Alex. Theoph. de Lapid, c. xv.) According to Ælian, when Xerxes opened the tomb of Belus, he found the body in a coffin filled, nearly to the brim, with oil. Mr. Layard infers that these tombs belonged to an intermediate people or race who occupied Assyria after the building of the most ancient palaces and before the foundation of the most recent. He (Nimrod) went out into Assyria and built Nineveh and Calah; the same is a great city. (Gen. x, 11, 12.) The ruins of Nimroud had been identified with Resen, of which Larissa was believed, first, by Bochart, to be a corruption, arising from the (presumed) use by the inhabitants of the country, of the common Semitic article "al" before the word. In the first place, the philological grounds are inadequate; and, if this were Resen, no room would be left for the site of Nineveh, a still greater city. A great dam was built by Nimrod, and in the autumn before the winter rains, the huge stones of which it was constructed, squared, and united by cramps of iron, are frequently visible above the surface of the stream. This dam is called by the Arabs, either Sukr-el-Nimroud, from the tradition, or El Awayee, from the noise caused by the breaking of the water over the stones. Large rafts are obliged to unload before crossing it, and accidents frequently happen to those who neglect this precaution. Diodorus Siculus states that the stones of the bridge built by Semiramis across the Euphrates were united by similar iron cramps, whilst the interstices were filled up with molten lead. The dams greatly impeded the fleets of the conqueror in their navigation of the rivers of Susiana and Mesopotamia, and he caused many of them to be removed. By Strabo they were believed to have been constructed to prevent the ascent of the rivers by hostile fleets, but their use is evident. Tavernier mentions in his travels, (Vol. i, p. 226), this very dam, he says that his raft went over a cascade twenty-six feet high; but he must have greatly exaggerated.

Athur, the ruined city near the mouth of the upper Zab, now usually known by the name of Nimrud is called Ashur by the Arabic geographers, and in Athur we recognise the old name of Assyria, which Dio Cassius writes Atyria, remarking that the barbarians changed the Sigma into Tau. The Bors Nimrud and mound are supposed by travellers to represent the tower of Babel, but others conjecture it to be the remains of a temple of the ancient Borsippa which is mentioned as having been near Babylon, and where Alexander halted on his road to Ecbatana when warned by he Chaldeans not to enter Babylon from the east.—*Rich's Residence in Kordistan*, *Vol.* ii, *p.* 131; *Layard's Nineveh*, *Vols.* i, ii, *pp.* 4, 5, 8, 220; *Muller's Lectures*, *p.* 233; *Strabo*, *p.* 1851, *Ed. Ox.*, 1807. See Babel, Luristan, Mosul, Tigris.

NIMRUT, Hind. Mother o' pearl.

NIMUKA, Beng. Clypea hernandifolia, *W. & A.*

NIMUK DULLA, or Nimuk-ka-dalla, Hind. Muriate of soda; Salt.

NINDI, Hind. Vitex negundo.

NINEVEH, built by Asshur, son of Shem, (see Genesis x, 11) who went forth from the land of Shinar, is not again mentioned in scripture until the time of Jonah when its population is supposed to have been half a million. Nahum foretold its destruction, and in B. C. 606, it fell before the combined forces of Cyaxares, king of Persia and Media, and of Nabopolassar who seems to have been the ruler of Babylon, or the Assyrian governor of the city. The walls of Nineveh are described to have been 60 miles in circumference, and 100 feet high with 1,500 bastions each 200 feet in height. Diodorus Siculus mentions that the city was destroyed partly by water and partly by fire, and so utter was the destruction that though, in 400 B. C. Xenophon must have passed within a few miles of its site, he makes no mention of it, and Lucian, a native of Samasata, near the Euphrates, living between A.D. 90 and 180, states that its site could not, then, be pointed out. Mr. Rich, however, in 1820, detected it, in the mounds opposite Mosul, and M. Batta, in 1843; and Mr. Layard in 1845 obtained numerous sculptures from it. When visited by Jonas, who was sent thither by Jeroboam, king of Israel, it was three days' journey in circumference; and Diodorus Siculus, who has given the dimensions of Nineveh, says, that it was four hundred and eighty stadia, or forty-seven miles, in circuit: that it was surrounded by a wall and towers; the former, one hundred feet in height, and so broad that three chariots might drive on it abreast; and the latter two hundred feet high, and amounting in number to fifteen hundred. Above thirty generations elapsed between Ninus and Sardanapalus. But, with regard to Ninus and Semiramis, like all heroes of primitive history and early tradition, their names appear to have become conventional—all great deeds and national events being assigned to them. Originally, historic characters they have been to some extent invested with divine attributes. If there be no interpolation in the book of the Genesis, we have mention of Nineveh at least 1,500 years B. C. The down fall of the Ninyads, in the person of Sardanapalus, occurred B. C. 748. Nineveh, B. C. 606 fell before an alliance of the kings of Babylon and Media, Nabopolassar and Kyaxares. Niniveh, as the metropolis of the Assyrian empire, in B. C. 526, governed Babylon and Media. Nineveh, the city of Ninus, on the Tigris, opposite Mosul, was the capital of the Assyrian empire. The term assigned by Herodotus to the Assyrian dominion in Upper Asia, is 520 years. The Assyrian empire came to an end in B. C. 1273. The territory of Authur (from Asshur, Shem's son) was originally of small extent, and formed the second part of the kingdom usurped by the giant warrior, Gen. x, 11, 12, who built, or rather restored, the three cities, Rehoboth, Calah, and Resen, besides the capital, Nineveh. The ruins of the latter city are known from the descriptions of Rich, Layard Ainsworth, and earlier travellers. They are in Assyria proper, on the left bank of the Tigris, opposite Mosul, and the natives still call them by the original name. Two remarkable facts in Layard's latest work of Nineveh show that the national records of Assyria were written on square bricks, in characters so small as scarcely to be legible without a microscope; in fact, a microscope was found in the ruins of Nimroud. Nabopolassar, the father of Nebuchadnezzar, became the Assyrian satrap of Babylon, in the 123rd year of Nabonassar. Sardanapalus, king of Assyria, commanded him to march against the Medes who had revolted, but he allied himself with Cyaxares, and marched with him against Nineveh, and Babylon became independent on the destruction of Nineveh in B. C. 606. The Ninevites, in all their various monuments, have left us no trace of their ideas concerning the dead, while their neighbours, the Babylonians attached that care to the rites of sepulture which betokens strong belief in another life. The sepulchral urns obtained in Babylonia, contain the remains of the dead, with jars and utensils for food and water, made of baked clay, and with remains of date stones, the head of the dead reverently laid on a sun-dried brick as a pillow. Their ancient tombs, rare in Assyria and upper Babylonia, are chiefly in Chaldea proper, and the Rev. G. Rawlinson (i, 107) suggests that the dead may have been conveyed to the sacred land of Chaldea, simlarly as the Persians, even now, send their dead to Karbila and Meshid Ali, and as the hindoos from remote India, send the bones or the entire bodies to the Ganges at Benares. Chagda or Chackrada, near Sooksagur, is an abyss said to have been made by the chariot wheel of Bhagiruth. The legend points to an antiquity which is not borne out by any old vestiges or ancient population. But the place is a great golgotha where the dead and dying are brought from a great way off to be burnt and consigned to the Ganges. The deceased is seldom conveyed by any of his relations, unless from a short distance, and poor people generally send forward their dead for incremation in charge of bearers who never betray the trust reposed in them. The arrow-headed character was that used on the sculptures of Nineveh and is still occasionally used in writing Arabic, as also is the Cufic or Kufic which had its origin in the town of Kufa, but the Nashk and Talik characters are now usually employed.—*Kinneir's Geographical Memoir, p.* 259; *Layard's Nineveh, Vols.* i and ii, *pp.* 18, 225; *Bunsen, p.* 494; *Vol.* iii, *p.* 605; *Euphrates and Tigris, Col. Chesney, p.* 119; *Curiosities of Science, p.* 42; *Tr. of Vol.* i, *p.* 18.

NING-PO lies in 29° 45′ north latitude, and in 121° 22′ east longitude; is situated on the banks of the river Tae-hae, and in the province of Che-keang: the town of Ning-po is about twelve miles distant from the sea, being in a westward direction from the cluster of the Chusan islands. Over the river, an extraordinary bridge is constructed, in a most ingenious manner. Ningpo was taken, 13th October 1841, by the British.—*Sirr's China and the Chinese, Vol.* i, *p.* 195.

NINNI, see India.

NINUS. The first year of his reign was B.C. 1273, Semiramis seems to have reigned jointly with Ninus after his tenth year. Ninus established the Assyrian empire in its entire extent in his 17th year. Semiramis after him reigned as sole sovereign.

Ninus, B.C. 2128.	Years.	B. C.
Assyrian monarchy lasted 1,306 years before the empire	675	1,912
During the empire, 24 kings ..	526	1,237
Sardanapalus, B.C. 876.		
After the empire, 6 kings	105	711
	1,306	
Capture of Nineveh		606

There are indeed sufficient grounds for the conjecture that there were two, if not more, distinct Assyrian dynasties, the first commencing with Ninus. The Bactrian and Indian expeditions of Ninus, the wonderful works of Semiramis, and the effeminacy of Sardanapalus, are points in their several reigns.—*Layard's Nineveh, Vols.* i, ii, *pp.* 20, 217. See Hercules, Lud, Nineveh, Semiramis.

NINYAD or Assyrian kings. See Babylon, Babel, Nineveh, Ninus, Semiramis.

NIOTA LAMARCKIANA, *Blume.* Niota pentapetala, *Poir, DC.*, and Niota tetrapetala, *Wall.* Syns. of Samadera indica, *Gærtn.*

NIPA, SANS. Eugenia racemosa, *Linn.*

NIPA FRUTICANS.

Cocos nypa, *Lour.*

Da-ni,	BURM.	Atap,	MALAY
Water cocoanut,	ENG.		

This lowly stemless palm grows very abundantly in Tenasserim, the Malay Peninsula and Eastern Archipelago. Thatch is made of the fringe of the leaves, doubled down and sewed on sticks or lathes of bamboo and used as thatch for the roofs. The pulpy kernels of the fruit (called buah atop) are preserved as a sweetmeat, but are entirely without flavour. It grows in the tidal waters and bears a large head of nuts. The nuts of a similar plant abound in the tertiary formations at the mouth of the Thames, buried deep in the salt and mud that now forms the island of Sheppy. The "nipa" and "sasa" of the Philippine islands possesses various useful purposes. The Nipa fruticans has affinities with the screw pines. The leaves, besides being used for thatch, mats, and baskets, when burnt they yield salt: toddy or palm wine is extracted from the spathe, convertible into syrup, sugar, vinegar, yeast and a strong spirit. The nipah palm in the nature of its flowers, approaches the screw pines; to the Mergui river, it is found in perfection, but only a few specimens occur as far north as Moulmain. It flourishes in brackish water, along with the mangrove, and its lower parts are inundated when the tide rises. Writing of this plant Dr. Hooker says, "Receding from the Megna the water becomes salter, and Nipa fruticans appeared, throwing up pale yellow-green tufts of feathery leaves, from a short thick creeping stem, and bearing at the base of the leaves its great head of nuts, of which millions were floating on the waters, and vegetating in the mud. Marks of tigers were very frequent. The trunk never exceeds a man's height. It is the inhabitant of low marshy situations. Like other palms it yields a wine by the usual process, and in some parts of the Archipelago, particularly in the Philippines it is cultivated for its wine. Its principal use, however, is for the leaf, usually called Atap, the common term for thatch among the Malays, but specially applied to the leaves of this palm, because, among that people, it is almost the only material used for that purpose. The nipa leaf is also used for the fabrication of coarse mats. The small, insipid pulpy kernels are sometimes preserved as sweetmeats. The tuba, or juice, is extracted from the tree whilst in its flowering state, in the same way as that of the cocoanut tree, and afterwards distilled by a similar process; but it is more spirituous, from six to six and a half jars, being sufficient to yield one of wine. The great difference remarked in the prices of the liquor, from the cocoanut and nipa trees arises out of the great number of uses to which the fruit of the cocoanut tree is applicable, and the increase of expense and labour requisite to obtain the juice, owing to the great height of the cocoanut plant, and the frequent dangers to which the gatherers are exposed in passing from one tree to another, which they do by sliding along a simple cane.—*Marsden's Hist. of Sumatra; Hooker's Him. Jour., Vols.* i, ii, *pp.* 1, 355; *Seeman; Royle's Fib. Plants, p.* 35; *Mason; Walton's State, pp.* 119, 120.

NIPHANDA of Ptolemy, probably the same as Ophiana.

NIPAL, see Nepal, Koh-i-safed, Oojein.

NIPHATES, the ancient name of the range of the prolongation of the Taurus. The Tigris and Euphrates rise from its opposite sides.

NIPON, The four large Japanese islands are Nipon, Kiu-siu, Jesso, and Sikoff, which together form a group not dissimilar in geographical configuration to Great Britain and Ireland. In the first island are situated Yedo and Miako the two capitals, the Tycoon, the temporal sovereign, resided in Yedo, and the Mikado or spiritual sovereign in Miako. The island of Nipon popularly called Japan, and known to the Chinese as Yang-hoo, or Jih-pun-kwo, is the largest, and its name signifies land of the rising sun. Kiu-siu or Ximo, the most southern of this group, in lat. 32° 44′ N. and long. 129° 52′ 7″ E. has the harbour of Nangasaki on its western side, is a hundred and fifty miles north to south by two hundred and seventy east to west. Sikoff is about a hundred miles in length by sixty in breadth. The gross area of the empire is estimated at 265,500 square miles, and its population at 40 or 50 millions. Sagaleen island is a little smaller in extent than Nipon, and was formerly divided between the Chinese and Japanese, the former holding the northern and the latter the southern half. Its native population are the Kuriles, a very hairy, wild and untutored race. The chief town in the island of Jesso, is Matsmai: the second is Hakodadi. Matsmai is an imperial city, built upon undulating ground, and the hills near are covered with oaks, firs, cedars, poplars, the yew, the ash, cypress, birch, aspen and maple. Nipon, or Nifon, or Niphon, constitutes the main body and strength of the Japanese empire. Ha-da, a port in Nipon, is about 40 miles from Simoda, and is built on a plain, eighty miles from the metropolis, it contains about 8,000 people. The town is divided into wards separated by wooden gates. It contains nine buddhist and one sintu temple. Since the treaty of Kanagawa, by which the port was opened to the Americans, Simoda has been raised to the dignity of an imperial city. A hot spring flows from a rock at Simoda, stated to be sulphurous. The island contains the largest towns, and the manufactured articles produced in this island are considered the best.—*MacFarlane's Geo. & His. of Japan, p.* 147. See India, Japan.

NIPPULA VANNE KRANUGA, Tel. Pongamia uliginosa or Butea superba? The word means "fiery-red colour" and indicates a species with flaming bright flowers; also perhaps Wagatea spicata.

NIR, Beng., Hind., Karn., Maleal. Mahr., Tel. Water.

NIRADA MOOTOO YENNAI, Tam. See Neradi mootoo oil.

NIRADHAR, Niratar, Niratari, Hind. Cuscuta reflexa, supposed to be a corruption of nila-tar green thread.

NIRAKARU, Sans., from Nir prep., and akaru, form.

NIRALLI or Nakkena, Tel. Canthium didymum, *Gaertn.*

NIRAM, Hind. Ballast.

NIRANGI, Can. Poinciana elata.

NIRANKOT or Haidarabad, the ancient Patala.

NIRARLAY, Tam. Eugenia jambolana, *Lam., Roxb.*

NIRARUGA, Tel. Paspalum scrobiculatum, *L.*—β Kora, P. kora, *R.* i, 279.

NIRA, or Sainda, Duk., Guz. Toddy.

NIRBISI, Hindi. Curcuma zedoaria, *Roxb.*, a syn. of C. aromatica, *Salisbury;* also Kyllingia monocephala. Bara Nirbisi is the Scirpus glomeratus. Nirbisi, means the antidote, and is sometimes said to be the root of a species of aconite, but is generally supposed identical with jadwar or zadwar, the zedoaria of old writers. In Sirmoor the root of Delphinium pauciflorum is also called Nirbisi.

NIRCHA, Hind. Corchorus capsularis.

NIR CODUMBA, Tam. Nauclea parviflora.

NIREIPUTI, Tam. Rostellaria procumbens, *Nees.*

NIRGAL also Nirgali, Hind. Arundinaria falcata, a hill bamboo.

NIRGUBI, Tel. Asteracantha longifolia.

NIR GUBI VERU, Tel. Root of Barleria longifolia.

NIRGANDA, Duk. Vitex trifolia, *Linn.*, also Vitex negundo. Leaves of Vitex negundo are useful in acute rheumatism and intermittent fever and special diseases, also said to relieve headache and catarrh also after confincment. The fruit is acid, its action is similar to that of the Vitex trifolia, but less powerful.—*Powell's Hand-book, Vol.* i, *p.* 364.

NIRGUN, see Satnami.

NIRGUNA. In Hindu metaphysics there are three Guna, Satya-guna or property of truth, the source of purity and wisdom—the Rajo-guna, or property of foulness, the source of passion and error, and the Tamo-guna or property of darkness, the source of inertness and ignorance. Deity, abstractedly, is Nirguna, or without any of the three properties.—*Wilson.*

NIRGUNDI, Beng. Vitex negundo.

NIRIJA, or Bira, Tel. Elœodendron roxburghii, *W. and A.*, 492—*W. Ill.*, 71—Nerija dichotoma, *R.* i, 646. The name Bira is very doubtful, it was only found at Palamanair. The root of this tree is much prized as a cure for snake-poison, apparently not without some reason.—*Br.*, 502; *O'Sh.*, 271.

NIRIKA, Hind., Sans. Hell. See Hindoo.

NIRIKH, Pers. A price list.

NIRINGI-KIRE, Tam. Tribulus terrestris.

NIRIT, see Indra, Nairit.

NIRIZ, see Fars.

NIRJIN DUMBA, Hind. Ficus glomerata.

NIRMAL also Nirmali, Beng., Hind., Mahr. Strychnos potatorum, *Linn.*

NIRMALA, see Hindoo, Sikhs.

NIR-MULLI, Tam. Asteracantha longifolia, *Nees.*

NIRMUL, a town in the Kurnool province of the Ceded Districts. Amongst the arts and manufactures of South Eastern Asia, may be mentioned the lacquer work of Burmah, China and Japan, the ivory work of China, the marble work of Burmah, the gold and silver work of Trichinopoly and Cuttack, the horn work of Vizagapatam, the sandalwood work of Canara, the lac work of Kurnool, the tutenague work of Beder, the wood work of Nirmul and of Hyderabad in Sind, the shawl and woollen work of the N. W. of India and the muslins of Dacca.

NIR MULLI, Tam. Asteracantha longifolia. Nir Mulli Veru, Tam. The root of Barleria longifolia.

NIRNA, Can. Water dog; Lutra nair.

NIRNAYA, Sans. From nir, prep., and nee, to obtain.

NIR NOCHI, Tam. Vitex trifolia.

NIR NOTSJIL, Maleal. Clerodendron inerme, *Gœrt.*

NIRO-KANCHA, Tel. Pontedra vaginalis, *Linn.*

NIROOKTA, Sans. From nir, prep., and ookta, spoken.

NIR PIRIMI, Tam. Gratiola monniera, syn. of Herpestes monniera, *H. B. and Kunth.*

NIR PONGILION, Maleal. Spathodea rheedii, *Spreng*

NIRU, Tel. Water: hence

Niru agni vendra paku, Tel. Jussieua villosa, *Lam.*—*W. and A.*, 1041—J. exaltata, *R.* ii, 401—*Rheede*, ii, 50; Properly Ammania vesicatoria, *Pt.* i, *p.* 12. The word means "the burning leaf growing in water."

Niru bachchali, Tel. Jussieua repens, *L.* —*R.* ii, 401—*W. and A.*, 1040.

Niru boddi, or Boddi, Tel. Rivea hypocrateriformis, *Ch.*

Niru budiki, or Antara tamara, Tel. Pistia stratiotes, *L.*

Niru chikkudu, Tel. Lablab, *sp.*

Niru chirri, Tel. Centrostachys aquatica, *Wall.*—*W. Ic.*, 1870. Achryanthes aq., *R.* i, 673. The syn. in Sanscrit is Markshah, which according to W., is Amarantus oleraçeus.

Niru ganneru, Tel. Polygonum rivulare, *Kon.*—*R.* ii, 290, also Polygonum glabrum, *Willd.*—*R.* ii, 287—*W. Ic.*, 1799, also Hydrocera triflora, *W. and A.*, 463.—Impatiens natans, *R.* i, 652. The name is applied to any narrow-leaved sp. The syn. Nichulah, according to W., is Barringtonia acutangula.

Niru gili gich'cha, Tel. Crotalaria quinquefolia, *L.*—*R.* iii, 279—*W. and A.*, 606—*Rheede*, ix, 28.

Niru gobbi, Tel. Asteracantha longifolia, *Nees.*—*W. Ic.*, 449—Ruellia lon., *R.* iii, 50—*Rheede*, ii, 45.

Niru goranta or Nalla pedda goranta, Tel. Barleria cristata, *L.*—β rosea. A light-tinted Goranta of a pale red colour.

Niru ippa, Tel. The name implies a Sapotaceous tree frequenting water. Sk., Gourasakah is, according to W., a sp. of Bassia.

Niru jiluga, or Jiluga, Tel. Æschynomene aspera, *L.*

Niru kacha, Tel. Pontedera vaginalis, *L.* —*R.* ii, 121; *Cor.* 110—*Rheede*, xi, 44. A doubtful name from Roxburgh.

Niru kussuvoo, Tel. Commelyna cummunis.

Nirupadi, Tel. *Br.* 502, a plant called Karkoji.

Niru pavila, Tel. Bergia verticillata, *Willd.* —*R.* ii, 456; B. aquatica, *Cor.* 142—*Rheede*, ix, 78.

Niru pippali, Tel. Pongatium indicum, *Lam.*—Sphenoclea zeylanica, *R.* i, 507.

Niru prabba, or Bettamu, Tel. Calamus rotang, *L.* The genus delights in marshy plains but C. Rotang especially.

Niru tamara, Tel. Pontedera hastata, *L.*—*R.* ii, 121; *Cor.*, 111. This name rests on Roxb.'s authority alone.

Niru tota kura, Tel. Amarantus, *sp.* The common cultivated species, requires plentiful watering.

Niru tumiki, or Niti tumiki and Eru tumiki, Tel. Diospyros, *sp.* Ebenaceous tree frequenting water? Sk. syn. is Dirgha patraka.

Niru talavapu, Tel. Desmodium natans, *Willd.*—*W. and A.*, 835—Mimosa nat., *R.* ii, 553: *Cor.* 119. Nir tavili means touching the water refering to the floating habit characteristic of this plant.

Niru vanga, Tel. Solanum melongena, *L.* —S. longum, *R.* i, 567.—*Rheede*, x, 74. This well known variety is under culture at all seasons and requires much water, hence the name.

Niru veniki, Tel. Ottelia alisnoides, *Pers.*, also Damasonium indicum, *R.* ii, 216; *Cor.* 185; *Rheede*, xi, 46. This name does not seem to be right, the plant is called Gurrapu dekka.

NIRULLI, Tel. Allium cepa, *L.*—*R.* ii, 142, *Br.* 502.

NIRVALA, Malbal. Croton tiglium, also Cratæva nurvala, *Ham.*

NIRVALUM, Tam. Croton tiglium. Nirvalum yennai, Tam. Croton oil: Napaulah oil.

NIRWANA or Nirvana, or Nigban, in buddhism, final emancipation, a buddhist idea of annihilation, of the spirit's extinction; but Bunsen asserts it to mean the absence of desire in this life; inward peace. M. St. Hilaire, M. Eugene Burnouf and Prof. Max Muller, identify the Nirvana of Buddha with absolute annihilation, the pure not being, in which there is no absorption in the higher life of the uncreated essence, no consciousness of peace and freedom from evil, but the loss of being and consciousness at once. This doctrine is shadowed forth in the despair of Job and Jeremiah; in the deep melancholy of Ecclesiastes; in the choruses of Sophocles, the Apologia of Plato and in the soliloquy of Hamlet, yet this has nowhere led to suicide, as the path to Nirvana, but to fasting, prayer, almsgiving, and self-sacrifice. But the doctrine was offered to people who held to the belief of a natural immortality and metempschycosis, to whom death brought no sure deliverance, but might lead to ills greater than in this world, new forms of human or brute life more miserable than what they had passed through. The life of self-sacrifice of its founder, his voluntary acceptance of poverty, his proclamation of a universal brotherhood, and his making war on the caste system, are remarkable features of his career. But after him brahmanism rose triumphant and drove buddhism into other lands, and the region of Sakya Muni's birth and labours became a place of pilgrimage to peoples from distant countries. The Nirvana of Sakya Muni, according to the Raj-guru of Assam occurred in the 18th year of Ajatra Satru, and 196 years before Chandragupta, the contemporary of Alexander which may agree thus 348 + 196 = 544.—*Bunsen*, *God in Hist.*, *Vol.* i, *p.* 5. See Buddha, Chinese, Inscriptions.

NIRVANA, Hebrew, signifying satisfied or prosperous.

NIRVANEE, Sans. From Nirvanu, liberation.

NIRWAR, see Kush.

NISHA, Hind. See Kush.

NISÆA, the Nisaia of Ptolemy called also Nisa and Nisæa, a city on the upper Oxus, was the chief town of the district, in northern Parthia, famous for its breed of horses, bordering on Hyrkania and Margiana. The fourth settlement of the Arians was in Nisaya (Northern Parthia.) It (v. verse 8.) says "the fifth best land is Nisaya; there Ahriman created unbelief." This is the Nisaia of Ptolemy, famous for its breed of horses, commonly called Nisa, the renowned district of Northern Parthia, bordering on Hyrkania and Margiana. The city of Nisæ is situated on the Upper Oxus. The term "unbelief" signifies the apostacy from pure fire worship. Here, therefore, the first schism took place.—*Bunsen*, *Vol.* iii. See Arians.

NISAETUS BONELLI, *Temm.* The Crestless hawk eagle.

Aquila intermedia,	*Bonelli.*	Nisaetus niveus,	*Jerd.*
M'hor-angah,	Hind.	Rajali,	Tam.
M'hor-angi,	„	Kundeli, small	Tel.

This eagle is about 27 inches long and is found throughout India, in the hilly and jungly districts. It preys on game birds and peafowl, ducks, herons and waterfowl.

NISAETUS NEPALENSIS, *Hodg.*, also N. pulcher, *Hodg.*, Syns. of Limnætus nipalensis, *Hodg.*

NISAETUS OVIVORUS, *Jerd.*, Syn. of Neopus malaiensis, *Reinwardt.*

NISAETUS PALLIDUS, *Hodg.* Syn. of Limnaetus nivæus, *Temm.*

NISARNA, Hind. To blossom, the blossoming of sugar-cane is thought very unlucky.

NISHADA of the Sanscrit writers, a race who seem to have been the occupants of India prior to and opponents of the Aryans and especially to the wild and barbarous forest and mountainous tribes. It is a term applied in the Vedas to the ancient aborigines of India, and Professor Max Muller proposes to apply the words Nishada languages to all the non-Arian tongues. —*Wils.* See India, Siva.

NISHAPOUR, at one time the greatest and richest city of Khorasan, is seated in a plain, formerly irrigated by about twelve thousand acqueducts, most of which have been suffered to fall to decay, and are now destitute of water. This city was founded by Taimuras, and destroyed by Alexander the Great. It was, after the lapse of many years, re-built by Sapor the First; and the statue of that prince was to be seen at Nishapour; until it was overturned, and broken in pieces, by the Arabs. The town and district of Nishapour, are situated about sixty miles to the south-west of Mushed. On the death of Nadir Shah, it was seized by Abbas Kuli Khan, a chief of the Turkish tribe of a Byat. The name is a compound of Ni reed and Shahpoor, and the term Ni, which denotes the produce of the plain in which it stands, was given to distinguish it from the city of Shahpoor in Fars, which was also founded by Shahpoor the First. The fruits of Nishapur are uncommonly fine, particularly melons ; its mountains are cultivated to the very summit. In these mountains, the Ferozah, or Turquoise stone, is found. General Ferrier says he suffered many disappointments at Nishapour, but it was from thence only he could visit the turquoise-mines in the neighbourhood. The mines are near the village of Madene, about thirty-two English miles from Nishapour; the road to it is for the first five miles across a plain of great extent. Salt abounds in this locality, and the principal mine, Dooletaly, is about six miles from Madene. This is an enormous rock, covered on its exterior surface with a thin layer of red clay. The mines are the property of the Government, who lease them to the highest bidder. At present the rent is only 150 tomauns yearly. A good workman can extract about 800 lbs. a day. The salt is beautifully white and of a fine grain. The turquoises are divided into two classes, according to the positions in which they are found. The first, called sangi, or stony, are those which are incrusted in the matrix and which must be removed by a blow of the pick or hammer; the second are found in washing the alluvial deposits, and are called khaki, or earthy: the former are of a deep blue; the latter, though larger from being paler and spotted with white, are of less value. These are seen as if incrusted or glued in the matrix to the number of from twenty-five to thirty, and more or less near one another. Each of these stones is enveloped in a thin calcareous covering, white on the side adhering next to the turquoise, but brown on that next to the matrix. Mr. Fraser mentions that on the 24th of January, about five in the morning, he set off to visit the turquoise mines, about nine fursungs to the westward of Nishapoor. Part of these are but pits dug in grey earth like that of the Khurooch mine, and may possibly be also the remains of some former working. The gem is also found in small veins variously dispersed through the body of the rock ; a man who was working here offered him the produce of his day's labour in an old shoe, consisting of pieces of various sorts and sizes. He ascended to a considerable height to where, in a cleft of the hill, is situated the mine called Abdool Rezakee, from having been discovered, or formerly worked, by a person of that name. The chief excavation is under a great overhanging rock, of the same nature as that of the Madan-e-siah and others, and from this mine were obtained the finest and largest stones of any. In this mine the turquoise matter did not appear to run so much in veins; but this might be accidental, for we were told that the greater part of the gem is found in this manner.—*Fraser's Journey into Khorasan, pp.* 407-413 ; *Kinneir's Geographical Memoir, p.* 185 ; *Malcolm's History of Persia, Vol.* ii, *pp.* 218, 220 ; *Ferrier's Journ., pp.* 105, 106, 107.

NISHAN, Hind. Sign, flag, or standard, synonymous with a company of soldiers.

NISHA-PATEE, Sans., from nisha, night, and patee, lord.

NISHASHTA, Pers. Starch. Nishast-i-gandam, Gluten of wheat.

NISHINDA, or Nisinda, Beng. Vitex negundo, and Vitex trifolia, *Linn.*

NISHKRAMANA, Sans. A going forth, from nir, prep., and krum, to step.

NISIBIS, a fort situated between the Tigris and Euphrates, the possession of which was continually contested by the Romans and Persians. It was taken after Shahpoor had subdued Armenia. Persian authors term this fort Nisibyn and Nisibi.—*Malcolm's History of Persia, Vol.* i, *p.* 97. See Mesopotamia.

NISINDA, also Nisindha, also Seduari, Hind. Vitex negundo and V. trifolia.

NISOMALI, Sans. Polygonum aviculare.

NISO-CHAKA, Sans. Alangium decapetalum, *Lam.*

NISOT, Beng., Hind. Ipomœa turpethum.

NISR, Heb. Eagle.

NISSAB, Ar. (lit. alms) the repeating an attribute of the deity a certain number of times.

NISUNG. In this town, the Tartar husbandmen have a custom similar to those of the Scotch farmers, who plait the first corn cut three-fold, and fix it over the chimney-piece till next harvest, when it is renewed. The Tartars use three ears of barley, which they paste outside, above the door. At Nisung there was not a house in the village but was ornamented in this way. The Tartars are called by the Kunawar inhabitants of the lowest parts, Zhad, Bhoteea or Bootuntee, and their country is often named Bhot and Bootunt; the Tartars are very different in appearance and manners from the inhabitants of the Lower Kunawar; all those of Basihur were formerly under the Chinese. The Tartars of Kunawar are not so stout as those farther to the eastward, and have less of the Chinese features. The others are muscular, well-made, and tall; Gerard saw few under five feet ten, and many were six feet or more; their strong athletic forms were remarkably contrasted with the puny diminutive figures of his attendants, several of whom were inhabitants of the plains. Their countenance is ruddy, and they have small oblong eyes, high cheek bones, thin eye brows, and very few have either mustachios or beards, which they admire much. Many of them, especially from twelve to eighteen years old, are extremely handsome, of a very prepossessing appearance, and fine specimens of Tartar youth.—*Capt. Gerard's Account of Kunawur, pp.* 3 *to* 102.

NITA, Tam. Aloe fibre.

NITAM-PALA, Tam. A Malabar tree that grows to about twelve or fifteen feet long and fifteen inches in diameter: it is not of much consideration; it produces a small fruit which is used by the natives medicinally.—*Edye, M.C.*

NIT BIRALU, Nepaul. Viverra zibetha, *Linn.*

NITI, a pass of Kumaon, in lat. 30° 57′ N., lon. 79° 54′ E; the crest is 16,814; village of Niti, 11,464 feet. It is open from the end of June to October. Niti is considered the best pass between Kumaon and Tibet, and is one of the principal channels of trade between Chinese Tartary and Hindoostan.

NITKI, Rus. Thread.

NITO, a cloth used by the wild natives in Mindoro.

NITI GANNERU, or Bagga patti, Tel. Limnophila racemosa, *Benth.* Any aquatic plant with long, narrow, oleander-like leaves.

NITI TUMIKI, or Niru tumiki and Eru tumiki, Tel. Diospyros, *sp.* So called by the Konda Doralu.

NITRARIA TRIDENTA, a plant of Tunis, the true Lotus of the lotophagi, and Nitraria scoberi, the berry of which is the chief luxury of the tribes of the Caspian desert, might be introduced into India.

NITRAS POTASSÆ, Nitre.

NITRATE DE SOUDE, Fr. Nitrate of soda.

NITRATE OF LIME is recommended as a probable chemical antidote for the salts of the "reh." It has been known that the best remedy for reh is the saline efflorescence of old mortar on walls, or which appear on ground containing carbonate of lime and animal matter. In this substance, nitrate of lime is found, and this salt would act by producing the insoluble carbonate of lime, and the sparingly soluble sulphate of lime, and the deliquescent nitrate of soda, instead of the efflorescent sulphate and carbonate of soda, which are the principal constituents of reh. This is prepared by distilling shora or saltpetre with kahi safed, and neutralizing the acid liquor that passes over with chunam. The natives, in some parts, have long been accustomed to employ "chikna kullur," or earth which looks damp; this earth is found where animal remains are deposited, and usually contains nitrate of lime. The reh is composed principally of sulphate of soda and chloride of sodium, with, in some places, carbonate of soda: the sulphate and carbonate of soda are very efflorescent salts, and melt partly in their water of crystallization at a temperature of about 98°, while they are rather sparingly soluble when the temperature falls below 60°. Hence, during the hot weather the reh melts and percolates the ground to some considerable depth; but as the weather becomes cooler, crystals form in this soil and form a capillary net-work, upon which it travels till it arrives at the surface, where the salt gives off its water of crystallization, and falls into a dry powder by efflorescence. If to a solution of these salts, nitrate of lime is added, no change is produced by it on the chloride of sodium, but the sulphate and carbonate of soda are converted into nitrate of soda, a deliquescing salt, while the lime is changed either into the insoluble carbonate of lime, or the sparingly soluble sulphate of lime, neither of which are efflorescent, or in any way injurious to vegetation.—*Powell's Hand-book; Econ. Prod., Punjab, pp.* 95, 112.

NITRATE OF SILVER. This salt is now made at Lahore for photographic purposes and called kastak, a corruption of caustic.

NITRATE OF POTASH, Nitre.

NITRATE OF SODA.

Nitrate de Soud,	Fr.	Wurfel saltpetre,	Ger.

This salt occurs in Bellary and Hyderabad, where it forms a natural efflorescence. Its chief use is as a substitute for saltpetre for the manufacture of nitric and other acids and chemical substances. It is too deliquescent for making gunpowder, though it answers well for some descriptions of fireworks. It is found in immense quantities in deposits in South America, particularly in the districts of Atacama and Tarapaca in Peru. See Alkaline minerals and Soda.

NITRE.

Siau-shih,	Chin.	Shora,	Hind
Nitrate of potash,	Eng.	Nitro,	It., Sp.
Saltpetre,	„	Nitrum,	Lat.
Salpetre,	Fr.	Nitras potassæ,	„
Nitre,	„	Salitre,	Sp.
Nitrâte de potase,	„	Butl-uppu,	Tam.
Salpeter,	Ger.	Petl-uppu,	Tel.
Saures Kali,	Ger.		

Nitre, or Saltpetre, must early have been known, as both the Indians and Chinese have long been acquainted with the making of fireworks, and the former have an easy process for making nitric acid, in which they have been followed by Geber and other Arabian authors. The names neter in the Old Testament, and nitrum in ancient authors, were applied to carbonate of soda, but they were also used in a generic sense. Nitre is found effloresced on the soil in many parts of India, where there is no animal matter, and being washed out, a fresh crop is formed after a few years. The soil is sandy, with mica interspersed, which will continue to yield a supply of potash, while the nitric acid must be furnished by the combination of the oxygen of the atmosphere with its nitrogen, probably, as suggested by Liebig, by the oxidation of the ammonia which he has proved is always present in the atmosphere. Mr. Stevenson (Prinsep's Journ., ii, p. 23) has detailed the process, and shown that the saline earth contains salts soluble in water, sulphate of soda, muriate of soda, nitrates of lime and of potash. The nitrate of lime is easily converted into that of potash by lixiviating the saline soil over a filter of woodashes, which contains carbonate of potash (the carbonic acid combines with the lime, and the nitric acid with the potash), a carbonate of lime is precipitated, and the nitrate of potash in solution is evaporated and put aside to crystallize. The salt obtained contains from 45 to 70 per cent. of pure nitrate of potash. It is re-dissolved and crystallized, but still contains impurities, which are termed so much per cent. of refraction. The ordinary kinds are called rough or crude saltpetre, and the purer East India "refined." In Europe nitre is prepared artificially in nitre-beds or nitre-walls, and in ditches covered by sheds, where urine is added to different mixtures of earth with refuse vegetables, various animal substances, and calcareous matter, &c. The whole is exposed to the action of the air. The nitrogen, combining with the oxygen, forms nitrates, and the foregoing processes being adopted, similar results are obtained. Nitre is manufactured in many districts of the South and East of Asia.—*Smith ; Royle.* See Saltpetre.

NITRIC ACID.

Maulabker,	Ar.	Acidum nitricum purum,	Lat.
Sterk water,	Dut.		
Aqua-fortis,	Eng.	Spiritus nitrici glauberi,	„
Acide nitrique,	Fr.	Arak-i-shora,	Pers.
Salpeter saure,	Ger.	Aqua forte,	Port.
Suriakhar-ka-tel,	Hind.	Vedi-lunu-rasa,	Singh.
Shore ka tezab,	„	Pettluppu dravagum,	Tam.
Acidum nitricum,	Lat.	Petluppu drava-kam,	Tel.
Aqua fortis,	„		

This was known to Geber, and probably also to the hindoos. In combination with potash, soda, and lime or ammonia, it is found, effloresced on the soil in some countries; also in some minerals; likewise in some vegetables, as in the officinal Pareira root, in the state of nitrate of potash. When manufacturers make nitric acid they employ only half the quantity of sulphuric acid and use nitrate of soda instead of nitrate of potash, because it is cheaper. The acid obtained is of a brownish colour, fumes, and is called nitric acid of commerce. When pure, it is colourless, but as met with in commerce, it is yellowish, owing to its containing nitrous acid in solution; besides which it is often highly diluted, and mixed with sulphuric and muriatic acids. It is exceedingly corrosive, and its taste is sour and acid. Nitric acid is employed in a great variety of chemical processes; in metallurgy and assaying, for etching on iron and copper, in dyeing and in medicine. Nitric acid, is made in Lahore, by acting on pure nitrate of soda with a quantity of sulphuric acid. This sort is used for the purification of silver, and the formation of the nitrate. A less pure kind is made by the action of Kahi (impure sulphate of iron) on nitre, but this is rather a mixture of nitric and hydrochloric acids, and will dissolve gold leaf.—*Royle ; Faulkner : Powell.*

NITRO, It. Salitre, Sp. Saltpetre.

NITRO-MURIATIC ACID.

Acidum nitro-muriaticum.		Acidum nitro-hydrochloricum. Aqua regia.	
Eau regale,	Fr.	Konigswasser,	Ger.

This acid is made by mixing nitric acid with muriatic, and has probably been known since the discovery of these acids. The Arabs must have been acquainted with it, as they had a solvent for gold. Nitro-hydrochloric acid is of a golden yellow colour with the suffocating odour of chlorine, and the irritant corrosive properties of the strong acids. The manufacturers mix gradually in a cooled vessel, and where the fumes can easily escape. Nitric acid 1 part, muriatic acid 2 parts (both by measure). They keep the mixture in a well-closed bottle in a cool, dark place. The resulting acid is not a mere mixture of the two acids, for both become decomposed. It is distinguished by the property of dissolving gold.—*Royle*

NITRON, Potasse nitras, Salpetre.

NITURI or Katou niruri, Phyllanthus multiflorus.

NITYAMALLE or Adavi nitaya mallee, Hibiscus hirtus, *L.*

NITYANANDA, Sans., from nitya, constant, and ananda, joy. See Chaitunya.

NIU-JU also Niu-nai, Chin. Milk.

NIU, Hind. Alnus, *sp.*

NIUMA, Hind. Brassica rapa.

NIUNKAR, Hind. Brassica, *sp.*

NIURTSI, Hind. Artemisia sacrorum.

NIUSKAR, Hind. Brassica, *sp.*; Kharnub nubti, Hind., is Ceratonia siliqua.

NIVARI DHANYAMU, Tel. Oryza, *sp.*

NIVERTTI, see Nibutti.

NIVEŚAM, Tam. Nivesañamu, Tel. a ground of 2,400 feet square of ground.

NIYAL, Hind., of Kangra. A weasel.

NIYAZBO, Hind. Ocymum basilicum.

NIYAMA, Sans. A resolution.

NIZAM, the title of the mahomedan ruler of the kingdom of Hyderabad in the Dekhan, a sovereign, with a British resident at his court. The country of the Nizam is now smaller than it was in the middle of the 18th century. By the treaty with the British Government of 1759, he ceded Masulipatam and other districts; by the treaty of 1766, the Northern Circars, and by the death of its jagheerdar in 1788, the Guntoor Circar. The authority of the founder of the State of Hyderabad at one time extended from the Nerbudda to Trichinopoly and from Masulipatam to Beejapoor. Orme makes it still larger—"in a line nearly north and south from Berhampoor to Cape Comorin, and eastward from that line to the sea." The area of the country the Nizam now holds is computed to be 95,337 square miles. It lies between the 15th and 21st degrees of north latitude, and the 75 and 82 degrees of longitude, forming a lateral square of more than 450 miles each way. This tract is traversed by the Krishna with its feeders, the Beema and Tumboodra, the Wurda and its tributaries,and the Godavery with its tributary streams of the Doodna, Manjera, and Pranheeta. This country of the Nizam, called Hyderabad after the capital, is three times larger than either Mysore or Gwalior—the next two large powers with whom the British have subsidiary treaties, ten times larger than Holkar's country, Indore, and almost as large as both Nepal and Cashmere together—the two independent powers in alliance with the British. The modern Dekhan comprises most of Telingana, part of Gondwana, and that large portion of Maharashtra which is above the western range of ghauts, and which extends from the Nerbudda to the Krishna. Hyderabad in the Dekhan is commonly used in contradistinction to Hyderabad in Sind. This country of the Nizam consists of elevated tableland, never less than 1,800 feet above the level of the sea, and it has always been populated: for it long formed a large part of Telingana.

Assuming the title of Asoph Jah, Nizam-ul-Mulk crossed the Nerbudda at the head of 12,000 men. The fort of Asseerghur was given up to him by Jalib Khan for a sum of money. Soon after, in the month of October 1723, he took an opportunity, on pretence of going on a hunting excursion, to depart for his vice-royalty in the Dekhan; and from that time, although he always professed obedience to the emperor, even when waging war against him, Nizam-ul-Mulk became wholly independent; and the countries south of the Nerbudda, the conquest of which had engaged the Mogul princes in much more than a century of wars, were torn for ever from the throne of Delhi. After the battle of Shukurkhara, Nizam-ul-Mulk had fixed his eye on Hyderabad—the ancient capital of the Kootub Shahee kings—as fitted for the seat of government of the independent sovereignty which he himself had founded; and it was very desirable for this purpose to remove the Maharatta collectors from that quarter on any terms.

One of the traditions of the Nizam's ancestry is that the family is of Tartar origin, and claims descent from Baha-ud-Deen—a person much celebrated for his devotional zeal as well as for the austerity of his life. He took the appellation of Khajeh Nakshbund, and was the founder of the order of Nakshbundee Dervises which still prevail in India, Turkey and Tartary. His descendants to this day generally prefix the word Khajeh to their names, and distinguish themselves by the appellation of Nakshbundee. Khajeh is a term of honour usually applied to persons who are eminent either for their sanctity or learning. The literal meaning of Nakshbund is fixing an impression; and the term was figuratively adopted by Baha-ud-Deen. Nizam-ul-Mulk was the Pugri buddul Bhae, or 'turban-exchanged brother,' of the Hara prince. When Asoph Jah, Nizam-ul-Mulk died in A. D. 1748, he was 104 years old. He left five sons; Ghazi-ud-Deen, Nazir Jung, Salabat-Jung, Nizam Ali and Basalat Jung, of whom, the second son Nazir Jung succeeded. For centuries an intermittent war had raged between the great Moguls at Delhi, and the mussulman princes of the Dekhan. Every disaffected chieftain in the court of the Mogul, every rebellious prince and every statesman under a cloud, sought to make his way to the Dekhan, where he might at least find a refuge from his enemies if not the means of revenge. At last the Moguls established a grand army in the Dekhan, which became famous in the reigns of Shah Jehan and Aurungzeb. That army became the school of all the great Mogul warriors of the time; of men who not only achieved the conquest of the country but who were subsequently nominated to high military command as subahdars and nabobs; and who subsequently established their real independence in their own provinces, and left the Mogul power at Delhi to fall in pieces before the destroying hands of Mahrattas and Affghans. Foremost amongst these men was the ancestor of the Nizam of the Dekhan. His first title was Asoph Jah, but he is better known by his second title of Nizam-ul-Mulk, or 'Regulator of the State.' The life of this man extended over the extraordinary period of an hundred and four years, and the events with which it was crowded would fill volumes. He was born in 1645, about the time when Shah Jehan was carrying on the conquest of the Dekhan, and when, as we may say, Charles I. was still waging war against his Parliament. He was a youth when the sons of Shah Jehan were waging that terrible war against each other which ended in which the tents of the wandering tribes of Central Asia have always been and still are composed, have supplied the root to the word *νομαδικος*. The nomad tribes of Turkoman, are the representatives of a family which has existed from times anterior to history, and exist at the present time in the immense steppes of Tartary. The Turkoman, out of whom the Turks of the towns and cities of Southern and Western Asia sprung, were, apparently, those of the Persian frontier, the ancestors of the present Yamud, Goklan, Tekke, and Ersan tribes, who lie along the frontier of Persia from the Caspian to the south-western feeders of the Oxus. Except on the valley of the Attruk, where they have developed an imperfect agriculture, more akin to gardening than to farming, they are nomades, with no towns, with more tents than houses, and with pre-eminently predatory habits, as the Persians of Khorasan and Asterabad know to their cost. Unrivalled riders, with a breed of horses that will endure any hardship they are infamous for their forays; and, as they have a great robbing-ground to the south where the occupants are other than Turk, they are more incorrigible plunderers than even the central Kirghiz and Usbek. When settled in more favourable localities they are slow to lay aside their original habits. So far as they are mixed in blood, it is the Persian element that has mixed. Such are the Turkomans. A true picture of Iliyat nomade life is expressed in Isaiah xl, 11, " He shall feed his flock like a shepherd : he shall gather the lambs with his arm, and carry them in his bosom, and shall gently lead those that are with young." As the Iliyat move along, the women are seen with their spinning-wheels on their shoulders, some twisting woollen yarn, others bent forward, and advancing slowly with their children astride on their backs, clasping their little arms around their mother's neck, and twisting their little legs round her waist : the smaller ones are usually tied up in a bag behind the back, while infant babies, together with their clumsy cradles, are hoisted on the heads or shoulders of their fond mothers, sinking under the weight. An Iliyat tribe whom Baron de Bode met, belonged to a Lur stem, which was transplanted into Fars by Aga-Muhammed Khan, the uncle of the late Fat'h-Ali-Shah, from Luristan Kuchuk. After his death, many returned to their primitive encampments in the Zagros chain, but some remained behind. The word Iliat or Ilat, is derived from Eel, " a tribe." It is also expressed by Zem or Zim, which Ibn Haukal explains by the equivalent Arabic, Kabilah. Many of the nomades met with by Vigne were of a sickly complexion, attributed to the pernicious alkaline quality of the water. The diseases to which they were most subject were fevers, cutaneous and nervous disorders, and especially blindness. The Dhangar or shepherd race of the peninsula of India are its sole nomade people, but their movements are restricted to the forest and open tracts. The nomades of S. Asia, on the contrary move for some hundred miles to the garm sair and sard sair lands. Residents of British India who have witnessed a large Banjara camp migrating, will have seen a true picture of the nomade life of Central Asia. Turanian, Nomadic or Allophyllan are names applied by Pritchard to all languages not belonging to the Arian or Semitic, and which comprise all languages spoken in Asia or Europe not included by him under the Arian and Semitic families, with the exception perhaps of the Chinese and its dialects : These are,—

Tungus,
Mongol,
Turki,
Samoiede,
Finn.

The writers on this class of tongues are Rask, Klaproth, Schott, Castren, and Muller. But Muller admits that the characteristic marks of union, ascertained for this great variety of languages are as yet very vague and general, if compared with the definite ties of relationship which severally unite the Semitic and Arian. The Turanian languages occupy by far the largest portion of the earth, viz., all but India, Arabia, Asia Minor and Europe, but except agglutination there is not a single positive principle, which can be proved to pervade them all. It has points of affinity with the languages of Africa and America and even with the Chinese.—*Essay on the Origin of Language, by F. W. Farrar, A.M., London*, 1860 ; *Latham, Nationalities of Europe, Vol.* ii, *p.* 70-1 ; *Baron C. A. De Bode's Travels in Luristan and Arabistan, pp.* 118-19-255 ; *Ouseley's Travels, Vol.* i, *p.* 307 ; *Vigne's A personal Narrative, p.* 83.

NOMORCHI, Lepch. Decaisnea.

NOMRI, Hind. A fox, see Lumri, Noomri.

NOMURDI, a tribe in the hill tract on the western side of the Indus. In Rennell's time they were very troublesome to the villagers and travellers. The Ayin Acbaree names this tribes' strength about the year 1560, as 7,000 infantry, and 300 horsemen. This being a part of the tract named Indo-Scythia by the ancients, a doubt arises, whether they may not be the descendants of the Scythian Nomades, if the Scythians, on the borders of mount Imaus, did really call themselves by that name, and that it was not a term applied to them by the Greeks alone.—*Rennell's Memoir, p.* 185.

NONA, Malay. Anona reticulata, Bullock's heart.

NONCHA, Hind. Portulaca oleracea.

NONEA ROSEA, one of the Boragineæ, a plant of no great beauty, may be raised in common garden soil.—*Riddell.*

NONGOLIAH, Uria. Conocarpus latifolia, *Roxb.*, *W. & A.*, *W. Ic.*

NONGYA-CHOR, Beng. Felis tigris, *Linn.*

NONNUS, see Yavana.

NONPAREIL, see Capers.

NOOCHIE OIL, Anglo-Tam. Oil of Vitex negundo.

NOOLSHIMA, Nepal. Ehretia serrata, *Roxb.*

NOOGA-GASS, Singh. Ficus laccifera, *Roxb.*

NOOLI-TUDDA, Tel. Helicteres isora, *Linn.*

NOOMRI, Duk. Vulpes bengalensis, *Shaw*, the fox.

NOOMRI, Loomri or Looka, all of which mean fox, a sub-division of the Baluch race. These are the Nomadies of Rennell.—*Tod's Rajasthan*, *Vol.* i, *p.* 62.

NOONA BARK, of Morinda umbellata, yields the Noona dye famous in Tanjore, where the plant is grown in large quantities, the colour is red but not so bright as that extracted from the Imboora, which is exported to Madura and with it the famous Madura turbands are dyed.—*M.C.C.*

NOONBORA, Beng. Ionidium suffruticosum.

NOON-DAB, Hind. From Noon or loon, salt, and dabna, to dip, bespatter, or sprinkle, a custom among the Rajput races, of dipping the hand in the salt; the Noon-dab, is the most sacred pledge of good faith. It has had recourse to, to increase the solemnity of an occasion and to banish all suspicion of treachery, as well as to extinguish ancient feuds, and reconcile chiefs who had never met but in hostility.—*Tod's Rajasthan*, *Vol.* ii, *p.* 409. See Munwar-piala.

NOONIAREE, Looniaree or Noononea, Uria. A common tree of Ganjam and Gumsur, of extreme height 36 feet, circumference 4 feet, and height from the ground to the intersection of the first branch 7 feet. Used for firewood and ploughshares. The bark is employed medicinally.—*Captain Macdonald.*

NOONYA, Beng., Hind. Portulaca oleracea, and Ærana scandens.

NOORPOOR, see Kohistan.

NOORZYE, see Affghan.

NOOS, see Adam.

NOOSHKY, is on the borders of the Seistan desert. See Kelat, Nushki.

NOOTKANEE, see Khyber.

NOPHEE, Heb. Emerald. The Nophek of the Old Testament, translated emerald, seems to have been a carbuncle or *ανθραχ*, but under this term, the ancients included all gems of a red colour, such as hyacinths, rubies, garnets. At present the carbuncle is a gem manufactured from the garnet. The carbuncle, in Hebrew, Barakat, signifying flashing stone, or lightning stone, was supposed to fall from the clouds amid flashes of lightning. Carbuncles of superior brilliancy are called "males," and those of superior colour, females.

NORAY COONGILLIUM, see Dammar.

NORD CAPER WHALE, or Nord kapper whale, variety of Balœna mysticetus.

NORFOLK ISLAND PINE, Araucaria excelsa, grows also in New Caledonia, Botany Island, Isle of Pines; it is a majestic tree growing to the height of from 60 to 228 feet, with a circumference of 30 feet. Its wood is useful for carpenters' in-door-work but is too heavy for naval purposes as spars.

NORFOLK ISLAND GRASS TREE, Freycinetia baueriana, belongs to the Pandaneæ or Screw pines. Its stem is marked by rings, like those of the cabbage where the old leaves have fallen off, and it lies on the ground, or climbs like ivy round the trees. The branches are crowned with crests of broad sedge-like leaves, from the centre of which the flowers arise, the petals of which are a bright scarlet, and the sepals green, and, when they fall off, clusters of three or four oblong pulpy fruit, four inches in length, and as much in circumference, appear.—*Keppel's Ind. Arch.*, *Vol.* ii, *p.* 284.

NORIMON, an oblong box, used in Japan as the palanquins in India, carried by means of poles passed through iron loops on either side. There are many kinds of norimon. The Governor has one kind, the priests another, the doctors a third, and, with decisive marks which distinguish the "norimon" of the great from the "kako" of the humble. The norimon in Japan, is what the palkee is in India and chairs in China. They always look as if one side of a pair of flat square scales (such as are seen near stone quarries, or on wharfs) had been run on a pole, and if for a big man, are covered with curtains, if a common hack norimon, it is left in its original naked ugliness and discomfort. The occupant must sit cross-legged, and even then, can hardly raise his head.—*Hodgson's Nagasaki*, *p.* 202; *Frere's Antipodes*, *p.* 431.

NORMAN, Charles, General, c. b., was Acting Adjutant-General of the Bengal army: when serving before Delhi, both pen and sword were ever in his hand, and to those who knew him then and fought beside him, his name will be inseparably connected with Metcalfe's ruined home, and that intrenched position on the heights commanding Delhi where Hindu Rao once lived. In the amalgamation it was his plan of establishing a Staff Corps that was followed, and the immediate pressure was removed, but the real difficulties of the situation were increased ten-fold, and after six years of, for an army, demoralization and anxiety, only in 1867 was some conclusion come to, but even then leaving the whole of the officers utterly disassociated. In practically endeavouring to obliterate all former service, claims and regimental pride, the government pursued an un-wise policy, calculated to estrange the army. —*Thurlow*, *pp*. 26, 27-28.

NORMAN FRENCH, see Hindoo.

NORNE of Tavoy, Castanea martabanica.

NOSHADAR, HIND. Hydrochlorate of Ammonia, Sal-ammoniac.

NORTH ARCOT, a revenue district of the Madras presidency, embracing a portion of the country with peoples speaking the Telugu and Tamil. It is rich in iron ore and minerals. Kurse Mungalum near Vellore has a stone called Muddy Sagapoo Culloo, a brown steatitic sandstone. Baulapilly near Arcot has grey Chert for paving porcelain mills. Chumbaukum-droog, has a quartzose rock suited for paving porcelain mills. Ennore grit, is a nodular, bluish gritty limestone from the bed of the Pulicat Marine Lagoon. Trichoor has a brownish sandstone. Muddoor, Arnee, bluish grey sandstone suited for grindstones. Triputty and Kurkumbady, yellow red and purplish sandstones.

NORTHCOTE, Sir STAFFORD H., an enlightened statesman, for many years Secretary of State for India. He gave every support to the progress of railways, canals, channels of irrigation and sanitation.

NORTH CANARA,a Bombay revenue district in the country on the sea coast of the western side of the peninsula of India. With the exception of the transfer of North Canara from Madras to Bombay and the addition of Sindh to Bombay on the conquest of that province, these presidencies have retained very nearly their original limits, including the provinces conquered from the Peshwa and Guikwar between 1800 and 1818.

NORTHERN CIRCARS. This Madras district comprises a narrow tract of land extending (between 16° and 20° N. latitude) from the sea coast on the eastern side of the peninsula to the eastern ghauts by which it is separated from the great table-land. It is a tolerably level district, with occasional spurs from the ghauts approaching the sea coast; has little or no natural wood, except towards the ghauts, the sides of which are in some places clad with thick jungle of bamboos and forest trees, and, with the exception of large groves of palm trees, has but little wood throughout it. This district is perhaps hardly separable from the Carnatic by its physical features alone, but the difference of latitude, causing a change in climate and a greater variation of temperature, perhaps authorise its separation. It has a small body of native soldiers in the towns of Waltair, Berhampore, Sumbulpore, Vizagapatam, Vizianagram, Cuttack and Samulcottah.

NORTHERN INDIA, a term by which, in British India, the provinces about Oudh and Delhi are designated.

NORTHERN LAPLANDERS, see India.

NORTHERN MEDIA, Northern parthia, see Arians.

NORTHERN SPERM WHALE, Catodon macrocephalus.

NORTH MALABAR, see Kummaler.

NORTH SEA, see India.

NOR-WESTERS, occur in lower Bengal in March and April, accompanying most refreshing falls of rain. The season of the north-westers, is, above all others, that which requires the most attention and care by voyagers on the Ganges. Should one of those squalls approach, and no creek or inlet offer for shelter, when in the wide rivers, there is much danger.—*Rennell's Memoir*, *p*. 361.

NORTH-WEST PROVINCES of INDIA, a provincial subordinate government of British India, including the Doab or Mesapotamia of the Ganges and the Jumna. The provinces lie along the middle and upper course of the Ganges, and extend to the skirts of the Himalaya. These provinces are between L. 30° 7′ and 23° 51′ N., and L. 77° 4′ and 84° 40′ E. They are bounded on the north by the snowy range, the Himalaya, Kumaon, Oudh and the Nepalese Terai; on the south by the Saugor district of the Central Provinces, and the Native States of Bundlekund and Rewah; on the west by the river Tonse, until its junction with the Jumna, thence by the Jumna till the 28th degree of latitude; on the south-west by the Native States of Gwalior, Dholpore and Bhurtpore; and on the east and south-east by the Sarun, Shahabad, Behar and Palamow districts of Lower Bengal. The North-western Provinces contain 36 districts, of which 35 are grouped into 7 commissionerships. The "non-regulation" portions are Kumaon and Gurhwal to the extreme north, Jhansie to the south-west, and Ajmere, which is separated from the western boundary by several intervening Native States. This last division from its isolated position, requires distinct demarcation. It lies to the west, extending between L. 22° 16′, and 27° 45′ N., L. 71° 45′ and 77° 22′ E. It is bounded on the east by the Rajpoot States of Kishengurh and Jeypoor, on the north and west by Jodhpore, and on the south by the territory of Odeypoor. The Ajmere division comprises Ajmere proper and Mairwarra. The Mairwarra tract belongs in unequal portions to the British Government, to Mewar or Odeypoor, and to Marwar or Jodhpore. The Mewar possessions consisting of three Pergunnahs, and the Marwar of two, were made over to the direct management of the British in 1822-23. Benares is the most thickly peopled district. The density stands at 797, or, including the military and railway, 803, per square mile. Looking at its 30 millions of people according to creed, nearly 26 millions are hindoos and 4¼ mahomedans. Mahomedans form about a sixth of the whole population, there being only 100 to every 609 hindoos. They are most numerous in Meerut and Rohilkund, where they comprise nearly a fifth of the population; more than half of the entire number of the mahomedans in the North-west Provinces, viz., 2,197.202 out of 4,243,207, reside in those northern districts. The numbers of the different creeds are:

Christian—30,501.		*Mahomedan*—4,105,206.	
European	... 21,831	Not classified	... 2,207,576
Mixed	... 3,968	Sheikhs	... 1,140,208
Native	... 4,702	Pathans	... 515,426
—		Syuds	... 170,248
		Moguls	... 41,748
Buddhist & Jain	... 75,629	*Hindoo*—25,671,819.	
Parsee	... 120	Brahmins	... 3,451,692
Sikh	... 1,425	Kshatryas	... 2,827,768
Other religious sects	...185,977	Vaisyas	... 1,091,250
		Soodras	...18,304,309

The aborigines are returned as 313,215, and seem to be mixed up with the other sects. The numbers of men and boys exceed those of the women and girls.

The intense desire of all the hindoos of India, on religious grounds, is for a son. The boy is reared with care not shown to the girl. The girl is exposed to chances productive of greater female mortality, being married the moment she attains the age of puberty, bearing children at 12 and 13, subject to a sedentary and listless life in the zenana, or one of hardship in the fields, and treated oppressively as a widow. Two-thirds of the population are engaged in agricultural pursuits. The avocations are:

Soldiers	... 20,454	Bards and acrobats	... 3,733
Priests	... 176,701	Servants	...1,413,987
Pundits	... 40,344	Water-carriers	... 154,622
Doctors	... 11,828	Barbers	... 343,893
School-masters	... 5,312	Washermen	... 207,568
Druggists	... 18,497	Sweepers	... 206,413
Surgeons	... 17,458	Inn-keepers	... 16,405
Actors	... 509	Buyers & sellers	... 954,732
Conjurors	... 1,970	Carriers	... 437,333
Picture-painters	... 140	Land proprietors, tillers	17,517,422
Musicians	... 1,320	Labourers	3,824,956
Dancing girls	... 8,065		
Do. boys	... 334		
Rope-dancers	... 165		

Weavers, chiefly of fabrics and dress	... 1,500,000?
Food and drink-producers.	... 1,000,000?
Arts and Mechanics	... 333,333?
Dealers in metals	... 733,038
Do. in Vegetable substances	... 374,826
Do. in Animal „	... 49,876
Book-sellers.	... 787
Gold and Silversmiths.	... 135,515

Non-productive and Indefinite.

Beggars	...479,015	Makers of Caste-marks	... 51
Prostitutes	... 26,806	Wrestlers	... 2
Eunuchs	... 251	Charmers	... 4
Pimps	... 321	Sturdy beggars	... 35
Mourners	... 29	Professional thieves	23
Alms-takers	... 111	Informer	... 1
Pedigree makers	... 28	Hangmen	... 133
Flatterers for gain..	226	Fortune-tellers	... 3
Vagabonds	... 1	Jesters	... 851
House-painter	... 16	Astrologers	... 1,123
Disorderly (badmash)	... 974	Mimics	... 259
Grave-diggers	... 97	Divers	... 143
Ear-piercers	... 18	Miscellaneous	... 22,534

In 1865, the North-west Provinces had 361 to the square mile, excluding Kumaon: the mass of the population are cultivators of the soil. By the revenue settlement of 1833, the Government rent was fixed for 30 years. Its chief towns are Agra, Cawnpore, Allahabad, Benares and Delhi.

The non-regulation portions are Kumaon and Garhwal to the extreme north, Jhansie to the south-west, and Ajmere, which is separated from the western boundary to several intervening native states. This last division from its isolated position requires distinct demarcation. It lies to the west, extending between lat. 22° 15′ and 27° 45′ N.; long. 71° 45′ and 77° 22′ E. It is bounded on the east by the Rajpoot States of Kishenghur and Jeypoor; on the north by Jodhpur and on the south by the territory of Oudeypur. The Ajmir division comprises Ajmir proper and Mairwarra. The Mairwar tract belongs in equal portions to the British Government, to Mewar or Oudeypur and to Marwar or Jodhpur. The first attempt to take a census of the N. W. Provinces was made on the night of the 31st December 1852, and the next attempt was made on the 10th January 1865. Benarese is the most thickly-peopled district, its density being 797 to the square mile, or, including the military and the railway bodies, 803. The most thinly-populated districts are in the Kumaon division, where the density averages 58 to the mile. Large tracts of Gurhwal are thickly populated where the situation is favourable, the cultivation may often be seen stretching high up the hills, terrace after terrace. Of the districts in the plains, excluding the Terai, Lullutpur in the Jhansi division is the most sparsely populated, the average to the square mile being only 127 persons. Ajmere with its population of 160 to the mile comes next, and in density approaches very near to Switzerland, which it slightly exceeds. Of the remaining districts, twenty-nine in number, five an average density of between 200 and 300 persons to the mile; three between 300 and 400; eleven between 400 and 500; seven between 500 and 600; two between 600 and 700, and one about 800. The extremes of density in the sub-divisions into which the districts of the N. W. Provinces are divided, vary from 6,773 to the square mile in the Dehat Amanat of Benares, which comprise the city of that name, to 37 to the square mile in Agoree, Roberts-gunj, in the Mirzapur district. The population of the N. W. provinces is equal to that of Great Britain and Ireland and equal to that of the Madras presidency. Its mahomedan population is a sixth part of the hindoo. Christians are in 1,000 of the population:

Statement of area, population and Revenue of the North-Western Provinces.

DIVISION.	DISTRICT.	CENSUS OF 1852-53.			CENSUS OF 1854-55.						REMARKS.
		Area in square miles.	Population.	Townships.	Land Revenue.	Abkarry including Opium.	Stamps.	Miscellaneous and Sayer.	Customs.	Grand Total.	
DELHI	Bhuteeana	3,017·7	1,12,974	Not given	1,41,936	……	5,538	639	53,171	2,01,284	
	Paneeput	1,269·9	3,89,085	538	8,18,272	7,046	10,092	5,412	………	8,40,829	
	Hissar	3,294·2	3,30,852	653	4,66,287	3.748	7,676	867	7,91,018	12,69,596	
	Delhi	789·7	4,35,744	568	4,41,688	60,965	68,803	7,387	11,66,237	17,45,080	
	Rohtuck	1,340·4	3,77,013	300	6,31,166	3,411	11,710	1,145	………	6,47,432	
	Goorgaon	1,939·1	6,62,486	1,274	10,58,769	6,295	15,148	2,964	**A** 13,81,019	24,64,195	**A** Collections of the Hodul Customs Division.
MEERUT	Dehra Dhoon	673·8	32,083	Not given	42,697	19.298	4.040	1,23,260	………	1,89.295	
	Saharunpore	2,162·3	8,01,325	1,904	10,81,962	39,336	50,195	3.155	………	11,74,648	
	Moozuffurnuggur	1,646·3	6,72,861	1,188	11,09,954	35,490	21,489	3,858	………	11,70.791	
	Meerut	2,200 1	11,35,072	1,638	17,03,096	84,045	54,246	7,642	………	18,49,029	
	Boolundshuhur	1,823·6	7,78,342	1,576	10,69,629	14,829	23,480	8,284	………	11,16,172	
	Allygurh:	2,153·4	11,34,565	1,997	19,74,086	37,874	68,959	12,593	………	20,93,512	
ROHILCUND	Bijnore	1,900 0	6,95,521	3,030	12,03,606	19,625	25,062	7,181	………	12,55,474	
	Moradabad	2,698·8	11,38,461	3,484	13,47,988	39,655	69,970	5,142	………	14,62,755	
	Budaon	2,401·9	10,19,161	2,232	11,19,810	41,269	45,709	3,045	………	12,09,833	
	Bareilly	3,119·1	13,78,268	3,563	17,76,815	1,24,162	91,670	21,098	………	20,13,745	
	Shahjehanpore	2,308·4	9,86,096	2,785	10,59,334	87,651	31,117	2,147	………	11,80,249	
AGRA	Muttra	1,613·4	8,62,909	1,019	16,65,735	30,589	31,041	1,787	………	17,29,152	
	Agra	1,864·9	10,01,961	1,143	16,13,076	50,352	94,063	4,361	19,66,885	37,28,737	
	Furruckabad	2,132 9	10,64,607	2,017	13,36,845	1,19,639	69,677	2,035	………	15,28,196	
	Mynpoorie	2,020·2	8,32,714	1,344	12,63,362	34,572	36,541	963	………	13,35,438	
	Etawah	1,677·0	6,10,965	1,495	12,74,134	21,414	15,621	4,861	………	13,16,030	
ALLAHABAD	Cawnpore	2,348·0	11,74,556	2,257	21,39,950	1,43,460	61,277	8,844	………	23,53,531	
	Futtehpore	1,583·1	6,79,787	1,617	14,25,680	65,965	25,942	989	………	15,18,576	
	Humeerpore, **B**	2,694·6		**C** 997		30,176	10,412	1,824	………	11,76,1 6	**B** Including Non-Regulation Pergunnahs of and Jeitpore.
	Banda							17,135	………	16, ,	
	Allahabad	2,788·7	13,79,67	4,003		1,43,992	77,203	2,645	4,21,271	27,73,	
BENARES	Goruckpore	7,340·2	30,87,874	15,714	21,27,749	2,03,386	1,13,514	53,178	………	24,97,827	**C** include the township Regulation Pergunnahs.
	Azimgurh	2,516·4	16,53,251	6,270	14,90,890	1,01,372	64,874	3,782	………	16,60,918	
	Jounpore	1,552·2	11,48,749	3,431	12,53,786	68,990	50 217	3,318	………	13,76,311	
	Mirzapore	5,152·3	11,04,315	5,280	8,39,509	1,03,930	54,474	20,585	1,19,438	11, ,	
	Benares	995·3	8,51,757	2,296	9,03,645	1,56,876	72,012	4 023	………	11,36,556	
	Ghazeepore	2,181·0	15,96,324	5,088	15.09,405	1,19,905	1 03,535	2,462	………	17,35,307	
	Total of the Regulation Districts	76,198·7	304,73,927	81,908	407,47,984	20,61,334	15,11,376	3,48,611	58,99,039	505,68,344	
NON-REGULATION DISTRICTS. SAUGOR & NERBUDDA TERRITORIES	Saugor, 1847-48*	1,857·9	3,05,594		7,87,114	27,598	26,320	6,578		8,47,610	
	Dumoh	2,428·2	3,63,584								
	Jubbulpore	6,237·3	4,42,771		6,46,631	51,500	26,164	8,544		7,32,839	
	Seonee	1,459·2	2,27,070								
	Mundla	† 6,170·0	† 2,25,092								
	Hoshungabad	1,916·8	2,42,641		4,81,877	64,443	17.637	2,991		5,66,948	
	Baitool	990·5	93,441								
	Nursingpore	501·9	2,54,486		3,16,842	17,976	13,387	1,836		3,50,041	
	Jaloun, **D**	2,313·7	2,46,297		13,76,936	23,121	7,535	20,893		14,28,485	**D** Including Kutchwahagurh.
	Jhansee	1,894·0	3,00,000		4,97,058	14,253	4,497	2,423	**E** 2,68,409	7,86,640	**E** Collections of the Calpee and Rajpore Customs Divisions.
	Chundeyree	556·3	87,260		1,21,716	5,026	1,581	2,107		1,30,430	
JAWUD NEEMUCH	Jawud Neemuch	443·5	84,866		3,55,788	6,221	765	5,834		3,68,608	
NIMAR	Nimar, British and Scindiah's **F**	269·1	25,727		1,50,008	18,636		24,511		1,93,155	**F** Area and population for British Nimar alone.
AJMERE	Ajmere, including all Mairwara, **G**	2,891 2	2,87,290		3,02,274	8,284	11,160	5,606	1,12,147	4,39,471	**G** Including all Mairwara for columns 6-11; but the area and population are for Ajmere and British Mairwara.
KUMAON	Kumaon	11,972·9	6,05,830		2,01,804	4,262	11,704	9,544		2,27,314	
	Gurhwal										
	Total of the Non-Regulation Districts	41,402·5	37,91,949		52,38,048	2,41.320	1,30,760	90,867	3,80,556	60,71,541	
	Grand Total	1,17,601·2	342,65,876	81,908	459,86,032	23,02,654	16,32,126	4,39,478	62,79,595	566,39,885	

* No Census of later date.

† From Board's Statistical Precis of 1854-55.

NORTH-WESTERN HIMALAYA. When the British conquered the Panjab, or valley of the five rivers, they found a traffic already in existence between Central Asia and the Punjab. For ages past, the hardy Toorki trader had brought his churrus, pushum and turquoises from beyond the Karakorum passes and had taken back opium, dyed cloths and trinkets. Yarkand was under its native sovereigns, and Cashmere and India were ruled by mahomedan potentates. The intervening territory of Ladak was mildly governed by a Thibetan chief owing a nominal fealty to L'hassa. All was well. Subsequently Cabul took Cashmere, a revolution passed over East Toorkistan and the Chinese became its rulers. After that Cashmere, and subsequently Ladak itself, came, under the Sikh sway; but the trade of centuries could not die out in a day. The heaviest imposts were laid on the traffic. The trade with China was fostered and had displaced to a great extent the traffic with India. The Russian fairs began to attract traders. The trade with India would have been entirely ruined, but that the British had approached the furthest confines of North India, British officers appeared at distant places like Ladak, and the trade began to revive. Gradually the line of traffic began to turn east and to pass into the Punjab by Kooloo. The difficulties in the old routes are very great. On every high pass in the interior of the great Himalaya there are spots marked by bleaching bones, where hundreds, attempting to cross late in the season, have been overtaken by a storm and buried beneath the snows. Beyond Khoksur there is the old road, not one mile of which is free from the most serious obstructions and dangers. From Koolloo to Bajoura, south, the road is excellent. The Bajoura pass rivals the Rotang pass in its difficulties. The ascent from the north, especially, is dangerously steep and abrupt, and in some parts nearly impassable. The dâk route from Simla to Kangra, Dhurmsalla, Dalhousie, Jummu and Cashmere, which passes through Mandi, is the very worst of all made or unmade hill roads. After passing along the beautiful roads in the valley of the Sutlej, by Belaspoor and Suket, the road beyond Mandi becomes impassable. The continuation pierces the Kangra valley, runs through the tea gardens at Holta. From Kangra the road passes on either to Noorpoor, Puthankote, and thence to Umritsur on the west, or on the south through Hoshiarpoor to Jullunder and Loodiana. Another road south-east from Koolloo (at Bajoura) unites it to Simla: after Ladak and Srinugger, Koolloo is the place of largest traffic for the trade of Central Asia.

The other main course of traffic that the British Government has been opening up, is the great Thibet road. Proceeding north and north-east from Simla up the Sutlej valley, 32 out of 52 miles had been opened out in 1865, and two bridges, 140 and 120 feet span respectively, completed. The desert country in which the work has been carried on, may be conceived from the fact that a thousand mules were constantly coming up from and going down into the plains for the food of the working parties. The gradient is a very easy one, and the road, so far completed, is hailed with satisfaction by the natives. The annual snows, however, have broken up some portions, and indeed all hill roads must be constantly supervised and annually repaired. But it is stated that this road is to terminate at Chine, near which British territory ends. The great road from L'hassa viâ Gartok to Ladak passes not far off, when the Koolloo and Chine routes are all opened out; we may expect a great annual Simla Fair to rival the vast gatherings of Russia. —*Friend of India, April* 20, 1865.

NORTON, John Bruce, Barrister at Law, for nearly thirty years practising at the Madras Bar, held successively the offices of Counsel for Paupers, Clerk of the Crown, Government Pleader, Law Professor in the University of Madras in Equity, Public Prosecutor and Advocate General. He was a Senator of the Madras University and Member of the Legislative Council for Madras. He devoted much of his time to promote education, and was long the President of Patcheappah's Institution, was a Member of the Torture Commission, and of the Commission on the Administration of Justice and the author of

Norton's Law of Evidence, which attained a 7th Edition.

Norton's Topics of Jurisprudence.

Norton's Educational Speeches.

Norton's Inaugural Lecture on the Study of the Law.

Norton's Madras and its requirements.

Norton's Administration of Justice in India.

Norton's Leading Cases on Hindoo Law.

Norton's 'Nemisis,' and 'Memories of Newton.'

Norton's Rebellion in India, and how to avoid another. He was appointed

Clerk of the Crown on the 16th June 1845.
Counsel for Paupers in 1847.
Government Pleader on the 1st February 1853.
Professor of Law on the 29th May 1855.
Clerk of the Crown and Crown Prosecutor on the 15th August 1862.
Advocate General on the 2nd June 1863.

NOSCHATUR, Rus. Sal ammoniac.

NOSE-RUBBING, as a salutation, exists in China, New Zealand and amongst the Lapland alps.—*Max. Muller, Chips.*

NOSHERA, a town on the left bank of the Cabul river, the scene of a great battle between the Sikhs under Ranjit Singh and the Affghans under Azim Khan, who however, himself, held back from the battle and ultimately fled, and the Affghans were defeated with great slaughter.

NOSHI, Rus. Knives.

NOSH-I-JAN, Pers. A Persian congratulatory salutation, meaning, may it be a drink of life to you.

NOSHIZAD, see Saurashtra.

NOSOWOI TABAK, Rus. Snuff.

NOSTOE EDULE is used in China as food; Gelidium corneum enters, it is said by some, into the formation of the edible swallows' nests of the Japanese islands. Agar-agar moss is shipped from Singapore to the extent of 13,000 tons a-year. Irish moss, Iceland moss, Ceylon moss, and some others, are also of some importance. Iodine and kelp are prepared to a considerable extent from sea weeds; one species, the Fucus tenax, furnishes large supplies of glue to the Canton market, and the orchilla weed is of great importance to the dyer. In Siberia, Nostoe pruniforme is used.

NOSTRADAMUS gives the following extract from a MS. poem on the virtues of gems, written by Pierre de Boniface in the fourteenth century: "The diamond renders a man invincible; the agate of India or Crete, eloquent and prudent; the amethyst resists intoxication; the cornelian appeases anger; the hyacinth provokes sleep."—*Milner's Seven Churches of Asia, p.* 127; *Simmonds.*

NOTACANTHI, a family of fishes, the genus Notacanthus has five species.

NOTELÆA LONGIFOLIA, the "Ironwood" of Norfolk Island, is used in all wheelwright's work, and is very hard and durable. It is also used for cabinet work, and, when French-polished, it is not excelled by any of the fancy woods—*Keppel's Ind. Arch., Vol.* ii, *p.* 283.

NOTOPTERIDÆ, a family of fishes, comprising five species of the genus Notopterus.

NOTATION. The decimal system of notation has been shown by Woepcke to have entered Europe from India, through the Arabs. Mr. Burnell supposes the cypher represents the large coury used by Indian astronomers, in the decimal places in the very ancient method of calculation by couries.

NOU, or Nagoo marum, Tam. Pterocarpus species.

NOUKA, Beng. Pontedra vaginalis, *Linn.*

NOUKA-KHANDA, Sans., from nouka, a boat, and khanda, a part.

NOURATRI. Amongst the Rajputs, on the Nouratri festival, the sword is worshipped, and with them, this imposing rite is sacred to the god of war. The festival commences on the first of the month Asoj. It is essentially a martial rite and, confined to the Rajput, who, on the departure of the monsoon found himself at liberty to indulge his passion whether for rapine or revenge, both which were necessarily suspended during the rains. Arguing from the order of the passions, we may presume that the first objects of emblematic worship were connected with war, and we accordingly find the highest reverence paid to arms by every nation of antiquity. The Scythic warrior of Central Asia, the intrepid Gete, admitted no meaner representative of the god of battle than his own scimitar. He worshipped it, he swore by it; it was buried with him, in order that he might appear before the martial divinity in the other world as became his worshipper on earth, for the Gete of Transoxiana, from the earliest ages, not only believed in the soul's immortality, and in the doctrine of rewards and punishments hereafter, but, according to the father of history, he was a monotheist; of which fact he has left a memorable proof, the punishment of the celebrated Anacharsis, who, on his return from a visit to Thales and his brother philosophers of Greece, attempted to introduce into the land of the Sacæ (Sakatai) the corrupted polytheism of Athens.

The Nouratri or festival of nine nights, occupying the period from the first to the ninth of the moonlight half of Asoj, is consecrated to the family-goddess, or to Doorga, the consort of Siva. On the 1st of Asoj amongst the Rajput chiefs, the rana of Mewar after fasting, ablution, and prayer, on the part of the prince and his household, the double-edged khanda is removed from the hall of arms (awad-sala), and having received the homage (pooja) of the court, it is carried in procession to the Kishenpol (gate of Kishen), where it is delivered to the Raj-Jogi, the Mahants, and band of Jogis assembled in front of the temple of Devi 'the goddess,' adjoining the portal of Kishen. By these, the monastic militant adorers of Heri, the god of battle, the brand emblematic of the divinity is placed on the altar before the image of his divine consort. At three in the afternoon the nakarra, or grand kettle-drums, proclaim from the tripolia the signal for the assemblage of the chiefs with their retainers; and the rana and his cavalcade proceed direct to the stables, when a buffalo is sacrificed in honour of the war-horse. Thence the procession moves to the temple of Devi, where the Raja krishen (Godi), has preceded. Upon this, the rana seats himself close to the Raj-Jogi, presents two pieces of silver and a cocoa-nut, performs homage to the sword (karga), and returns. On the 2nd of Asoj, in similar state he proceeds to the Chougan, their Champ de Mars, where a buffalo is sacrificed; and on the same day another buffalo victim is felled by the nervous arm of a Rajput, near the Torun-pol, or triumphal-gate. In the evening the rana goes to the temple of Amba Mata, the universal mother, when several goats and buffaloes bleed to the goddess.

On the 3rd, they repeat the procession to the Chougan, when another buffalo is offered, and in the afternoon five buffaloes and two rams are sacrificed to Harsid Mata.

On the 4th, as on every one of the nine days, the first visit is to the Champ de Mars: the day opens with the slaughter of a buffalo. The rana proceeds to the temple of Devi, when he worships the sword and the standard of the Raj Jogi, to whom, as the high-priest of Siva, the god of war, he pays homage and makes offering of sugar, and a garland of roses. A buffalo having been previously fixed to a stake near the temple, the rana sacrifices him with his own hand, by piercing him from his travelling throne (raised on men's shoulders and surrounded by his vassals) with an arrow. Colonel Tod writing in the early part of the 19th century of the reigning rana of his day, says that in the days of his strength, he seldom failed almost to bury the feather in the flank of the victim; but on the last occasion, his enfeebled arm made him exclaim with Pirthi-Raj, when, captive and blind, he was brought forth to amuse the Tatar despot, "I draw not the bow as in the days of yore." On the 5th, after the usual sacrifice at the Chougan, and an elephant-fight, the procession marches to the temple of Asapurna (Hope); a buffalo and a ram are offered to the goddess adored by all the Rajputs, and the tutelary divinity of the Chohan tribe. On this day, the lives of some victims are spared at the intercession of the Nuggur-Set'h, or chief-magistrate, and those of his faith, the Jains. On the 6th, the rana visits the Chougan, but makes no sacrifice. In the afternoon, prayers and victims to Devi, and in the evening the rana visits Bikhiari Nat'h, the chief of the Kanfara Jogi, or split-ear ascetics. The 7th—After the daily routine at the Chougan, and sacrifices to Devi (the goddess of destruction), the chief equerry is commanded to adorn the steeds with their new caparisons, and lead them to be bathed in the lake. At night, the sacred fire (hom) is kindled, and a buffalo and a ram are sacrificed to Devi; the Jogis are called up and feasted on boiled rice and sweetmeats. On the conclusion of this day, the rana and his chieftains visited the hermitage of Sukria Baba, an anchorite of the Jogi sect. 8th—There is the homa, or fire-sacrifice in the palace. In the afternoon, the prince, with a select cavalcade, proceeds to the village of Sameena, beyond the city-walls, and visits a celebrated Gosaen. 9th—There is no morning procession. The horses from the royal stables, as well as those of the chieftains, are taken to the lake and bathed by their grooms, and on return from purification they are caparisoned in their new housings, led forth, and receive the homage of their riders, and the rana bestows a largess on the master of the horse, the equerries and grooms. At three in the afternoon, the nakarras having thrice sounded, the whole state insignia, under a select band, proceed to Mount Matachil, and bring home the sword. When its arrival in the court of the palace is announced, the rana advances and receives it with due homage from the hands of the Raj-jogi, who is presented with a kelat; while the mahant, who has performed all the austerities during the nine days, has his patera filled with gold and silver coin. The whole of the Jogis are regaled, and presents are made to their chiefs. The elephants and horses again receive homage, and the sword, the shield, and spear, are worshipped within the palace. At three in the morning the prince takes repose. The 10th, or Dussera, is a festival universally known in India and respected by all classes, although entirely military, being commemorative of the day on which the deified Rama commenced his expedition to Lanka for the redemption of Seeta; the "tenth of Asoj" is consequently deemed by the Rajput a fortunate day for warlike enterprize. The day commences with a visit from the prince or chieftain to his spiritual guide. Tents and carpets are prepared at the Chougan or Matachil mount, where the artillery is sent; and in the afternoon, the Rana, his chiefs and their retainers, repair to the field of Mars, worship the kaijri tree, liberate the niltach or jay, as sacred to Rama, and return amidst a discharge of guns. On the 11th, in the morning, the rana, with all the state insignia, the kettledrums sounding in the rear, proceeds towards the Matachil mount, and takes the muster of his troops, amidst discharges of cannon, tilting, and display of horsemanship. And while every chief or vassal is at liberty to leave his ranks, and "witch the world with noble horsmanship," there is nothing tumultuous, nothing offensive in their mirth. The steeds purchased since the last festival are named, and as the cavalcade returns, their grooms repeat the appellation of each as the word is passed by the master of the horse; as Baj Raj, 'the royal steed;' Hymor, 'the chief of horses;' Manika, 'the gem;' Bajra, 'the thunderbolt,' &c., &c. On returning to the palace, gifts are presented by the rana to his chiefs. The Chohan chief of Kotario claims the apparel which his prince wears on this day in token of the fidelity of his ancestor to the minor Oody Sing in Akbar's wars. To others, a fillet or balabund for the turban is presented; but all such compliments are regulated by precedent or immediate merit. Thus terminates the nouratri festival sacred to the god of war, which in every point of view is analogous to the autumnal festival of the Scythic warlike nations, when these princes took the muster of their armies, and performed the same rites to the great celestial luminary. If we look westward from the central land of earliest civilization to Dacia, Thracia, Pannonia, the seats of the Thyssagetæ or the western Getes, we find the same form of adoration addressed to the emblem of Mars, as mentioned by Xenophon in his memorable retreat, and practised by Alaric and his Goths, centuries afterwards, in the Acropolis of Athens. If we transport ourselves to the shores of Scandinavia, amongst the Cimbri and Getes of Jutland, to the Ultima Thule, wherever the name of Gete prevails, we shall find the same adoration was paid by the Getic warrior to his sword.—*Tod's Rajasthan, Vol.* i, *pp.* 582, 585, 588; *Forbes' Ras Mala Hindoo Annals,- Vol.* ii, *p.*

NOWREEA, also known by the name of "Marwaree," have clan correspondents in all parts of India. The Marwaree of Jeypoor regulate the exchange operations of almost all natives in India. About A. D. 1750, a few enterprising traders having heard of the rising importance of Umritsur, and stimulated with the hopes of gain, emigrated from Futtehpoor, Chooroo, Ajmere and Ramghur, and opened a few small shops in Umritsur. By A. D. 1850, the few traders expanded into about 70 large Firms, forming the most influential and notable of the mercantile classes of the city. For wealth, for respectability, none can vie with them. It also happens that their bazaar is one of the most improving, the widest, the best drained, and most prominently situated. They manage their concerns well. Their dealings are entirely wholesale. They seldom appear in law courts. Fraudulent insolvencies are unknown. Pecuniary disputes are adjusted before the elders of their people, and while the elders do their part with much apparent equity, the disputants betray none of the litigant spirit so rife among the retail dealers. An average of six lakhs per month has been quoted as the value of their monthly invoices. Native and foreign merchandize, pushmeena, piece goods, spices, metals, drugs—in these they have nearly the sole monopoly. The dealings of the Nowreea with the retail dealers are conducted in ready money. Credit to a small extent, is sometimes given to old-established shops. They dabble a little in usury, and sometimes get bitten.—*Indian Field.*

NOW-ROZ. This celebrated festival of the ancient and modern Persians originated in the time of Jamshid. It falls generally on the 21st of March, is coeval with the vernal equinox, and with the Mukhr Saccarant of the hindoos. This day is observed by the modern Persian, Arab, Turk, Parsee, and several other Asiatic nations, for the computation of the solar year, and for state purposes, such as the collection of the revenue and the arrangement of the agricultural operations of the year. In Persia, the festival is kept up for several days with unusual pomp by all the inhabitants; but in India, among the Parsees, it is simply a day of rejoicing.

The Nowroz or New year's day, amongst the mahomedans, is the day on which the sun enters the sign Aries. On the Noroza, or festival of the new year, the great Mogul used to slay a camel with his own hand, which is distributed and eaten by the court favourites. The great Akbar hazarded his popularity and his power, by the introduction of a custom appertaining to the Celtic races of Europe and the Goths of Asia; and degraded those whom the chances of war had made his vassals, by conduct loathesome to the keenly-cherished feelings of the Rajput. There is no doubt that many of the noblest of the race were dishonoured on the' Noroza;' and the chivalrous Prithi Raj was only preserved from being of the number by the high courage and virtue of his wife, a princess of Mewar, and daughter of the founder of the Suktawut. On one of these celebrations of the Khooshroz, the monarch of the Moguls was struck with the beauty of the daughter of Mewar, and he singled her out from amidst the united fair. On retiring from the fair, she found herself entangled amidst the labyrinth of apartments by which egress was purposely ordained, when Akbar stood before her: but instead of acquiescence, she drew a poniard from her corset, and held it to his breast, dictating, and making him repeat, the oath of renunciation of the infamy to all her race. The anecdote is accompanied in the original description with many dramatic circumstances. The guardian goddess of Mewar, the terrific 'Mata,' appears on her tiger in the subterranean passage of this palace of pollution, to strengthen her mind by a solemn denunciation, and her hand with a weapon to protect her honour. Rae Sing, the elder brother of the princely bard, had not been so fortunate; his wife wanted either courage or virtue to withstand the regal tempter, and she returned to their dwelling in the desert despoiled of her chastity, but loaded with jewels; or, as Pirthi Raj express it: "she returned to her abode, tramping to the tinkling sound of the ornaments of gold and gems on her person; but where, my brother, is the moustache on thy lip!"—*The Parsees*; *Tod's Rajasthan, Vol.* i, *pp.* 72 *&* 345.

NOUSHERWAN flourished about the middle of the sixth century of the christian era. He was contemporary with the Roman emperors

Justinian and Justin, and in his time the fables of Bed pai were translated into Pehlevi. His reign commenced in A. D. 531; and lasted till A. D. 579, and towards the close of it, Mahomed was born in Arabia. Nousherwan invaded Sind or its borders. Various Persian authors, quoted by Sir John Malcolm, assert that this monarch carried his arms into Ferghana on the north, and India on the east; and as they are supported in the first assertion by Chinese records, there seems no reason to distrust them in the second. Sir Henry Pottinger (though without stating his authority) gives a minute and probable account of Nousherwan's march along the sea-coast of Mekran to Sind, and, as Ballabi was close to Sind, we may easily believe him to have destroyed that city. Perhaps the current story of the descent of the ranas of Mewar from Nousherwan may have some connection with their being driven into their present seats by that monarch. Nousherwan was the twentieth of the Sassanian dynasty, was surnamed "the just," and was distinguished for equity, wisdom and munificence. He erected many colleges, caravansaries, and other buildings of public benefit, and gave great encouragement to learning and philosophy.—*Pottinger's Travels, Beluchistan and Sind, p.* 386; *Elphinstone's History of India, Vol.* i, *p.* 401. See Nowsherwan.

NOUSHERWANI, a tribe in Beluchistan. See Kelat.

NOVA, Tam. A Palghat wood of a white colour, used for shafts, cart-poles, &c.—*Colonel Frith.*

NOVA, or Nuvu Tel. Sesamum orientale.

NOWABATTEE, see Cotton manufactures.

NOWBUT, an instrument of music sounding at the gate of a great man at certain intervals.

NOW-CHOW, a small seaport, on the south coast of China, in lat. 20° 52′ N., long. 110° 36′ E.

NOWGONG, a town near the centre of Assam. The boundaries of the Nowgong district are formed on the east by the Dhunseeree and Deeyong rivers, and an undefined, unexplored tract of country occupied by Angami Nagas; on the west, by the Mongah of Desh Cumooreah in the Kamroop district; the Burrumpooter on the north; and on the south by Jynteea, and the Tytingah river in northern Cachar, and a high range of mountains separating Now-Gong from Muneepoor. Within this boundary the number of square miles in the whole district amounts to 8,712.—*Butler's Travels of Assam, p.* 230. See Mikir.

NOWI MALTHEE, Uria. Hiptage maddablota.

NOWLADDI, Can., of Mysore. This wood polishes well, is used for house-building and furniture.—*Captain Puckle's, Cat. Ex.,* 1862.

NOWOOLOO or Nuvulu, Tel. Gingelly seed; Sesamum orientale.

NOW-ROZ, New year's day. See Nouroz.

NOWSAGUR also Nowsadur, Guz. Sal ammoniac.

NOWSARI, in Guzerat, the city of the Parsee priests, whence numbers are sent every year to Bombay, to minister to the Parsee population of that city.—*Parsees, p.* 24. See Kissa-i-sanjan.

NOWSHADUR, Pers. Nowsadur, Sans. Nowsagur also Nowsadur, Guz., Hind. Sal ammoniac.

NOWSHERWAN. The king Kesra Anowshirwan reigned in Persia from A.D. 531 to A.D. 579. See India, Mahratta Governments in India, Nusherwan.

NOWUL-ERAGU, Tel. Vitex arborea.

NOWULGURH contains four thousand houses, environed by a shahr-pannah or curtain. It is on a more ancient site called Roleani, whose old castle in ruins is to the south-east, and the new one midway between it and the town, built by Nowul Sing in S. 1802, or A.D. 1746. —*Tod's Rajasthan, Vol.* ii, *p.* 426.

NOYAKOT VALLEY, in Nepal is about eighteen miles distant from Katmandu.—*Oliphant's Journey, p.* 160.

NOYA-LUTA, Beng. Brachypterum scandens.

NOYEL, a river that rises in the Animallay hills in Coimbatore and joins the Cauvery near Caroor. It rises on the eastern slope of W. Ghauts, lat. 10° 59′, lon. 76° 44′, and runs east into the Cauvery. Its length is 95 miles.

NOZES D'ACAJU, Port. Cashew nuts.

NOZ-MOSCADA, Port. Nutmegs.

NREE-MEDHA, Sans., from nree, a man, and medha, flesh, a human sacrifice.

NRISINGHA, Sans., from nree, a man, and singha, a lion. The man-lion avatar.

NUBARI, Beng., Hind. Cicca disticha, *Linn.* See Nubi.

NUBHASWAT, Sans., from nubhas, the sky.

NUBI, Beng. Cicca disticha, *Linn.*

NUBIA, the Hebrews may have used the word Ophir to designate any gold-producing country, but, however this may be, undoubtedly, Berenice on the shores of the Red Sea was one Ophir. Even while the gold of Ethiopia may have only been picked up by the unsettled tribes of the desert, it had yet been a source of great wealth to Ethiopia; but when Ethiopia was conquered by the Egyptians and its mines were worked by Egyptian skill, the produce seemed boundless. The gold was found in quartz veins within a slaty rock, at various spots in the Nubian desert, between Derr on the Nile and Souakin on the coast. They were said to bring in each year, the improbable sum of thirty-two millions of minæ, seventy millions sterling, (Diod Sic, lib. i, 49) as was recorded in the hieroglyphics under the figure of the king in the Menmonium, who is there offering the produce to Amun-ra. To these mines criminals and prisoners taken in war were sent in chains, to work under a guard of soldiers ; and such was their unhappy state, banished from the light of heaven, and robbed of everything that makes life valuable, that the Egyptian priests represented this as the punishment of the wicked souls in the next world. No other known mines were so rich. From the word Noub, gold, the country received the name of Nubia, or the land of gold, and gold was shipped from the port afterwards by the Ptolemies, named the Golden Berenice. Gold was henceforth more abundant in Egypt than in any other country in the world; and every natural product must have been dearer. Under these circumstances, while they may have inported iron and copper from Cyprus, oil and silver from Greece, with a few other articles, from Arabia and Palestine,. they could have exported very little beyond gold. The gold mines helped the people's industry in performing their great works in building and in war; but after a time it undermined that industry, and made the country an easier and richer prey for its neighbours.—*Sharpe's History of Egypt, Vol.* i, *p.* 89; *Diod, Siculus.*

NUBRA, the north-western district of Ladak, on the Shayok river, in the north-west Himalaya, is in lat. 35° 36′ N., and long. 77° 78′ E. The Sassar pass is 17,753 feet above the sea. The Nubra, Pangong and Rodok districts, in the basin of the Shayok river, and its affluents, lie on the S. flank of the Kouenlun from Balti to Nari, and have Ladak as their southern boundary. With the exception of Nari, this is the most lofty and sterile part of Tibet, the axis of the Kouenlun being probably upwards of 18,500 feet, the valleys 16 or 17,000 feet and numerous peaks rise 20 or 23,000 feet. The Karakorum pass is 18,300, the salt Pangong lakes 13,400 feet. The villages of lower Nubra are not numerous, but some of them possess very extensive cultivation. From Kashmir eastwards, all the easily accessible portions of the Himalaya are occupied by Aryan hindoos as far as the eastern border of Kumaon and the Kali river separating Kumaon from Nepaul—the Tibetans being here confined to the valleys about and beyond the snow. People of Tibetan blood have migrated into Nepaul, throughout its whole length, and have formed mixed tribes whose appearance and language is more Tibetan than Indian, but whose religion and manners are hindoo. East of Nepaul, in Sikkim and Bhutan the hindoo element almost disappears, and the Thibetans are altogether dominant. Eastward of Kashmir, are the Bhot race in Bulti and Ladak. Bulti includes Hasora, Rongdo, Rong-yul, Shagar, Skardo, Bulti, Parkuta, Tolti, Kartaksho, Kiris, Khaybalu and Chorbat. Ladak or the Botpa, includes Spiti, Zangskar, Purik, Suru, Hembako (Dras,) Ladak proper or Le, Nubra, Rong, Rupshu and Hanle. The language of the Bhotiahs of Tibet, the Bhutiah or Thibetan, is also that of Bhutan and is a connecting link between the polysyllabic and monosyllabic languages. Garhwal is to a large extent Bhot. —*Dr. Thomson's Travels in Western Himalaya and Tibet, p.* 199; *Hooker and Thomson's Fl. Indica, p.* 22. See Hot springs, India, Maryul or Lowland, Kailas or Gangri range.

NUBRA NIRA, see Ladak.

NUBRA-TSHO, see Glacier.

NUBSIR, a river near Bura Bhumoree in Holkar's territory.

NUBTEE, ARAB. Ceratonia siliqua, *W.*

NUCH, HIND. Fraxinus xanthoxylloides, the Crab ash, also Juniperus communis.

NUCHI, TAM. Vitex negundo, *Linn., Roxb.*

NUCIFRAGA, the Nutcracker genus of birds, comprising N. caryocatactes and N. hemispila, described and figured in Mr. Gould's 'Century of Birds from the Himalayan Mountains.' Nucifraga caryocatactes of the pine forests of Europe and Siberia is replaced by N. hemispila in those of the Himalaya generally, and by H. multimaculata about Kashmir.—*Eng. Cyc.*

NUCKA or Nakka, TEL. A fox.

NUCK-CHILINI, HIND. Epicarpurus orientalis, properly nakchilni.

NUCK-TEL, also Mitti-ka-tel, GUZ., HIND., Napthha.

NUCLEOBRANCHIATA, see Carinaria, Molluscs.

NUDDEA, a rich district, to the north of Barasat. Its chief town is Krishnaghur. Much of Nuddea's frame rests upon its being an ancient seat of learning, which has exercised a great influence upon the politics, morals and manners of the Bengalees. The community is for the most part composed of brahmins who devote their lives to study for many years. There are Vaishnavas who possess a respectable body of literature. The very shop-keepers and sweetmeat-vendors are imbued with a tincture of learning. In proof of the great antiquity of Nuddea, the brahmins show their great tutelary goddess called Para-maee, a little piece of rough black stone painted with red ochre, and placed beneath the boughs of an aged banian tree. Nuddea town is on the Bhagarathi river, it has more than fifty tole or seminaries. Choitunya's father resided in Nudeya; at the age of 44, Choitunya appears to have had a divine call, and he embraced a life of mendicity. The Gosaee, his followers, perform the ceremonials of marriage and other rites among themselves. They will also, contrary to the usual custom of the hindoos, dissolve a marriage with as much facility, on an application from the parties. The Gosaee observe none of the hindoo festivals except those of Krishna; but the anniversaries of the deaths of their founders are observed as such. They do not, says Mr. Ward, reject the mythology, or the ceremonies of the hindoos, but they believe that those of Huree (Krishna) only, are necessary. On the nights of their festivals the initiating incantation may be heard resounding through the stillness of the night: Huree, Krishna; Huree, Krishna; Krishna, Krishna; Huree, Huree; Huree, Ram; Huree, Ram; Ram, Ram, Huree, Huree.—*Cole. Myth. Hind., p.* 240; *Tr. of Hind., Vol.* i, *pp.* 38, 39. See Chaitanya, Cheitun.

NUDDI KA SHAIKRA, Duk. Caboose.

NUDELN, Ger. Vermicelli.

NUDERH, see Sikhs.

NUECES D'ACAJU, Sp. Cashew-nuts.

NUFFELL, Tam. A Tinnevelly wood of a red colour; specific gravity 0·717. Used for building in general.—*Col. Frith.*

NUFIL (pl. Nuflen), a voluntary act of devotion.

NUGAR-MOTHA, Cyperus pertennis. Very common at Ajmeer: the root has a pleasant smell: used in hair mesalihs: also considered astringent and to check diarrhœa: one tola is given.—*Gen. Med. Top., p.* 147.

NUGDI, also Chandi, Guz. Silver.

NUGGAR, see Chalukya.

NUGGER, a revenue division of Mysore under a Commissioner, its principal civil town is Shemogah. See Bednore, Bednor, Coffee, Corundum, Tea.

NUGHZ, or Nagaz, see Kabul.

NUGU BENDA, or Tutturu benda, Tel. Abutilon indicum, *G. Don.*; A. asiaticum, *W. and A.*; Sida indica, *R.* iii, 179; S. populifolia, *R.* iii, 179; *Rheede*, vi, 65. These species seem to be identical.

NUGU CHIKKUDU, Tel. Dolichos glutinosus, *R.* iii, 312; *W. and A.* Nugu meaning rough, hairy, pubescent; this name is more appropriate to D. tomentosa, which however differs but little from the other.

NUGU DOSA, or Kuturu budama, Tel. Bryonia scabrella, *L.*

NUH, or Noah, a Hebrew patriarch. See Kohistan, Nepal.

NUH HASEL, see Koh-i-nokreh.

NUKA, Hind. Land on the ridges or banks left by the dry course of a running river.

NUKCHI KI BAJI, Duk. Asclepias volubilis.

NUKERU, Tel. Cordia angustifolia, *Roxb.*

NUKRA, Hind. Silver.

NUKSHATRESHA, Sans. From nakshatra, a planet, and esha, a lord.

NUKTA, a river of Budaon, Moradabad and Bareilly.

NUKTERIS, Gr. Bat.

NUL, Tam. Thread.

NUL, or Nulkhagra, Beng. Amphidonax karka.

NUL, or Nar, Beng., Hind. Grass of which the mats known as "Durma" are made, formed of the stalks split open. See Graminaceæ, Nar, Nal.

NULÆLI ? MARAM, Tam. Guatteria cerasoides, *Daval*; *W. and A.*; *Hook. and Thom.*

NULAM-PALLAH, Tam. A Travancore wood of a dark-brown colour, 2 to 4 feet in circumference, and 30 feet long; used for common houses and carts.—*Col. Frith.*

NULI TADA CHETTU, Tel. Grewia, *sp.* Many species of Grewia yield a valuable fibre. The syn. of this sp. in Sk. is Vishanika, which in W., 792, is said to be Meshasringi, the fruit of which is compared to a ram's horn. This may indicate a kind of Asclepiad or Apocynaceous plant as Cryptolepis buchanani which also yields a good fibre. Br., 504, has Helicteres isora.

NULI TALI, Maleal. Antidesma bunias.

NULITI or Syamali, Isora corylifolia, *Sch. and Endl.*

NULLA, Anglo-Hindi. A bed of a rivulet, or the rivulet itself, the "nala" of the Urdu tongue. The Arabo-Spanish "arroya," a word almost naturalized by the Anglo-Americans, exactly corresponds with the Italian "fiumara," and the Indian nullah.

NULLA, Tel. Black, hence,

Nulla baloosu, Tel. Canthium parviflorum.

Nulla yennai, Tam. Oil of Sesamum orientale.

Nulla ghentana, Tel. Clitoria ternatea, *Linn.*

Nulla gilli-karra, Tel. Fennel flower oil, also Nigella seed.

Nulla kakidum, Tel. Country paper.

Nulla muddee, Tel. Pentaptera tomentosa.

Nulla-roolemara kurra, Tel. Diospyros chloroxylon.

Nulla somutti, Tel. Coronilla picta.

Nulla-tooma, Tel. Acacia arabica.

Nulla umati, Tel. Datura fastuosa, *Willd.* Thorn apple.

Nulla usiri kai, Tel. Phyllanthus maderaspatensis, *Linn.*

Nulla vavali, Tel. Gendarussa vulgaris, *Nees.*

Nulla vellum, Tam. Jagree, coarse sugar.

Nulla woodooloo, also Minomolu, Tel. Phaseolus radiatus, Phaseolus max.

NULLERU TIGE; Nulleru vitulu; Nulleru akoo, Tel. Twigs, seeds and leaves of Cissus quadrangularis.

NULLI, Tam. Ulmus integrifolius, *Roxb.*

NULLIPORIDÆ, see Corallinaceæ.

NULLI RUTIGAH, Tel. Vitis quadrangularis, *Wall.*

NULLI TALI, Maleal. Antidesma alexiteria.

NULLI TUDDA—? Helicteres isora.

NULSHIMA, Nep. Ehretia serrata, *Roxb.*

NULTURA, Hindi. Arundo karka, *Royle.*

NULU, Tel. Thread.

NULU-CHAMPOO, Sans. From nulu, the name of a king, and champoo, a particular kind of composition in which the same subject is maintained in all the varieties of prose and verse.

NULU-DANGA, Sans. From nala, a reed, and danga, a place.

NULU TEGA, or Antaravalli, Tel. Cassyta filiformis, *L.—R.* ii, 314—*Rheede*, vii, 44. The syn. in Sk. is Akasa valle, which name it still retains in Bengal.—*Voigt.*

NUMAZ, Hind., Pers. Prayer.

Fujur ki numaz, morning prayer.
Zohur ki numaz, mid-day prayer.
Usser ki numaz, afternoon prayer.
Mughrib ki numaz, sunset prayer.
Aysha ki numaz, evening prayer.
Numaz ishraq, at 7½ a.m.
Numaz chasht, at 9 a.m.
Numaz tuhujjoor, after 12 p.m.
Numaz turaweeh, after 8 a.m., a particular form of prayer not of divine command.
Numaz-i-junaza, the funeral service.
Numaz gah or Eedgah, place of public prayer.
Numaz kurna, praying, one of the points of the mohammedan religion.

NUMBER. This English word has been added to all the languages of India. The number seven is used frequently in scripture, not to signify a definite, but a large and sufficient quantity: hence, Daubuz states its Hebrew etymology to signify fulness and perfection; and Philo and Cyprian call it the completing number. "The barren hath borne seven," said Hannah in her song, meaning a great number. The victims under the Jewish law, bled by sevens; the golden candlestick had seven branches, bearing seven golden lamps; the mercy-seat was sprinkled seven times with the blood of the atonement; and to sacrifice by sevens, was a characteristic of great solemnity in patriarchal times. The key to this rite, says Horsley, is the institution of the Sabbath, the observance of the seventh day being the sacrament of the ancient church. The numbering by seven was doubtless taken from the phases of the moon. The number ten is often used in scripture to denote frequency and abundance: and is evidently taken from the ten fingers on the hands. "Thou hast changed my wages ten times;" *i. e.*, frequently changed them: Gen., xxxi, 7, 41. "Those men have tempted me now these ten times:" Num., xiv, 22. "These ten times have ye reproached me:" Job, xix, 3. "He found them ten times better than all the magicians:" Dan., i, 20. The ten days are again interpreted, as indicating the shortness of the persecution, in the same sense as they are employed by Terence: "Decem dierum vix mi est familia," I have enjoyed my family but a short time. There is in India a very remarkable use of seventy-four, in epistolary correspondence. It is an almost universal practice in India to write this number on the outside of letters; it being intended to convey the meaning that nobody is to read the letter but the person to whom it is addressed. The practice was originally hindoo, but has been adopted by the mahomedans, when correctly written, it represents an integral number of 74, and a fractional number of 10.—*Tod's Rajasthan; Elliot's Supp.; Milner's Seven Churches of Asia, pp.* 23, 205; *Heaut. Act.* 5, *S.* lv.; *Prolegem. ad Ignat.* See Seven; Seventy-four.

NUMEERI, *Tbl.* Terminalia paniculata. *W. & A.*

NUMENIUS, a genus of birds of the family Scolopacidæ. Numenius arquata, the common curlew of Europe, North Africa, Asia to Japan, Malasia: very common in India. Numenius phœopus, the Whimbrel of Europe, Asia, North Africa: common in India, along sea-coasts and estuaries.

NUMGEA, see Kunawer.

NUMIDA MELEAGRIS, see Pavo japonensis.

NUMIDA PTILORHYNA: the Guinea fowl is believed to be descended from the Numida ptilorhyna of the hot arid parts of East Africa, but it has become wild in Jamaica and St. Domingo, and has become small with black legs. The Guinea fowl is the Bohemian of the barn-yard. They are hardy, and prolific and are valuable in gardens, as they rarely scratch the ground, are eager in their search for insects, and, with a scraping motion of their bill, gather the seeds of grasses.—*Darwin.*

NUMMULITE.

Shudnaj udsee, Arab.

Officinal with the natives. They are lentil-shaped greyish pebbles, of various sizes, consisting of carbonate of lime and iron with a nucleus of calcareous crystals. The hakims administer them in eye-diseases and ulcers.—*Royle, Honigberger.*

NUMOOCHEE-SOODANA, Sans. A proper name joined to stood, to kill.

NUMRI or Lumri, the people of Luz, a dependency of Kelat. The clan can send about 1,600 fighting men. They are mahomedans.

NUMUCHISADANA, see Indra.

NUMUK CHUSHEE, Hind. A mahomedan ceremony.

NUMUSKARA, Sans. A reverential mode of obeisance, from namas, a bow, and kri, to make.

NUN. Buddhism, which had assumed a distinct form in the middle of the third century B. C. became powerful during the Greek connexion with India. Hindoo women embracing buddhism became prominent. They not only began to frequent places of public worship, but came forward to join the clerical body and were admitted as nuns. Maha Prajapati was the first female admitted to the order. The daughter of Asoka, Sanghamitta, also entered the church, taking the usual vow of celibacy. She went to Ceylon to ordain the princesses in compliance with the request of her brother Mahendra, who had been sent there to propagate the religion,he being of opinion that a male priest could not ordain a female. Gautama had five hundred women admitted into the order. The nuns were, however, restricted in their liberty in holding communication with male priests. Women of rank, such as Maha Maya, the mother of Gautama and Misaka, were moving freely in society, while other classes of females not only moved from place to place but carried on discussions with men and took part in secessions. There are several notices of educated females. Visakha, a most celebrated buddhist lady, resided in Sakita, or Ayodhya. Nevertheless Buddha's personal opinion as to females leading the religious life was: "Be careful; do not permit females to enter upon my law and become Samarans." He said, "What is named woman is sin," *i. e.*, that she is not nice but sin; and "it is better for a priest to embrace the flame than to approach a woman, however exalted her rank." Mendicants and novices were not permitted to look at a woman. Priests were not allowed to visit widows, grown up virgins, or women whose husbands were abroad. If a woman had a fall and required to be lifted up by the hand, no buddha would help her, because it was considered sinful to touch a woman, whether she lived or died. The Patimokhan forbids not only "the contact with the person of a woman," but "impure conversation with a woman," sitting on the same seat with her, reclining with her on the same place, being alone with a woman, accompanying her on a journey, and preaching more than five or six sentences to a woman except in the presence of a man who understood what was said. And yet according to Hinao, Buddha accepted the invitation of Ambasali, the celebrated courtesan of Vaisali, "who took her seat on one side of him." The buddhist women were clad in robes. The king of Kosala presented to each of his five hundred wives "a splendid robe." The Bhilsa monument shows the buddhist female drapery —"a long flowing vest resembling that which we see in Grecian sculpture. Fa Hian, who came here in A. D. 399 says that "the females were kept down and ordered to follow certain precepts." He cites the instance of brothers marrying non-uterine sisters in the case of the sons of one of the kings of Potala settled near the hermitage of Kapila. As to caste, he says, that although the principle in the selection of the chief of religion was the moral merit, inasmuch as Sakya was a Kshatriya, and his successor a Vaisya, and his successor a Sudra, yet the son of the king of Kapila by the daughter of a slave was not admitted into the church. When he entered, the cry was, "The son of a slave dares to enter and be seated here." In the drawings of the excavated temples of Ajanta "there are groups of women in various attitudes, particularly in the one of performing tapasya or religion on the Asan siddha;" and also "of a female worshipper of Buddha" surrounded by a group, and a brahmin among them whom she is teaching. There are, at present, in buddhist Tibet, many nuns.—*Calcutta Review, No.* 109, *pp.* 45, 46, 47, 48.

NUN, Hind. Salt.

NUNA, Hind. Soda.

NUNA, Tel. Salt.

NUNA. Most of the traders of the snow valleys have some members of their families residing at Daba or Gyani on the Nuna-khar lake. The great body of the hillmen are Rajputs. There are a few villages of brahmins, their residences are respectable, and occupy the more elevated portion of the village site.

NUNA MARAM ELLY, Tam. Leaves of Morinda umbellata.

NUNDAN SAR, see Kashmir.

NUNDEE-BRIKHYA, Beng. Cedrela toona.

NUNDIAVUTHEN, Tabernæmontana coronaria.

NUNDIDROOG, a fortified hill in Mysore. See Tea.

NUNE, Tel. Oil, vegetable or animal.

NUNE BIRA, or Neli bira, Tel. Luffa pentandra, *R.*

NUNE GACHCHA, Tel. Cæsalpinia digyna, *Rottl.*, *W. and A.* 871.

NUNE PAPATA, or Papata, Tel. Pavetta indica, *L.*

NUNJU, also Nunjunda maram, Tam. Balanites ægyptiaca, also Gardenia turgida?

NUNNARI, Tam. Hemidesmus indicus, *R. Brown.* Nunnari vayr, Tam., the root of Hemidesmus indicus, Sarsaparilla.

NUNRE, or Noonre, Hind. Canes of the Bhur grass.

NUPUTKI, Beng. The Heart-pea. Cardiospermum halicacabum, *Linn.*

NUQARA, Ar., a kettle drum.

NUQARCHEE, Ar., a drummer.

NUQDAY KA-JORA, or Chooreean, Wrist ornaments of silver, bracelets.

NUQEEB-UL-FUQRA, a Mohurrum fuqeer.

NUQLEE SHAH, a Mohurrum fuqeer.

NUQSHBUNDEEA, a class of mahomedan fuqeers or devotees. Nuqshbundee, a Mohurrum fuqeer.

NUR, Malay. Cocos nucifera, *L.* Cocoa-nut-palm.

NURALAM, Hind. Eryngium planum.

NURANG KALUNG, Tam. Dioscorea pentaphylla.

NURBUDDAH, a river of the Central Provinces of British India. See Coal, Central provinces, Inscriptions, Narbuddah, Nerbuddah.

NURCHA ?—Corchorus olitorius.

NURDUL, Beng. Panicum interruptum.

NUREE, Beng. Cicca disticha.

NUREH, Ar., Pers. Quick-lime, also a depilatory made of yellow arsenic, (1 oz.) pounded and mixed with quick-lime (4 oz.) till the compound assume an uniform yellowish tinge. It is applied to the skin in a paste made with warm water, and must be washed off after a minute or two, as it burns as well as stains. This admirable invention is ascribed by western authors to the ingenious Soliman, who could not endure to see the state of Bilkis of Sheba's bare legs.—*Burton's Scinde, Vol.* i, *p.* 278.

NUREH, Pers. Quick-lime.

NURENI KALANGU, Maleal. Dioscorea pentaphylla, *Linn.*

NURGIL, see Jallalabad.

NURGUNDI, Beng. Vitex negundo.

NURI, Beng. Cicca disticha, *Linn.*

NURIALAM, Hind. Arum *sp.*

NUR JAHAN, literally light of the world, was the daughter of a Persian of some rank. She was born under circumstances of great privation, whilst her father was journeying towards India. She was married to Sher, an Affghan, by whom she had a daughter. Her husband was killed in some quarrel; and she was then married by the emperor Jehangir who gave her brother Asof Khan and her father high employ. Her husband associated her name with his own on the coins. After the death of Khusru, the emperor's son, who took a dislike to Shah Jehan, the second son, and made efforts to have Shahriar raised to the throne, her husband was taken prisoner by Mahabhut, and in her efforts to release the emperor she was defeated. After Jehangir's death she was pensioned on 25 lacs a year. The father of Nur Jahan is known in history by the names of Mirza Ghiyas Beg and Khaja-Aiyass. The name given him throughout by De Laet (Ethaman Doulet) is obviously a corruption of the title which Jahangir bestowed upon him, I'timad-ud-Doulah, or the "trust of the empire." His splendid mausoleum lies near Agra, close to the railway.—*Calcutta Review, January* 1871.

NURMA, or Chanderi cotton. See Cotton.

NUR-MANJEE, Tam. A Travancore wood of a bamboo colour; used for light work.—*Col. Frith.*

NURMANSHEER, see Kirman.

NUR-MARITHY, a Travancore wood of a brown colour, specific gravity 0·615; used for building common houses.—*Col. Frith.*

NUR-MINAK, Malay. Cocoanut oil.

NURMUDA, Sans., from narma, sport or entertainment, and da, to give.

NURMUK, see Kelat.

NUR NOTSJIL, Maleal. Clerodendron inerme.

NUR PUNGELION, Tam. Bignonia spathacea.

NURPUR: this town derives its name from the celebrated Nur Jahan, the wife of the emperor Jehangir. Its original name was Dahmari, or Dahmala, or as Abul Fazl writes, Dahmahri, although he mentions no fort. The people pronounce the name as if written Dahmeri. It is also called Pat'haniya. Nurpur, at the entrance of the western Himalaya, where they rise from the plain of the Punjab, contains about 15,000 people, principally Kashmirians, engaged in the shawl trade. It is in the great road through which Kashmir, Chenab and Ladak are attainable.—*Cunningham's Ancient Geog. of India, p.* 143. See Shawlgoat.

NURREY-PITHEN-KEERAY, Tam. Rothia trifoliata.

NURRRIALA, Singh. Squill.

NURRI VUNGAYUM, also Nurri vunjyum, Tam. Squill. Scilla indica, *Roxb.*

NURSEEA, a hindoo deity.

NURSOO, alias Narsinga, fourth avatar of Vishnu.

NURTIUNG. The Nurtiung Stonehenge in the Jyntea hills is no doubt in part religious, as the grove suggests, and also designed for cremation, the bodies being burnt on the altars. In the Khassia these upright stones are generally raised simply as memorials of great events, or of men whose ashes are not necessarily though frequently, buried or deposited in hollow stone sarcophagi near them, and sometimes in an urn placed inside a sarcophagus, or under horizontal slabs. The usual arrangement is a row of five, seven, or more erect oblong blocks with round heads (the highest being placed in the middle), on which are often wooden discs and cones: more rarely pyramids are built. Broad slabs for seats are also common by the wayside. Mr. (afterwards Colonel) Yule, who first drew attention to these monuments, mentions one thirty-two feet by fifteen, and two in thickness; and states that the sarcophagi (which, however, are rare) formed of four slabs, resemble a drawing in Bell's Circassia and descriptions in Irby and Mangles' Travels in Syria. He adds that many villages derive their names from these stones, "mau" signifying stone: thus "mausmai" is the stone of oath, because, as his native informant said, "there was war between Churra and Mausmai, and when they made peace, they swore to it, and placed a stone as a witness;" forcibly recalling the stone Jacob set up for a pillar, and other passages in the Old Testament. "Mamloo" is the stone of salt, eating salt from a sword's point, being the Khassia form of oath; "mauflong" is the grassy stone, &c. Analogous combinations occur in the south of England and in Brittany, &c., where similar structures are found. Thus maen, man, or men is the Druidical name for a stone, whence Penmaen-mawr, for the hill of the big stone. Maen-hayr, for the standing stones, of Brittany and Dolmen, the table stone of a cromlech.—*Hooker's Him. Jour., Vol.* ii, *pp.* 320-321; *Notes on the Khassia mountains and people, by Lieutenant H. Yule, Bengal Engineers.* See Burial customs, Cairn, Khassya.

NURU, Sans. Man, from nree, to do right.

NUR UD DIN, a Kurd tribe.

NURU-SINGHA, Sans. From nara, man, and singha, excellent.

NURWUR. Through the mediation of Major J. Stewart, Acting Resident at Sindia's court in December 1818, the pergunnah of Parone and six villages were granted to Madho Sing of Nurwur under the guarantee of the British Government. The rajah had been deprived of his hereditary possessions by Dowlat Rao Sindia, and he took to plundering in Sindia's territories. The object of the settlement was to put a stop to his outrages. In 1857, Man Sing, the ruling rajah, joined the rebels during the mutinies, but surrendered in 1859, on condition of a free pardon and a suitable maintenance being granted to him. His former possessions were consequently restored to him under guarantee.

NUR-ZYE, an Affghan tribe, a clan of the Durani.

NUSA KAMBANGAN, or the Floating island, is about twenty miles long, but in the centre not more than three broad. The water between it and Java being very shallow, there is no channel yet known for vessels to pass out from the harbour to the eastward.

NUSHKI, a western sub-division of Baluchistan. The Zigger Minghal and Rakshani, who inhabit Nushki, have no proper towns or villages, but reside in tents, though not migratory. Their river, the Kaisar, is useless for irrigation and is lost amongst the sands. They cultivate wheat at the skirts of the hill ranges supporting the plateau of Saharawan. Snow seldom falls. The Zigger Minghal at one time occupied the Dasht-i-Giran near Kelat, but their increasing numbers compelled them to migrate into Nushki, dispossessing the Rakshani, of whom two tomans or clans still reside at Nushki. They have a much valued breed of horses called Tarji. Their flocks are very numerous. The original seats of the Eusofzye were about Garra and Nushky, the last of which places is on the borders of Dusht-i-Loot, or Great Salt Desert, and now held by the Beloches under Kelat-i-Nusseer. The Eusofzye were expelled from Garra and Nushky, about the end of the thirteenth or beginning of the fourteenth century of the christian era, and soon after settled in the neighbourhood of Kabul. Ulugh Beg, whose power was, at that time, strengthened by the accession of many Moguls, to rid himself of his troublesome allies, began by fomenting dissensions between the Eusofzye and Muggeeani (for the Khukkye had now broken into independent clans), and he soon after attacked them at the head of that tribe and his own army. He was defeated at first; but having cut off all the chiefs of the tribe at a banquet, during an insidious peace which he had the art to conclude with them, he plundered the Eusofzye of all their possessions and drove them out of Kabul. The Eusofzye, reduced to extreme distress, took the way to the neighbourhood of Peshawar. That country was then in a very different state from that in which it is at present. The tribes who now possess it, were then in Khorasan, and the plain of Peshawar, with several of the neighbouring countries, were possessed by tribes which have since either entirely disappeared, or have changed their seats. Lughmaun was in the hands of the Turkoolani, who are now in Bajour; the tribes of Khyber and the Bungush had already occupied their present lands, but all the lower part of the valley of Kabul, all the plain of Peshawar, with part of Bajour, Chuch, Huzareh, and the countries east of them as far as the Hydaspes, belonged to the Affghan tribe of Dilazak, which is now almost extirpated. The country between the Dilazak and the range of the Hindoo Coosh, on both sides of the Indus, formed the kingdom of Swat, which was inhabited by a distinct nation, and ruled by sultan Oveiss, whose ancestors had long reigned over that country. On the first arrival of the Eusofzye, they threw themselves on the generosity of the Dilazak, who assigned them the Doabeh for their residence. Living among a conquered people, like Spartans among Helots, and enjoying entire independence on all around, every Eusofzye is filled with the idea of his own dignity and importance. Their pride appears in the seclusion of their women, in the gravity of their manners, and in the high terms in which they speak of themselves and their tribe, not allowing even the Doorani to be their equals.—*Elphinstone's Kingdom of Cabul, pp.* 330, 331, 334, 348. See Baluchistan.

NUSSIESSYA HYPOLEUCA, *Wedd.*

Bœhmeria salicifolia.

Kharwala,	Affghan.	Amrer sandri,	Jhelam.
Siaru,	Beas.	Chenjul,	„
Sansaru : Suss,	Chenab.	Thana,	Ravi.
Chainchar,	Hazara.	Pincho, prin,	Sutlej.
Chainjli,	„	Shaker	Trans-Indus.

A common shrub generally near water at many places in the low hills from 1,500 and occasionally to 6,000 feet, in the Cis and Trans-Indus, and the Salt Range. In the eastern part of the Punjab, as in the N. W. Provinces, its bark is used for making ropes, but it is not generally employed in this way. It is browsed by sheep.—*Dr. J. L. Stewart, P. Plants, p.* 215; *Powell's Handbook, Vol.* i, *p.* 502.

NUSSURABAD, a town in the Mymensing district in Bengal, 281 miles from Calcutta.

NUSURJINGHI KE JUR, Hind. Trianthema, *sp.*

NUT, or Hazel nut.

Noisettes, Avelines,	Fr.	Avellanæ,	Lat.
Haselnusse,	Ger.	Avellaas,	Port.
Naccinole, Avelane,	It.	Avellanas,	Sp.

The nut of the Corylus coturna.

NUT or Nut'h, in India, a wandering tribe, who are dancers, actors, athletæ. They resemble the gypsies in habits. The nut called also Sirki bash (dwellers under mats) met with in the Dekhan are not distinguishable from Dher. The Bazeegur and Nut, jugglers and tumblers, may be considered as the gipsises of Hindustan; both are wandering tribes, and have each a language understood only by themselves: they live principally by juggling, fortune-telling (by palmistry and other means,) and are alike addicted to thieving. The gypsies are governed by their king, the Nut'h by their nardar bouthah. They appear to be equally indifferent on the subject of religion, and in no respect particular in their food, or the manner by which it is obtained. According to a list furnished by Captain Richardson, the languages adopted by these people would appear to possess a very strong affinity to each other. The Bazeegur are sub-divided into seven castes, viz., the Charee, At'bhyee'a, Bynsa, Purbuttee, Kalkoor, Dorkinee, and Gungwar: but the difference seems only in name, for they live together, aud intermarry as one people: they say they are descended from four brothers of the same family. They profess the mahomedan rite of circumcision; they regard Tan-Sin as their tutelar deity; consequently they look up to him for success and safety in all their professional exploits. These consist of playing on various instruments, singing, dancing, tumbling, &c. The two latter accomplishments are peculiar to the women of this sect. The notions of religion and a future state, among this vagrant race, are principally derived from their songs, which are beautifully simple.—*Cole. Myth. Hind., p.* 313. See Himalaya.

NUTA, Beng. Amphidonax karka.

NUT-CRACKERS, a genus of birds, comprising 3 sp. of Nucifraga, viz., N. hemispilla and two others.

NUTEEYA, Beng. Coronilla picta.

NUTEYA, Hind. Amarantus, *sp.*

NUT GALLS.

Afis,	Ar.	Majuphal,	Hind.
Wu-pei-tsze,	Chin.	Galle,	It.
Galæble,	Dan.	Mazu,	Pers.
Galappel,	Dut.	Galhas,	Port.
Galls,	Eng.	Agallas,	Sp.
Noix de galles,	Fr.	Ma'ephal,	Sans.
Gallapfel,	Ger.	Masaka,	Singh.
Kekidia,	Gr.	Macha-kai,	Tam.
Ma'e-phal,	Hind.		

The galls of Europe are obtained from the oak. Those of British India from Rhus succedanea; those of China from the Rhus semi-alata. See Galls.

NUTHATCH, Sitta syriaca, or 'Rock nuthatch' of S. E. Europe, and Asia Minor, or a species of similar habits (most probably the same), inhabits Affghanistan.

NUTHNEE, Hind. A small nose ring worn usually by children.

NUTHOO, also Nagi nuthu, Tam. Articles of jewellery.

NUTHRINE HARN, Beng. Axis porcinus, *Jerdon.*

NUTI KASINDA, Tel. Cassia sophora, *L.*—*W.* and *A.* 889—Senna soph., *R.* ii, 347; S. esculenta, ii, 346—*Rheede*, ii, 52.

NUTMEG.

Jowz-ul-teib,	Ar.	Moschokaridon,	Greek.
Bu-wah-pa,	Bali.	Jaiphul, Duk., Guz.,	Hind.
Jayaphala,	Beng.	Noi moscada,	It.
Za te pha,	Burm.	Moscada,	It., Port., Sp.
Juh-tau-k'au,	Chin.	Woh pala,	Jav.
Juh-kwo,	„	Pala : Buwah pala,	Malay.
Yuh-kwo,	„	Buah-pala,	Maleal.
Muskat-nod,	Dan.	Jowz bewa,	Pers.
Muskaatnoten,	Dut.	Noz moscada,	Port.
Noot-muskaat,	„	Mushkatngi, Orjekh	Rus.
Muscades,	Fr.	Jati-phala,	Sans.
Noix muscades,	„	Jatipullum sadikai,	Singh.
Noix de muscade,	„	Mus-kat,	Sw.
Muskatennusse,	Ger.	Jadikai,	Tam.
Muskaten-nuss,	„	Jajikaia,	Tel.

Dr. Hassall says there are three species of Myristica, which furnish nutmegs. The best description is from Myristica fragrans, a tree from twenty to twenty-five feet high, somewhat similar in appearance to a pear tree. The fruit is smooth externally pear-shaped, and about the size of an ordinary peach. It consists, first of an outer fleshy covering, called the pericarp, which, when mature separates into nearly equal longitudinal parts, or valves, secondly, of the aril, or mace, which, when, recent, is of a bright scarlet colour, and thirdly, of the seed proper, or nutmeg. This is enclosed in a shell, which is made of two coats, the outer is hard and smooth, the inner, thin, closely invests the seed sending off prolongations which enter the substance of the seed and which being coloured, impart the marbled or mottled appearance characteristic of nutmeg. Nutmegs are cultivated in the Molucca islands, and especially in those called the Banda, or Nutmeg islands. The tree is also grown in Java, Sumatra, Penang, Singapore, Southern India, Bengal, Bourbon, Island of Madagascar, and certain of the West India islands. The first kind of nutmegs met with in commerce, called the true, round, cultivated, or female nutmeg, is the product of Myristica fragrans. The nutmegs are characterised by their full and rounded form and delicate and aromatic flavour; they are occasionally imported in the shell. There is also a small variety, not larger than a pea, which has been described under the name of the royal nutmeg.

Three varieties of true nutmeg are distinguished by dealers, which are thus described in Pereira's Materia Medica:—

Penang nutmegs are unlimed or brown nutmegs, and fetch the highest price. They are sometimes limed in Britain for exportation, as on the Continent the limed sort is preferred. According to Newbold, the average amount annually raised at Penang about A.D. 1836 was 400 piculs (of 136½ lbs. each).

Dutch or Batavian nutmegs are limed nutmegs. In London they scarcely fetch so high a price as the Penang sort.

Singapore nutmegs are a rougher, unlimed, narrow sort, of somewhat less value than the Dutch kind. According to Mr. Oxley, 4,085,361 nutmegs were produced at Singapore in 1848, or about 252 piculs (of 133½ lbs. each); but the greater number of the trees had not come into full bearing, and it was estimated that the amount would in 1849, be 500 piculs. The second kind of nutmeg is called the false, long, wild, or male nutmeg, and is the produce chiefly of Myristica malabarica. The seeds of Myristica fatua, are about half as long again as the true or round nutmeg; they are paler, and less aromatic. The wild nutmeg obtained from the Myristica malabarica has scarcely any flavour or odour, and, according to Rheede, is of the size and figure of a date. "The Turkish and Jewish merchants," writes Rheede, "mix these nutmegs with the true long ones, and the mace with good mace, selling them together. They also extract from these inferior articles an oil, with which they adulterate that of a more genuine quality." The importance of this spice, requires that the opinions of various writers should be given. In the Banda islands, three crops or harvests of nutmegs are obtained in the year, the principal gathering is in July or August; the second in November; and the third in March or April. The fruit is gathered by means of a barb attached to a long stick; the mace is separated from the nut and separately cured. On account of their liability to the attacks of an insect known as the nutmeg insect, considerable care is required in drying them. They should be dried in their shells, as they are then secure from the insect. They are placed on hurdles, and smoke-dried over a slow wood fire for about two months. In the Banda islands, they are first dried in the sun for a few days. When the operation of drying is complete, the nuts rattle in their shells; these are cracked with mallets, and the damaged, shrivelled, or worm-eaten nuts removed. To prevent the attacks of the insect, the nuts are frequently limed. The Dutch lime them by dipping them into a thick mixture of lime and water, but this process is considered to injure their flavour. Others lime them by rubbing them with recently prepared, well-sifted lime. This process is sometimes practised in London. For the English market, however, the brown or unlimed nutmegs are preferred. The quantities of nutmegs entered for Home consumption in the United Kingdom, and the amount of duty received thereon were as under:

1840..	lbs. 118,664	1840..	£. 25,041	s. 9
1841......	113,441	1841..	14,851	10
1842......	170,064	1842..	22,018	12

1847,	tons	181	tons	101	tons	18
1848	imported.	164	consumed	67	re-	109
1849		150	in United	74	exported	74
1850		100	Kingdom	79		40
1851		139		75		67
1852	lbs.	239,200				
1853	„	208,198				

In 1842, the duties were fixed at 3*s*. 6*d*. per lb. on those from a foreign, and at 2*s*. 6*d*. per lb. on those from a British possession. The duty on wild nutmegs in the shell was then also fixed at 3*d*. without regard to origin. The duty now is 1*s*. per lb.; on wild nutmegs in the shell, 3*d*. per lb., not in the shell, 5*d*. per lb. Wholesale price, 1*s*. 9*d*. to 4*s*. It appears from Dr. Hassall's inquiries; 1st, That nutmegs, as they reach the consumer are not in general deprived of their essential oil; a result contrary to the opinion commonly entertained on this point; 2nd, That, as met with in the English markets, they are seldom limed. Crawfurd says the species of the genus Myristica are numerous and wide-spread, for some are found in all the islands of the Archipelago, in several parts of Hindustan, in the Indoo-

Chinese countries, in the Philippines, in Australia, and in tropical America. As a spice, however, the M. moschata or aromatica, is the only one of which the nut or mace is of any value and of this the geographical limits are comparatively narrow, being comprehended between the 126th and 135th degrees of east longitude, and the 3rd degree of north, and the 7th of south latitude. It is, or has been, found wild in the proper Moluccas, in Gilolo, Ceram, Amboyna, Boeroe, Damma, the north and south sides of the western peninsula of New Guinea, and in all its adjacent islands. It certainly does not exist in its wild state in any of the islands west of these, nor in any of the Philippines. Wherever the soil and climate are suitable for its growth the aromatic nutmeg is raised with great facility. It is even transported to remote parts, and the seed is disseminated by two species of pigeon, Columba perspicillata and ænea, which prey on the nutmeg as the wood-pigeons on the acorn, feed on the mace and drop the nut.

In its native country the nutmeg tree comes into full bearing in its ninth year, and lives to seventy-five. In shape and size, the ripe fruit resembles a nectarine. When ripe, the fleshy outer substance bursts, the nutmeg in its black shining shell is seen through the interstices of its reticulated crimson envelope, the mace, which amounts to about one-fifth part of the weight of the whole dried fruit. These two articles, the nut and mace, constitute the spices which for so many ages have been in request among the nations of Europe and Asia, although never used as a condiment by the inhabitants of the countries that produce it. The British after the unsuccessful efforts of two centuries, succeeded at length in participating in the nutmeg trade, in consequence of having occupied the Spice Islands in 1796. In 1798 the nutmeg was introduced into Bencoolen and Penang, and in 1819 into Singapore, and at these places it was once largely cultivated, but certainly under the disadvantage of growing as a not already acclimated exotic. In countries native and congenial to it, the nutmeg is reared with great ease, requiring little care beyond shelter from the sun and weeding. At the Madras Exhibition of 1855, fine samples of nutmegs were sent by General Cullen from his gardens, Velley Malay near Oodagherry, south of Travancore, 1,800 feet above the sea. Two sorts of nutmegs were exhibited by C. S. Vernede, Esq., Commercial Agent to the Cochin government; first sort, averaging 70 to the pound, and the second sort, 100 to the pound; the former are particularly fine. In some instances the nutmegs had been coated with chunam to preserve them. Wild or spurious nutmeg, was also forwarded from the Bababooden Hills, Mysore, and from Canara; it is much used as a substitute for the true spice, but is almost wholly devoid of aroma and of no interest. The nutmeg tree has been found growing wild in Assam, lat, 27° 30′, and probably it would succeed in higher latitudes in America. It is already cultivated in several of the West India Islands, but with less success. The appearance of the rich brown shell of the nutmeg covered with the red fibres of the mace is very beautiful in the fresh fruit. These fibres being removed, the shells are dried in the sun or by a moderate fire until they split, revealing the aromatic kernel or nutmeg. Nutmeg plantations are formed in alluvial ground, or in virgin forest land in level situations. Declivities are unfavourable on account of the slight hold these trees take on the soil, and the consequent danger of their being uprooted during the heavy rains which occur in tropical countries. Their culture in Bencoolen, which represents the ordinary mode of treatment has been minutely described by Dr. Lumsdaine, in a paper originally communicated to the Agricultural Society of Sumatra, in 1820, and afterwards republished in Silliman's American Journal of Science and Arts.

Cultivation.—In originating a nutmeg plantation it is necessary to select ripe and sound nuts, and set them at the distance of a foot apart in a rich soil, covering them lightly with mould. They must then be watered every other day, weeded occasionally, and shielded from a scorching sun. In from one to two months the young seedlings may be expected to appear; and when about 4 feet high, the healthiest and most luxuriant are to be removed at the commencement of the rainy season to the plantation previously cleared and prepared for that purpose, and set at the distance of 80 feet from each other, care being taken to protect them from the heat and from violent winds. The plants are set in rows, and between these the plough is employed to clear the intermediate spaces of weeds and grasses. The plants continue to require watering every other day in sultry weather; and in nearly all cases the soil requires to be enriched with annual supplies of manure, which are laid on during the rains, and which are made more stimulating as the tree increases in age. After the fifth year the trees no longer require to be shielded from the sun; in the seventh year they begin to bear fruit; and from that time to the fifteenth year they generally increase in fruitfulness, being then in their highest perfection. During the progressive growth of the plantation, the beds of the trees are regularly weeded, and the roots kept covered with the mould, for these have a constant tendency to seek the surface: the growth of lateral branches is alone encouraged, and all suckers or dead and unproductive branches are removed by the pruning-knife, so as to thin the trees considerably, and admit of the descent of the night-dews, which contribute much to their well-being, especially during dry and sultry weather. The conclusion of the principal harvest is the time chosen for these prunings. As the trees advance in age, the coarser vegetation and creepers are alone removed from the intervals between the trees, and the more harmless grasses are allowed to remain, giving the plantation a park-like appearance. The use of the plough is then discontinued. Nutmeg-trees are of two kinds in the same plantation, flower-bearing, and fruit-bearing. The productive plants are in the proportion of about two-thirds to the whole plantation. It is impossible to discover the difference in the sexes of the plants until the period of flowering. Between the appearance of the blossom and the ripening of the fruit, a period of 7 months generally elapses; but when once a tree has begun bearing, it continues to produce fruit all the year round, but more plentifully in some months than in others. The months of September, October, November and December, are the period of the great harvest: those of April, May and June, of the smaller harvest. In the Moluccas these trees continue prolific for 70 or 80 years; and the annual produce, taking one tree with another, amounts to about five pounds of nutmegs and a pound and a quarter of mace of each tree. When the fruit is ripe, which is indicated by the bursting open of the fleshy portion, and the appearance of the kernel, it is gathered in by means of long hooked sticks. The first step, after removing the outer integument, is cautiously to strip off the mace, and flatten it by hand in single layers placed on mats and dried for 3 or 4 days in the sun. In damp and rainy weather the heat of a charcoal fire is employed, but with care that no smoke or heat blacken the surface of the mace. In drying, the red tint of the mace changes to orange, its substance becomes horny and brittle, and its strongly aromatic odour and taste are preserved. When well cured, it is made up in tight packages in a dry situation; but is exposed to the sun about once a fortnight to preserve its dryness, and thus to keep it from insects which attack it if it becomes damp. The nuts being liberated from their macy envelope, are conveyed to the drying house and placed on a raised stage or frame-work, which admits the heat from a smouldering fire beneath it, to pass freely among them. The heat is kept below 140° Fahr., because too great a heat dries up the kernels, while too long continued heat produces fermentation, which increases their volume so greatly as to fill up the whole cavity of the shell, and thus prevent them from rattling, which is the criterion of due preparation. The drying-house is a brick building of suitable size, and the stage is placed at an elevation of 10 feet having 3 divisions in it for the produce of different months. The nuts are turned every second or third day, that they may all partake equally of the heat, and such as have undergone the smoking process for the period of two complete months, and rattle freely in the shell, are cracked with wooden mallets, and the worm-eaten and shrivelled ones thrown out. The sound nutmegs are rubbed over with recently prepared well sifted dry lime, and packed tightly in chests, the seams of which have been made impervious to air and water. Another and a more common method is to dip them in a mixture of salt-water and lime, and then to spread them out for 4 or 5 days in the shade to dry. But the quantity of moisture imbibed during this process, appears to increase the liability to early decay and to the attacks of insects. The surest way of preserving the kernel would be to export it in the shell; this is done in sending nutmegs to China; but it does not answer in Europe, on account of the heavy allowance for shells, which is one-third of the weight. The general qualities of the nutmeg and mace are the same: their agreeable aromatic odour and pungent taste are well-known, the peculiar flavour of the mace, however, being quite distinct from that of the nut. They contain, according to Bonastre, fat oil 31-6 per cent., volatile oil 6-0, starch 24, gum 1-2, free acid 0-8, lignine 54. Not more than 4-5 per cent. volatile oil is usually obtained in the distillations at Apothecaries' Hall. The fixed oil, called nutmeg butter or expressed oil of nutmeg, is prepared in Holland: the nutmegs are beaten into a paste, which is enclosed in a bag, steamed and pressed between hot plates. It is imported in oblong cakes, wrapped in flag-leaves or leaves of the banana, and weighing about three quarters of a pound. It is of an orange or reddish brown colour, and of a fragrant odour. It is liable to much adulteration, and so also is the volatile oil, with which turpentine is frequently mixed. The article called expressed oil of mace is obtained from the nutmeg, and should bear its name. Nutmeg butter, according to Playfair, consists of three fatty substances, two of which are soluble in alcohol, and the third almost insoluble in that fluid: the third substance has been termed Myristine, and from this myritic acid is prepared. Nutmegs are sometimes passed off as fresh, after the volatile oil has been abstracted from them. Such nutmegs are very light, and when pierced with a hot needle, do not give an oily coating to it. The best nutmegs are small, but heavy, weighing on an average 90 grains each. There is a large and inferior kind of nutmeg, longer and heavier than the above, weighing as much as 110 grains. This is the produce of another variety, and sometimes of a distinct species of nutmeg, and is said to be more liable to produce narcotic symptoms than the true nutmeg. Nutmegs and mace are decidedly stimulant, and in small quantities wholesome. When used in abundance they produce, by increasing the circulation, narcotic effects. According to Mr. Simmonds, the nutmeg tree, Myristica moschata, M. officinalis, or M. aromatica, is of a larger growth than the clove, attaining a height of thirty feet, and has its leaves broader in proportion to their length; the upper surface of these is of a bright green, the under of a greyish colour. It is a diœcious plant, having male or barren pale yellow flowers upon one tree, and female or fertile flowers upon another. The fruit is drupaceous, and opens by two valves when ripe, displaying the beautiful reticulated scarlet arillus, which constitutes mace. Within this is a hard, dark-brown, and glossy shell, covering the kernel, which is the nutmeg of the shops. The kernels of M. tomentosa are also used as aromatics, under the name of wild or male nutmegs. Lindley describes two other species, M. fatua, a native of Surinam, with greenish white flowers, and M. sebifera or Virola sebifera, a native of Guiana, with yellowish green flowers. By expression, nutmegs are made to yield a concrete oil, called Adeps myristicæ, or sometimes erroneously oil of mace. A volatile oil is also procured by distillation. Nutmegs and mace are used medicinally as aromatic stimulants and condiments. In large doses they have narcotic effects. The fleshy part of the fruit is used as a preserve. Dr. Oxley, as the result of twenty years' experience at Singapore, observes that the nutmeg tree, like many of its class, has a strong tendency to become monœcious, and planters in general are well pleased at this habit, thinking they secure a double advantage by having the male and female flowers on the same plant. This is, however, delusive, and being against the order of nature, the produce of such trees is invariably inferior, showing itself in the production of double nuts and other deformities. It is best, therefore, to have only female trees, with a due proportion of males. The female flowers, which are merely composed of a tripid calyx and no corolla, when produced by a tree in full vigor are perfectly urceolate, slightly tinged with green at the base, and well-filled by the ovary, whereas the female flowers of weakly trees are entirely yellow, imperfectly urceolate, and approach more to the staminiferous flowers of the male. The shape of the fruit varies considerably, being spherical, oblong, and egg-shaped, but the nearer they approach sphericity of figure, the more highly are they prized. There is also a great variety in the foliage of different trees, from elliptic, oblong and ovate, to almost purely lanceolate-shaped leaves. This difference seems to indicate in some measure the character of the produce; trees with large oblong leaves appearing to have the largest and most spherical fruit, and those with small lanceolate leaves being in general more prolific bearers, but of inferior quality. Whilst its congener the clove has been spread over Asia, Africa, and the West Indies, the nutmeg refuses to flourish out of the Malayan Archipelago, except as an exotic, all attempts to introduce it largely into other tropical countries having decidedly failed. The island of Ternate, which is in about the same latitude as Singapore, is said to have been the spot where it was truly indigenous, but no doubt the tree is to be found on most of the Moluccas. At present the place of its origin is unproductive of the spice, having been robbed of its rich heritage by the policy of the Dutch, who at an early period removed the plantations to the Banda isles for better surveillance, where they still remain and flourish. But although care was formerly taken to extirpate the tree on the Moluccas, the mace-feeding pigeons have frustrated the machinations of man, and spread it widely through the Archipelago of islands extending from the Moluccas to New Guinea. Its circle of growth extends westward as far as Pinang, or Prince of Wales' Island, where, although an exotic, it has been cultivated as a mercantile speculation with success for many years. Westward of Pinang there are no plantations, looking at the subject in a mercantile point of view. The tree is to be found, indeed, in Ceylon, and the West Coast of India, but to grow it as a speculation out of its indigenous limits, is as likely to prove successful as the cultivation of apples and pears in Bengal. In the Banda Isles, where the tree may be considered as indigenous, no further attention is paid to its cultivation than setting out the plants in parks, under the shade of large forest trees, with long horizontal branches, called "Canari" by the natives. There it attains a height of 50 feet and upwards, whereas from 20 to 30 feet may be taken as a fair average of the trees in the Straits' Settlements. A nutmeg plantation, well laid out and brought up to perfection, is one of the most pleasing and agreeable properties that can be possessed. Yielding returns, more or less daily, throughout the year, there is increasing interest, besides the usual stimulus to all agriculturists of a crop time, when his produce increases to double and quadruple the ordinary routine. Trees having arrived at fifteen years' growth, there is no incertitude or fear of total failure of crop, only in relative amount of produce, and this, as will be seen, is greatly in the planter's own power to command. The first requisite for the planter is choice of location. The nutmeg tree, aided by manure, will grow in almost any soil where water does not lodge, but it makes a vast difference in the degree of success, whether, the soil be originally good, or poor and improved by art. The tree does not thrive in white or sandy soils, but prefers the deep red and friable soils formed by the decomposition of granite rocks and tinged with iron, and the deeper the tinge the better. He thinks that iron in the soil is almost necessary for the full development of the plant. If under the before-mentioned soil there be a rubble of iron-stone at four or five feet from the surface (a very common formation in Singapore), forming a natural drainage, the planter has obtained all that he can desire in the ground, and needs only patience and perseverance to secure success. The form of the ground ought to be undulating, to permit the running off of all superfluous water, as there is no one thing more injurious to the plant than water lodging around its roots, although, in order to thrive well, it requires an atmosphere of the most humid sort, and rain almost daily. Besides the form of the ground, situation is highly desirable particularly as regards exposure. A spot selected for a nutmeg plantation cannot be too well-sheltered, as high winds are most destructive to the tree, independently of the loss occasioned by the blowing off of fruit and flower. Whilst the planter is clearing the ground, he may advantageously at the same time be establishing nurseries; for these the ground ought to be well-trenched and mixed with a small quantity of thoroughly decomposed manure and burned earth, making up the earth afterwards into beds of about three feet wide, with paths between them for the convenience of weeding and cleaning the young plants, and really good plants, the produce of well-selected seed, will be a great saving of time and expense but in the selection of seed the most perfectly ripe and spherical nuts are best. Oval long nuts are to be rejected, particularly any of a pale colour at one end. The seed ought to be put in the ground within twenty-four hours after being gathered, setting it about two inches deep in the beds already prepared, and at the distance of twelve to eighteen inches apart, the whole nursery to be well-shaded both on top and sides, the earth kept moist and clear of weeds, and well smoked by burning wet grass or weeds in it once a week, to drive away a very small moth-like insect that is apt to infest young plants laying its eggs on the leaf, when they become covered with yellow spots, and perished if not attended to speedily. Washing the leaves with a decoction of the Tuba root is a good remedy but where only a few plants are affected, if the spots be numerous, it is preferable to pluck up the plant altogether, rather than run the risk of the insect becoming more numerous, to the total destruction of the nursery. The nuts germinate in from a month to six weeks, and even later, and for many months after germination the seed is attached to the young plant, and may be removed apparently as sound as when planted, owing to the great disproportion in size between the ovule and albumen, the former of which is alone necessary to form the plant. The plant may be kept in nursery with advantage for nearly two years. Should they grow rapidly, and the interspaces become too small for them, every second plant had better be removed to a fresh nursery, and set out at a distance of a couple of feet from each other. When transplanted either in this way or for their ultimate position in the plantation, care should be taken to remove them with a good ball of earth, secured by the skin of the plantain, which prevents the ball of earth falling to pieces. The nurseries being established, the ground cleared and ready, the next proceeding is to lay out and dig holes about 26 or 30 feet apart, and the quincunx order has many advantages. The holes should be at least six feet in diameter, and about four feet deep, and when refilled the surface soil is to be used, and not that which is taken out of the hole. Each hole should be filled up about one foot higher than the surrounding ground, to allow for the setting of the soil and the sinking of the tree, which, planted at this height, will in a few years be found below the level. Over each hole thus filled up, a shed, made of atap leaves or other shelter, closed on two sides, east and west, and proportioned to the size of the plant, is to be erected. It is not a bad plan to leave an open space in the centre of the top of each shed, about twelve inches wide, by which the young plant can obtain the benefit of the dew and gentle rains, which more than compensates for the few rays of sun that can only fall upon it whilst that body is vertical. After the sheds have been completed, each hole should have added to it a couple of baskets of well-decomposed manure, and an equal quantity of burned earth, when all is ready for the reception of the plant, which having been set out, if the weather be dry will require watering for ten days or a fortnight after, in fact until it takes the soil. The planter having set out all his trees must not deem his labours completed, they are only commencing. To arrive thus far is simple and easy, but to patiently watch and tend the trees for ten years after, requires all the enthusiasm already mentioned. About three months after planting out, the young trees will receive great benefit if a small quantity of liquid fish manure be given them. In the first six years they ought to be trenched round three times, enlarging the circle each time, the trenches being dug close to the extremities of the roots, which generally correspond to the ends of the branches, and each new trench commencing where the old one terminated. They must of course greatly increase in size as the circle extends, requiring a proportionate quantity of manure, but the depth ought never to be less than two feet. The object of trenching is to loosen the soil and permit the roots to spread, otherwise the tree spindles instead of becoming broad and umbrageous. Manure is beyond all other considerations the most important to the welfare of the estate; it is that which gives quantity and quality of produce, and without it a plantation cannot be carried on. The want of it would limit the cultivation in the Straits' Settlements, and will arrest many a planter, who having got his plantation to look well up to the eighth year with very little manure, thinks he can go on in the same manner. The nutmeg tree likes well all sorts of manures, but that which is best suited for it seems to be well-rotted stable and cow-yard manure, mixed with vegetable matter, and when the tree is in bearing the outer covering of the nut itself is about one of the very best things to be thrown into the dung-pit. Dead animals buried not too near the roots, also blood, fish, and oil cakes are beneficial. Guano is of no use. All obnoxious grasses must be carefully kept from between the trees, and the harmless grasses rather encouraged, as they keep the surface cool. The trunk of the tree ought to be carefully washed with soap and water once a year to keep it clear of moss. Parasitical plants of the genus Loranthus are very apt to attach themselves to the branches, and if not removed do great injury. The insect enemies of the tree are not very numerous, but it has a few white ants among the number. They seldom attack a vigorous plant, it is upon the first symptoms of weakness or decay that they commence their operations. Their nests may be dislodged from the roots of the plant by a dose of solution of pig dung, to which they have a great aversion. There are several species of insects which lay their eggs on the leaves, and unless carefully watched and removed, they commit great havoc amongst the trees. For this purpose it is necessary to wash the leaves with a decoction of Tuba root, and syringe them by means of a bamboo with lime and water, of the consistence of whitewash; this adheres to the leaves, and will remain even after several heavy showers. Another nuisance is the nest of the large red ant; these collect and glue the leaves together, forming a cavity for the deposition of their larvæ. The best mode of destroying them is to hang a portion of some animal substance, such as the entrails of a fowl, fish, &c., to the end of a pole thrust through and protruding from the branches; the ants will run along the pole and collect in immense quantities around the bait, when, by a lighted faggot, they can be burned by thousands. This repeated once or twice a day for a week or so, will soon rid the tree of the invaders. In general one man for every one hundred trees will be found sufficient to care for the plantation, provided there be some four or five thousand trees. The nutmeg planter is under the necessity of keeping up nurseries throughout the whole of his operations for the re-placement of bad plants and redundant males. Of the latter ten per cent. seems to be about the best proportion to keep, but completely diœcious trees are preferable. No person can boast to get a plantation completely filled up and in perfect order much sooner than fifteen years. Of the first batch planted, not more than one-half will turn out perfect females, not taking into account monœcious trees, already condemned. The tree shows flower about the seventh year, but the longer it is before doing so, the better and stronger will it be. The best trees do not show flower before the ninth year, and one such is worth a score of the others. Dr. Oxley has seen several trees yield more than 10,000 nuts each in one year, whereas he does not believe that there is a plantation in the Straits that averages 1,000 from every tree. The experiment of grafting the trees, which at first view presents so many advantages, both in securing the finest quality of nut and the certainty of the sex, has still to be tried in this cultivation. The advantage gained would be worth any trouble, the quality of some nuts being so far above that of others it would make a difference beyond present calculation; in short, 1,000 such picked trees would yield something equivalent to £4,000 a year, for £4 per tree would be a low estimate for such plants. An acre of land contains on an average 92 trees, and it is calculated an outlay of 300 dollars is required upon every acre to bring the tree to maturity; but as not more than one-half of the trees generally turn out females, and as many others are destroyed by accident and diseases to which this plant is very liable, it makes the cost of each tree, by the time it yields fruit, about 8 dollars. The nutmeg tree begins to bear when about eight years old, but it gives no return for several years longer; and therefore to the expense of cultivation must be added the interest of the capital sunk. The plant being indigenous in the Moluccas, the expense of cultivation there is greatly less. As the fruit is brought in by the gatherers, the mace is carefully removed, pressed together and flattened on a board, exposed to the sun for three or four days, it is then dry enough to be put by in the spice-house until required for exportation, when it is to be screwed into boxes, and becomes the mace of commerce. The average proportion of mace yielded in Singapore is one pound for every 433 nuts. The nutmeg itself requires more care in its curing, it being necessary to have it well and carefully dried ere the outer black shell be broken. For this purpose the usual practice is to subject it for a couple of months to the smoke of slow fires kept up underneath, whilst the nuts are spread on a grating about eight or ten feet above. Care should be taken not to dry the nuts by too great a heat, as they shrivel and loose their full and marketable appearance. It is therefore desirable to keep the nuts, when first collected, for eight or ten days out of the drying-house, exposing them at first for an hour or so to the morning sun, and increasing the exposure daily until they shake in the shell. The nuts ought never to be cracked until required for exportation, or they will be attacked and destroyed by a small weasel-like insect, the larvæ of which is deposited in the ovule, and, becoming the perfect insect, eats its way out, leaving the nut bored through and through, and worthlesss as a marketable commodity. Liming the nuts prevents this to a certain extent, but limed nuts are not those best liked in the English market, whereas they are preferred in that condition in the United States, and on the Continent of Europe. When the nuts are to be limed, it is simply necessary to have them well-rubbed over between the hands with powdered lime. By the Dutch mode of preparation, they are steeped in a mixture of lime and water for several weeks. This no doubt will preserve them, but it must also have a prejudicial effect on the flavour of the spice. After the nuts are thoroughly dried, which requires from six weeks to two months' smoking, they cannot be too soon sent to market. But it is otherwise with the mace; that commodity, when fresh, not being in esteem in the London market, seeing that they desire it of a golden colour, which it only assumes after a few months, whereas, at first when fresh it is blood-red, now red blades are looked upon with suspicion, and are highly injurious to the sale of the article. The nutmeg tree was sent from Bencoolen to Singapore, in the latter end of 1819. Sir Stamford Raffles shipped to the care of the resident commandant, Major Farquhar, 100 nutmeg plants, 25 larger ditto, and 1,000 nutmeg seeds, which were committed to the charge of Mr. Brooks, a European gardener, who was specially engaged by the East India Company to look after their embryo spice plantations here. If a plantation be attended to from the commencement and the trees be in a good locality, the planter will undoubtedly obtain an average of 10 lbs. of spice from each tree from the fifteenth year; this, at an average price of 2*s.* 6*d.* per lb., is 25*s.* per annum, and he can have about seventy such trees in an acre. The total number of nutmeg trees in Singapore in 1848 was 55,925, of which 14,914 only were in bearing. The produce of that year was 4,085,361 nutmegs, or 23,600 lbs. in weight. Plants were likewise sent to Ceylon and Cape Comorin. It does not appear that the climates of these two localities suit the nutmeg tree, as it requires rain, or at least a very damp climate throughout the year. The East India Company's spice plantations in Pinang were sold in 1824, and the trees were dispersed over the island. In 1843 there were 3,046 acres cultivated with spice trees in Pinang and Province Wellesley, containing 233,995 nutmeg, and 80,418 clove trees, besides 77,671 trees in nurseries ready to be planted out; and by a similar statement from Singapore, which is however not so complete, that 743 acres were cultivated, containing 43,544 nutmeg trees. The consumption of these spices in Great Britain was, on an average of four years ending 1841, nutmegs, 121,000 lbs.; mace, 18,000 lbs.; cloves, 92,000 lbs.

Imported and Exported to and from Singapore.

	Imported. Piculs.	Exported. Piculs.	Growth of Singapore. Piculs.	Value of the native growth.
1841	227½	412	184½	£3,323
1842	258	809	551	9,897
1843	150½	249	98½	1,760
1844	52	282	230	4,131
1845	41	383	342	6,143
1846	79	331	252	4,526
1847	139	416	277	4,275

Exported from Java.

1830,	piculs..	1,304	piculs...	177
1835,	„ ..	5,022	„ ..	1,606
1839,	„ ..	5,027	„ ..	1,581
1843,	„ ..	2,133	„ ..	486

In the Pinang papers for 1857, the *Gazette* gives the following statistics: The subjoined table of the exports of Nutmegs and Mace from Pinang during the last ten official years shows a startling rate of increase. The exports in 1855, 1856, 4624 piculs of nutmegs and 1340 of mace—exceed the total produce of the Bandas in 1855, which Dr. Oxley states at 4,032 piculs of nutmeg and 1,008 of mace.

Exports of Nutmegs and Mace during 10 years.

Official years.	Nutmegs.	Mace	Total.	Official years.	Nutmegs	Mace.	Total.
1846-47, piculs	1,519	477	1,996	1851-52, piculs	2,626	886	3,511
1847-48 „ ..	2,077	661	2,738	1852-53 „ ..	3,320	781	3,801
1848-49 „ ..	2,178	666	2,844	1853-54 „ .	2,768	887	3,655
1849-50 „ ..	2,086	656	2,742	1854-55 „ ...	3,294	890	4,192
1850-51 „ ..	2,564	751	3,315	1855-56 „ ..	4,624	1340	5,964

Imports into the United Kingdom of Nutmegs, wild and cultivated.

	Imports lbs.	Home Consumption lbs.		Imports lbs.	Home consumption. lbs.
1847	367,936	150,657	1850	315,126	167,683
1848	336,420	167,143	1851	358,320	194,132
1849	224,021	178,417	1852	357,940	239,113

Mace.

	Imports lbs.	Consumption. lbs.		Imports lbs.	Consumption. lbs.
1847	60,265	18,821	1850	77,337	21,997
1848	47,572	19,712	1851	77,863	21,695
1849	45,978	20,605	1852	61,696	21,480

Mace exported—Actual growth of Singapore.

1841, piculs....	25½	£ 583	1845, piculs....	71	£1,616
1842 „	72	„ 1,616	1846 „	8	„ 179
1843 „	40¾	„ 943	1847 „	75	„ 1,661
1844 „	16½	„ 359			

109 piculs of imported mace were also re-shipped in 1847. 40,000 lbs. of mace were imported into the United Kingdom from India in 1848. The extremely limited consumption of nutmegs and mace, and of the latter especially, over the world, as compared with other tropical exportable produce, which has checked and perhaps ever will continue to check any permanently large progressive increase of these spices. The Dutch confined the cultivation of the nutmeg, when they got possession of the Moluccas from the Portuguese, in the end of 1598, to three distant islands. Lonthoir or great Banda, Banda Neira, and Pulo Aye. The first of these presents a ridge of hills of various heights from one extremity to the other, the sides of which are cut into ravines through which descend a few small streams, the only ones on the island. The island is crescent-shaped, is 9 miles long and 2½ miles across where widest. The highest hill on Banda-Neira, in lat. 4° 30′ S., and long. 128° 18′ E. of Paris does not exceed 800 feet, and the south side is perfectly flat. Gunong Api is a single island or cone of volcanic matter rising from a rocky base and separate from great Banda by a narrow channel. It has the appearance of a heap of cinders and two-thirds of it are perfectly black and bare of all vegetation, while a constant smoke rises from the crater. Pulo Aye, according to Martin, and the S. side of great Banda yield the best nutmegs. Neira is 2½ miles long and about 3¼ miles across [illegible]. Pulo Aye is nearly circular and is about 1½ miles in diameter. Gunong Api, is so named from the terrible volcano of which it consists Lonthoir is commonly called the 'high land,' other islands are Rosingain, Pulo Aye and Pinang. The island of Rosingain has been little inhabited since the extirpation of spice trees by the Company in 1632, and the cultivation of the nutmeg is exclusively confined to Banda, Lonthoir and Pulo Aye. Gunong Api is unfortunate on account of its frequent eruptions and its insalubrity. It lies near to Banda and Lonthoir. Earthquakes are frequent and ordinarily precede or follow the eruptions. The strongest eruptions were in the following years:—1598, 1615, 1632, 1691, 1711, 1749, 1798, 1820. That of 1691 was a terrible one. The intervals betwixt these periods of eruption are therefore consecutively 17, 17, 59, 20, 38, 49, 22, and the general average of these intervals is 31 years and a little more than a month. The most fatal earthquakes took place in 1629, 1683, 1686, 1743 and 1816. The intervals therefore are 54, 3, 57, 73 years respectively. Thence it appears that these convulsions arose from there having been no vent for the lava. The Banda soil is stony. By the above average of eruptions and dating back to 1820, an eruption was expected somewhere about 1857. Mr. Mun for 1750 rated the total produce of the islands at 250,000 lbs. of nutmegs besides mace. The Dutch author Stavorinus acquaints us that the annual average produce during the early part of the 18th century was 700,000 lbs. (Dutch) of nutmegs, and 180,000 lbs. (do.) of mace. But he adds, that in the year 1778 a hurricane destroyed all the trees excepting 8,000 which last number yielded an annual produce of 30,000 lbs. of nutmegs with the usual proportion of mace. Allowing 10 per cent. of trees for males, which is a very small proportion when trees have not from the first been regularly and systematically planted the productive ones will have thus yielded 4⅙ lbs. per tree of nutmegs. But of these 8,000 were all bearing or female trees the rate per tree would be 3¼ lbs. nutmegs. Mr. Martin estimated the produce previously to the above year (perhaps the year immediately preceding it) at, for Europe 250,000 lbs. nutmegs; for India 100,000 lbs. and mace 80,000 lbs., which would admit of a total produce of about 350,000 lbs. nuts, the best sorts only being sent to Europe. This quantity of 700,000 lbs. has reference to the beginning of the eighteenth century. The English market was not then so particular as to quality as it afterwards became so that probably Nos. 1, 2 and 3 were sent to Europe about this period. If the 8,000 trees yielded 30,000 lbs., then there were 168,000 trees in the early part of the above century. But the

rate of bearing here brought forward does not quite tally with subsequent reported averages. In Dutch official records, Puly Aye afforded the best nutmegs and yielded annually from 45,000 trees the quantity of 130,000 lbs. or 3⅓ lbs. (Dutch it is supposed) per tree of nuts. Major Thom states that the cultivation of the nutmeg was confined to Lonthoir or the Great Banda, Neira and Pulo Aye, which last island he takes to be 1½ mile in diameter. He also allots to its area 45,459 trees, which on a rough calculation would give about 37 trees to an acre, for more could hardly without great crowding have been planted on the area. Indeed, with advertance to irregularities and breaks in the surface, the trees may have been still more closely packed. He states the average produce in 1810 to have been for all the islands, 300,000 lbs. of nutmegs, 85,000 lbs. of mace. The produce has ever been subject to great fluctuations, owing to various causes, the most prominent of which were the eruptions of volcanos and earthquakes. We have seen that in 1772 a hurricane nearly annihilated the plantations—and in 1811 a severe storm destroyed much fruit. Eruptions of the volcano and devastating earthquakes have occurred at no very wide intervals—high winds frequently diminish the crops greatly. Sulphureous vapours sometimes blast the trees. Some of the hills even are more or less incrusted with nutmeg. The nutmeg decrease in size and weight as the tree advances in age after a varying period. The Dutch derive their nutmegs and mace for exportation from the Bandas, Celebes, Palembang and Bencoolen in Sumatra and Java, but scantily from the latter island, and perhaps a few other but insignificant localities. But the proportion of the Moluccas or Banda produce to that of these or other places, and which last is termed free, is nearly as 100 to 11. The mercantile monopoly nuts and mace are sent to Europe and the inferior sorts are crushed and the oil is converted into nutmeg-soap, an article which has not yet perhaps been appreciated in England, but might possibly be converted to some useful purpose. The cultivation of the nutmeg in Java is free, and about A. D. 1830 ago the number of trees then planted out was about 40,000. In 1816, which was eight years before Bencoolen wes given up to the Dutch, it was reported officially by Lumsdaine that there were then at that station 26,049 bearing trees. The estimate for 1825 was an addition to these of 15,000 trees, making the total to be 41,049, and for the succeeding years the expected produce was rated at 128,000 lbs. of nutmegs, besides mace.

The highest produce in nutmegs of any one year from 1825 to 1845 both inclusive, was 8,158 piculs, or lbs. English 1,101,303, and the lowest 1,171 piculs or 158,085 lbs. English, reckoning 135 English lbs. per Dutch picul. The average of the ten years ending in 1845 was 4,636 Dutch piculs or 626,386½ lbs. English per annum, being 73,614 lbs. at least less than the average of the Dutch writer Stavorinus for the middle or earlier part of the 17th century. Of late years, all the nutmegs of a fair merchantable quality have been sent direct to Holland—and the inferior sorts have been converted into nutmeg soap. It is not clearly shown however where the line lies which cuts off these inferior nuts. The medium sorts chiefly go to China and to the Eastern Archipelago.

The returns obtained for 1844-5 showed then in Penang and Province Wellesley upwards of fifty plantations having from 200 bearing female trees up to 12,000 besides 390 nutmeg gardens varying in their contents from 10 up to 200 bearing trees. The total of bearing female trees was upwards of 70,000. But a large increase has taken place since that year.

Consumption.—It would be difficult to exhibit correctly the average consumption of nutmegs and mace in the various quarters of the world. There are in fact but very partial data for a computation of it.

Crawfurd averages the produce at 65 ozs. avoirdupois of nuts and mace together per tree, which, deducting ¼ for mace, will leave nearly 3 lbs. of nutmegs for each bearing tree. The weight of a given quantity of nutmegs in the shell to the same when freed from it is as 73 to 50 nearly. The mace may be assumed to be about three and three-fifths of the whole. The Dutch used to allow 12½ per cent. loss in curing the nutmegs and mace, and the loss afterwards by waste and accident at one-third of the whole, which last, however, appears to be a very high estimate if confined to curing and transporting. Out of 1,000 nutmegs the produce of any single tree, there will be only about 500, which will be of value.

Dr. Oxley (*Journal Ind. Arch., Vol.* xi, *p.* 657), observes that good trees yield 10 lbs. of spice after the 15th year. This doubtless included mace, and if so the produce in nutmegs would be after a deduction of ¼ for mace, 8½ lbs. per female tree.

Mr. Crawfurd has stated the cost of cultivating nutmegs in the Bandas, is at 8 dollars the picul. If it had been found practicable by the Dutch to raise the nutmeg at so low a figure, all competition with them would have been at an end. It is likely that when foreigners first resorted to these islands they obtained only the nutmegs which the woods afforded, as no cultivation had begun until a period long subsequent to their advent. It may be premised that the Moluccas possess no other produce in such quantity of sufficient consequence to attract trade, and that the nation which holds them must tack on to the cost of raising the tree that of protecting these islands.

Martin acquaints us that when he was Resident at Amboyna there were 2,160 slaves in the nutmeg plantation.

Statistics of Nutmegs.—In the beginning of the 19th century nutmeg-planting was introduced into Pinang, a number of spice plants having been imported from Amboyna by the East India Company. The Government after some time, sold their gardens in which they had planted the clove and nutmeg trees, but the cultivation would appear to have made little progress at first, as in 1810 we find that there were only about 13,000 trees on the island, a few hundreds being all that were in bearing. In 1818 the number of bearing trees had increased to 6,900. In 1843 there were 75,402 trees in bearing, and 111,289 not in bearing, besides males and 52,510 nurseries. The number of bearing trees in Province Wellesley in 1843 was 10,500, not bearing 7,307, besides males, and a number in the nursery. The total number of nuts produced by the Pinang and Province Wellesley trees in 1842 were 18,560,281, and 42,866 lbs. of mace. Nutmeg trees were first introduced into Singapore in 1818. In 1843 the total number of trees were estimated at 43,544, of which 5,317 were in bearing, the produce being stated at 842,328 nuts. In 1848, according to the table given by Dr. Oxley, the total number of trees planted out was estimated at 55,925, of which the numbers in bearing were 14,914 and the produce 4,085,361 nuts besides mace, which is estimated at about 1 lb. for every 433 nutmegs. During the occupation of Bencoolen by the English, the nutmeg and clove were introduced from the Moluccas, and in 1819 the number of nutmeg trees were stated at 109,429, regarding their present number we have no information. The average quantity of nutmegs annually sold by the Dutch East India Company in Europe during the 18th century has been estimated at 250,000 ℔s., besides about 100,000 ℔s. sold in India. Of mace the average quantity sold in Europe was reckoned at 90,000 ℔s. per annum and 10,000 ℔s. in India. The trade although so jealously guarded by the Dutch, was never been a very profitable one to them, the expenses being heavy. In 1779 the charges at Banda amounted to f. 146,170 and the revenues derived from the duties on imports, &c., to f. 9,350, leaving an excess on the charges of f. 136,820 to be deducted from the profit on the spices; and the large quantities of species frequently burned in Holland, on which heavy charges for freight, &c., must have been incurred, must have also formed a serious deduction from the gross profit derived from those sold. In 1814, when in possession of the English the number of nutmeg trees planted out were estimated at 570,500, of which 480,000 were in bearing including 65,000 monæcious trees. The produce of the Moluccas has been reckoned at from 6 to 7 hundred thousand lbs. per annum, of which one-half goes to Europe, and about one-fourth that quantity of mace. The imports into Java from the Eastern Archipelago in 1843, consisted of nutmegs 740·33 piculs, and of mace 218·06 piculs, and the exports consisted of nutmegs 2,133·29 piculs, and of mace 486·63 piculs. The amount of nutmegs exported from Java during the 10 years ending in 1834 averaged yearly about 352,226 lbs., and during the eleven years during 1845 about 664,060 lbs. yearly. The quantity of mace exported during the first period averaged 94,304 lbs. yearly, and during the last 169,460 lbs. yearly. The produce of the Straits' Settlements in 1842 was reckoned at nutmegs 147,034 lbs., and mace 44,822 lbs., thus being more than equal to the whole consumption of Great Britain. The rest of Europe it has been estimated takes about 280,000 lbs. of nutmegs, and 33,000 lbs. of mace, India about 216,000 lbs. of nutmegs and 30,000 lbs. of mace, and China about 15,000 lbs. nutmegs and about 2,000 lbs. of mace. As these quantities, however, would leave a surplus production of nutmegs alone, above 250,000 lbs., it is probable they are now considerably under the real amounts. In ten years from 1832 to 1842, the exports of nutmegs and mace from Pinang were trebled, and from the very great extension in the cultivation which is constantly going on, it is probable that the same result at least will take place in the ten years succeeding to the above period, viz: from 1842 to 1852. During these ten years from 1832 to 1842, the price of nutmegs in Pinang fell from 10 and 12 dollars per thousand, to from 4 to 5 dollars per thousand.

The nutmeg is a beautiful tree, pretty in form, foliage, blossom and bearing, rising to a height of 25 to 30 feet, occasionally 50 feet. The fruit to within a few days of ripening might, had it a pink cheek, be readily mistaken for the peach. When the nut inside is ripe, the fruit splits down the centre and remains half-open, disclosing the bright crimson mace that enwraps the nut. In a few days, if not gathered in, the fruit opens wider and the nut with the mace around it, drops to the ground leaving the fruity husk still hanging to the tree, till it withers away and falls off. When the nuts are collected, the mace is carefully removed and placed in the sun to dry. Beneath the mace is a thin hard shell containing the nutmeg which is not broken until the nuts are prepared for shipment. A good tree yields 600 nuts yearly, or about

8 lbs. weight. A wild nutmeg grows in Damma, Amboyna, Ceram, Obi, New Guinea, Gillolo, of an elliptical shape, an inch or 1¼ inch long. M. officinalis, *Mart.*, is used in Brazil. Acrodiclidium camara, *Schomb.*, yields a fruit known as the Camara also Ackani nutmeg of Guiana; the clove nutmeg and the Brazil nutmeg. The calabash nutmeg is from the Moreodora myristica. In the Archipelago a species of myristica called Dungan and another M. spuria are substituted. M. tomentosa, *Hooker* and *Thomson*, is the nutmeg tree of Penang, M. malabarica, *Lam.*, and M. attenuata, *Wall.*, are indigenous to the forests of the Concan and Malabar. M. amygdalina, *Wall.*, a native of Martaban and Moulmein, is supposed to be identical with M. attenuata. It is M. malabarica that yields the Malabar nutmegs of commerce.

Butter of Myristica moschata,

Japhul ka tael,	Hind.	Jajikarra noona,	Tel.
Jadipootrie tilum,	Tam.		

is obtained by expression from the nutmeg, it has an aromatic smell from the volatile oil it contains. It is a solid oil in cakes, extracted from the nutmeg by expression; a yellow and volatile oil is also obtained.—*Dr. Oxley's Journ. Ind. Arch.*, *p.* 614; *Letter from H. B. Martin, Resident at Amboyna, to the Supreme Government, dated 24th March* 1812; *Low's Sarawak*, *p.* 216; *Captain Dance*; *O'Shaugh.*, *p.* 460; *Gœrtn.*; *Major Thom's Reports*, 1814; *History of Java*; *M. E. J. R.*; *Simmond's Dict.*; *Bikmore*, *p.* 249; *Cameron*, *pp.* 165-6; *Penang Gazette*, *Nov.* 1848; *Jour. Ind. Arch.*, *Vol.* v, *No.* 8, *August* 1851; *Simmonds*; *Crawfurd's Dict.*, *p.* 305; *M. E.*; *Bonynge, America*, *p.* 155; *Food and its adulteration*, *p.* 408; *Tomlinson*; *Present state of Banda*, 1813: *Count Hogendorp Coup d'oel sur le isle de Java, &c.*, ; *Singapore Free Press*, 14*th Dic.* 1818; *Defence of the East India Trade, written in* 1821, *supposed by Thos. Mun.*

NUTMEG, MALE.

Kayphul, Guz, Hind.

A native of the Moluccas, and frequently to be met with in some of the woods of Southern India. It is covered with a hard shell, provided with a pale arillus. It is one and a half to two inches long, elliptical, the parenchyme devoid of marbling. Its odour is weak, and flavour disagreeable. Its properties are analogous to that of the true nutmeg, but the oil is so inferior in proportion, that it is but of little commercial value. It is thought that it might, however, be greatly improved by cultivation. They are procurable in most Indian bazaars.—*Faulkner.*

NUTMEG OIL.

Jaiphul-ka-tel,	Hind.	Jagikarra nuna,	Tel.
Jadikai enne,	Tam.		

The nutmeg contains a fixed or solid oil, and a volatile oil; both of which are used for medical purposes. Of the former there are two varieties; the English, which is the best, occurs in pieces of about ¾ lb. in weight, wrapped in leaves of the banana, it has a uniform reddish colour inside, and the Dutch imported from the Moluccas chiefly, in larger pieces, wrapped in leaves or paper, and of a lighter colour.—*Waterston; Faulkner.*

NUTMEG PIGEON, see Columbidæ.

NUTMEG TREE, Eng. Myristica moschata.

NUTMEG, WILD, Eng. Pyrrhosia horsfieldii, *Blume.*

NUT'NA, also Nut'h, the nose-jewel, even to mention this is considered a breach of delicacy. Colonel Tod states that, as a token of the full confidence reposed in him, he was told that, "Should you even send to the queen's apartment and demand her necklace or nutna, it shall be granted."—*Tod's Rajasthan, Vol.* i, *p.* 431.

NUT OIL, Oils of Corylus coturna or Juglans regia.

NUTSA, a tribe, in lat. 21° 20′ N., and long. 99° E. with Lawa and Shans on the north.

NUTS, ACHEEN, are the betel nut, boiled, of very inferior quality, chiefly used by the lower classes in the South of India and are in no demand at Madras: sold from 35 to 50 Rs. a candy.

NUTS, COLUMBO, are raw betel nuts: sold everywhere and are chiefly used by the Kayala mahomedans.

NUTSI RAGUM, Tam. Cuminum cyminum.

NUTTALLIA GRANDIFLORA, a pretty plant, when in blossom, resembling the poppy; they should be grown in a light rich soil of vegetable mould, the colour of the flowers is pink, purple, red and purple.—*Riddell.*

NUTTI CHURI, Tam. Spermacoce hispida, *L.*

NUTTY, Tam. The swim or sound in the bellies of fish, the swimming bladder. That of Madras is obtained from the Codoovah min and Koorakathalay min. It is sold at 8 Rupees per maund of 8 viss, or 160 Rupees per candy. This is bought by merchants and exported to China where it is used to polish silk and crockery ware.

NUVULU, Tel. Sesamum indicum, *Linn.*

NUVU-PATRIKA, Sans. From nuvu, nine, and patra, leaves.

NUVU-RATNA, Sans. From nuvu, nine, and ratna, a jewel. See Nau-ratni.

NUVVU, Tel. Sesamum indicum, *L.*; S. orientale, *R.* iii, 100.

NUWA, Burm. Gossypium arboreum, *Linn.*

NUWAB, Ar., Hind., Pers. The nabob of Europeans, a title amongst mahomedans of India.

NUW-AITI, a mohamedan tribe.

NUWERA ELLIA, 7° 3′; 81° 52′, a sanitarium in the interior of Ceylon.

NUWOODASA KOORA, Tel. Bryonia scabra.

NUWULU, Tel. Gingelly seed.

NUX VOMICA.

Nux vomica, or Koochla tree.
Strychnos nux vomica, *Linn*

Falus Mahi, Khanak-ul-kalb, Arab.
Jaoz ul kai, „
Kuchla tree, Anglo-Hind.
Kuchla, Beng.
Matsin, Chin.
Kachla, Duk.
Poison nut, Dogbane, Eng.
Noix vomique, Fr.
Jeracatcheri, Kuchla, Guz. Hind.
Izaraki, Falus Mahi, Per.
Culaka, Kataka, Veshamos. tibejum, Sans.
Kodakadduruatta, Singh.
Yetti cottay, Tam.
Mustig henza Musadi vittu Tel.

The Nux vomica is the nut of Strychnos nux vomica. Its wood was supposed by Dr. Christison to be often substituted for Lignum colubrinum, snake wood. Its bark is often sold in Calcutta as that of the Rohuna tree, Soymida febrifuga. Nux vomica was early used as a medicine by the hindoos; by whom its properties must have been investigated long before it could be known to foreign nations. It is the Izarakee of Persian works on Materia Medica, but there is doubt respecting its name in Avicenna. Khanuk-al-kulb, dog-killer, and Faloos mahee, fish-scale, are other Arabic names. But under the name of Jouz-al-Kue or Emetic nut, Dr. Royle obtained the fruit of a Rubiaceous shrub. Dr. Pereira thinks that the Nux mechil of Serapion is Nux vomica; but in Persian works this name is applied to a Datura. The plant is a moderate-sized tree, with a short crooked trunk. Branches irregular, the young ones long and flexuose, with smooth dark-green bark. Wood white, close-grained, and bitter. Leaves opposite, with short petioles, oval, smooth and shining, 3 to 5-nerved, differing in size. Flowers small, greenish-white, in terminal corymbs. Calyx 5-toothed. Corol funnel-shaped; limb 5 cleft, valvate. Stamens 5; filaments short, inserted over the bottom of the divisions of the calyx: anthers oblong, half exserted. Ovary 2-celled, with many ovules in each cell, attached to the thickened centre of the partition. Style equal to the corol in length. Stigma capitate. Berry round, smooth, about the size of an orange, covered with a smooth somewhat hard fragile shell, of a rich orange colour when ripe, filled with a soft white gelatinous pulp, in which are immersed the seeds attached to a central placenta. Seeds peltate or shield-like, slightly hollowed on one side, convex on the other, about ¾ of an inch in diameter, and about 2 lines in thickness, thickly covered with silky ash-coloured hairs attached to a fibrous testa, which envelopes the kernel composed of horny bitter albumen, of the form of the seed and of the embryo imbedded in a hollow in its circumference. It is a native of the Indian Archipelago and of the forests of the Peninsula of India, as well as of the southern parts of the Bengal Presidency, as near Midnapore.—*Esenb. and Eberm.*, 209; *St. and Ch.*, xi, 52.; *Roxb. Corom.*, i, t. 4

NUZUR-O-NYAZ, Ar. Vows and oblations.

NUZZUR, Ar. An offering from an inferior to a superior. Nuzzerana, a fee for investiture; a succession fee. Nuzzerana, or 'relief,' marks the original emanation of a grant, and in Mewar was fixed at one year's revenue of the state.—*Tod's Travels, p.* 486.

NWAY HNYO, Burm. Thunbergia, *sp.*

NWAY-KA-ZWON A PHOO, Burm. Calonyction roxburghii, *G. Don.*

NWAY NEE, Burm. Argyreia capitata, *Choisy.*

N'WY-K'HYO, Burm. Glycyrrhiza glabra, *Linn.*

NYA, Burm. Æschynomene paludosa.

NYAD, Hind. A term applied to converts to mahomedanism. The Nyad or proselytes from rajput or other hindoo tribes are Zjhut; Rajur; Oomra; Soomra; Mair or Mer; Mor or Mohor; Baluch; Lumria or Looka; Sumaicha; Mangulia; Baggreah: Dabya; Jobya; Kairooee, Jangurea: Oondur, Beromee; Bawuri; Tawuri, Chrendea; Khossa, Sudani; Lohana. These converts are ferocious and intolerant.

NYAGAON REBAI. Luchmun Sing, one of the banditti leaders of Bundelcund, was induced to surrender on promise of pardon.—*Engagements and Sunnuds.*

NYA-GYEE, Burm. Morinda.

NYAI RATU KIDUL, see Karang bollang.

NYAIN, Hind. Loamy land to which manure and irrigation are applied.

NYAMDAL, Taxus baccata. The Himalayan year.

NYAMDAL, Hind. Taxus baccata.

NYAN, Tibetan. Ovis ammon, is found in Ladak, only in the most inaccessible places, near the snow limit.

NYAN, Burm. Desmoduim, *species.*

NYA-PEE or Gna-pee, Burm. The Balachang of the Malays, a compound of several kinds of small fish. Putrescent fish, in some shape or other is a condiment among all the races from the mountains of Sylhet to the isles of the Archipelago.

NYAR, a river near Chandpoor in the Almorah district.

NYAR, a river near the Cossyah hills.

NYASA, a form of ejaculation made with a short and mystic prayer to the heart, the head, the crown of the head, and the eye, as Om! Sirase Namah! Om! salutation to the head, with the addition of the Kavacha, the armour or syllable Phat, and the Astra, the weapon or syllable Hum. The entire mantra, the prayer or incantation, is then, Om Sirase Namah, Hum, Phat. The Nyasa ceremony is performed at the time of worship (pooja,) and consists of a number of curious, minute, and almost undefinable motions of the hands and fingers, (while the person repeats prayers,) such as touching the eyes, ears, shoulders, mouth, nose, head, breast, &c., doubling and twisting the hands, fingers, &c.—*Him. Th.*, *Vol.* ii, *p.* 53.

NYASA, Sans. A deposit, from nee, prep. and us, to throw.

NYAYA, Sans. Justice; from nee, prep. and ay, to move.

NYAYA, the philosophy of the hindoos, a syllogism. This school of philosophy, or logical system of Gautam, corresponds with the dialectic school of Xenophanes. It is one of the six orthodox schools of the hindoos, the other two being the Mimans of Jeimuni, and the Mimans or Vedant of Vyasa. Of the philosphical schools it will be sufficient here to remark, that the first, Nyayu, seems analogous to the Peripatetic; the second, sometimes called Vaisishica or Vaiseshka to the Ionic; the two Mimansa, of which the second is often distinguished by the name of Vedanta to the Platonic; the first Sanchya to the Italic, and the second, or Patanjala, to the Stoic philosophy; so that Gautama corresponds with Aristotle, Kanada with Thales, Jaimini with Socrates, Vyasa with Plato, Kapila with Pythagoros, and Patanjali with Zeno; but an accurate comparison between the Grecian and Indian schools would require a considerable volume. The original works of those philosophers are very succinct; but like all the other shastras, they are explained, or obscured by Upadarsana, or commentaries, without end. It results, from this analysis, of hindoo literature, that the Veda, Upaveda, Vedanga, Purana, Dharma, and Darshana, are the six great shastras, in which all knowledge, divine and human, is supposed to be comprehended. The word shastra, derived from a root signifying to ordain, means generally an ordinance, and particularly a sacred ordinance, delivered by inspiration: properly, therefore, the word is applied only to sacred literature. The sudras, or fourth class of hindoos, are not permitted to study the six proper shastras beforementioned; but an ample field remains for them in the study of profane literature, comprised in a multitude of popular books, which correspond with the several shastras. All the tracts on medicine must, indeed, be studied by the Vaidyas, or hereditary physicians, who have often more learning, with far less pride, than any of the brahmans; they are usually poets, grammarians, rhetoricians, moralists, and may be esteemed, in general, the most virtuous and amiable of the hindoos. See Veda, Vidya.

NYAU, Burm. Morinda exserta.

NYAU HWEE, Burm. Morinda, *sp.*

NYAUPOOR, near Changaon in Comillah.

NYAZ, Ar. Mohurrum kee Nyaz, the mohurrum oblations. Nyaz oollah, offerings in the name of God. Nyaz russool, offerings in the name of the prophet Mahomed.

NYCTAGINEÆ, *Riddell*. See Pisonia grandis.

NYCTANTHES ANGUSTIFOLIA, *Linn.* Syn. of Jasminum angustifolium, *Vahl.*, *Willd.*

NYCTANTHES ARBOR TRISTIS, *Linn.*

Scabrita scabra, *Vahl.*
Scabrita triflora, *L.*, *Mart.*
Parilium arbor-tristis, *Gærtn*

Kuri, of Beas.
Shioli, Singahar, Beng.
Hseik-ba-lu, Burm.
Hursing, Can.
Laduri, Chenab.
Keysur, Duk.
Night-flowering jasmine, Eng.
Sorrowful nyctanthes, „
Tree of mourning, „
Square stalked nyctanthes, Eng.
Pahar-butti, Mahr.
Manjapu-maram, Maleal.
Pakura, Ravi.
Sephalica, Sans.
Sepala, shephalica, Singh.
Paghalamalli, Tam.
Poghadamullay, Tel.
Karu chiya, Pari, also Parijotamu, Tib.

This is a tall shrub with rough scabrous leaves, well-known for the delicious though evanescent perfume of its flowers. The tubes of their corollas, called in Hindooi (Dundee), are of a fine rich yellow colour and are employed alone or in conjunction with Parasam flowers (Butea frondosa), in preparing a beautiful though transient bright yellow-dye, much sought after by the mahomedans for dyeing their turbans, and used for dyeing silks especially, it produces a good yellow colour, and compounds with reds, into a pleasing series of flame salmon and orange colours. The flowers called Dunda poo, Tel., are used for giving a scent to cloths. Buchanan mentions the product as the powder scattered at the Holi feast. In Ajmeer, the tubes of the corolla are used, under the name of 'kesru,' to dye buff or orange colour. This plant is very abundant, wild, at the foot of the Vindhya range, where the green tough stalks are used to make large grain baskets of. The tree of mourning, is sometimes called night-blooming flower, and is as great a favorite in India as in the Southern States of America. Its delicate orange and white blossoms pour the most delicious fragrance on the evening air, and then fall in showers, bedewing the earth's cold bosom with sweetness. Its flower is held sacred to Siva.—*Drs. O'Shaughnessy*, *p.* 436; *J. L. Stewart; Ains. Mat. Med.*, *p.* 148; *Irvine; Gen. Med. Top.*, *p.* 172; *Mason; Rhode's MSS.; Beddome and Macdonald; Powell's Hand-book*, *Vol.* i, *p.* 448.

NYCTANTHES HIRSUTA, *Linn.*, also Nyctanthes multiflora, Burm., and Nyctanthes pubescens, *Retz.*, also the Jasminum hirsutum, *Linn.*, are syns. of Guettarda speciosa, *Linn.*

NYCTANTHES SAMBAC, *Linn.* Syn. of Jasminum sambac, *Ait.*

NYCTANTHES TRIFLORA, Burm. Syn. of Jasminum angustifolium, *Vahl.*, *Willd.*

NYEE, Tam., Tel. Ghee.

NYL-GHAU, Hind. Portax pictus.

NYCTAGINACEÆ, *Lindl.* The marvel of Peru tribe of plants comprising: 2 gen., 5 sp., viz., 4 Pisonia and 1 Oxia.

NYCTICEBUS BENGALENSIS, *Geoff.*, *Horsf.*, *Bly.* Syn. of Nycticebus tardigradus, *Jerdon.*

NYCTICEJUS ATRATUS, *Bly.* Syn. of Scotophilus fuliginosus, *Jerdon.*

NYCTICEJUS FLANEOLUS, *Horsf.* Nycticejus luteus, *Bly.*

NYCTICEJUS ISABELLINUS, *Horsf.*

NYCTICEJUS TICKELLI, *Bly.* Syn. of Murina formosa, *Jerdon.*

NYCTICORAX GARDENI, the Night Heron of Europe, Asia; Africa, North America? or a species at least barely separable, is very common in India. The Nycticorax, genus of birds, is of the order Grallatores, as under:

Sub-fam.—Ardeinæ, 1 gen., 7 sub-gen., 19 sp., viz: 4 Ardea, 6 Herodias, 1 Butorides, 1 Ardeola, 1 Nycticorax, 1 Tigrisoma, 1 Botaurus, 4 Ardetta.

NYCTINOMUS BENGALENSIS, *Geoff.* N. dilatatus, *Horsf.*, and N. tenuis, *Horsf.*, are syns. of Nyctinomus plicatus, *Jerdon.*

NYCTERIBIA, a singular parasitic creature which appears to have neither head, antennæ, eyes, nor mouth. It moves by rolling itself rapidly along rotating like a wheel on the extremities of its spokes, or like the clown in a pantomime, hurling himself forward on hands and feet alternately. It was first discovered only on a few European bats. Joinville figured one which he found on the large rousette or flying-fox, and says he had seen another on a bat of the same family. Dr. Templeton observed them in Ceylon in great abundance on the figure of the Scotophilus Coromandelicus.—*Tennent's Sketches of Nat. His. of Ceylon, p.* 20.

NYCULA, see Pandu, Polyandry.

NYEE, Tam., Tel. Ghee.

NYMPHÆA, a genus of plants, the type of the natural order Nymphaceæ. There are upwards of 20 species of this genus described. They have all large floating leaves, with white, red, or blue flowers, which appear at the surface of the water. Griffith says there are two different species of water lily in the Tenasserim Province. The Nymphaceæ or water-lily tribe, are all floating plants and dispersed through most warm parts of the world. Their stems are bitter and astringent and contain a considerable quantity of fæcula, which may be used as food. Nymphæa alba, the common white water-lily, is a native of ditches, ponds, and lakes throughout Europe, and is abundant in Great Britian. The flowers are white, and according to Linnæus, open themselves in the morning at seven o'clock, and close them at four o'clock in the evening. The roots of the white water-lily contain an astringent principle, which renders them useful in dyeing. They also contain starch, and on this account swine feed on them, although other animals reject them. A variety of this plant occasionally met with called Alba minor, has smaller flowers and leaves than the species. It is found in tanks in India, and grown as the rest of the species. The Nymphæa nelumbo is considered, on account of its beautiful appearance, a sacred plant, and pleasing to the gods. The images of idols were often depicted sitting on its large leaves. The genera and species are as under:

Euryale ferox, *Salisb.*, North India, Bengal.
Nymphæa pubescens, *L.*, British India.
„ rubra, *Roxb.* „ „
„ „ var. rosea, *Roxb.*, Bengal.
„ „ „ major, the N. cyanea, *R.*, Beng.
„ versicolor, *Roxb.*, Bengal.
„ edulis, *DC.*, „
„ stellata, *Willd.*, Peninsula of India.

—*Eng. Cyc.*; *Mason*; *Roxb.*; *Voigt*; *Riddell*; *Thunberg's Travels, Vol.* iii, *p.* 227.

NYMPHÆA EDULIS, *DC.*

Nymphæa esculenta, *Roxb.*		Castalia edulis,	*Salisb.*
Chota sundhi,	Beng.	Kalharamu,	Tel.
Kotika,	Tel.		

The eatable water lily has pellate broad oval entire leaves, with the under surface pubescent. It is a native of the East Indies, in wet fenny districts. Its flowers are small, and white or reddish. Like all the species it has large pear-shaped roots, which contain an abundance of starch, and they are consequently used as articles of diet, as also are the seeds of a species nearly allied to this, the N. rubra, which has deep-red flowers. Its flowers also are held in veneration by the hindoos. The Tukhm-i-nilofar of Sirsa are the capsules and seeds of Nymphæa edulis, which are eaten or else mixed with flour and made into cakes; they are also curried. The Bekh-i-nilofar of Srinagar and Kashmir is the root of the edible lotus.—*Eng. Cyc.*; *Roxb.*; *Riddell*; *Voigt*; *Powell.* See Kaul doda, &c.

NYMPHÆA CÆRULEA, the blue water-lily, has peltate, nearly entire, leaves without dots, glabrous on both surface, and 2-lobed at the base, the lobes free; the anther with an appendage at the apex; the stigmas 16-rayed. This plant is a native of Lower Egypt in rice-grounds and canals about Rosetta, Damietta, and Cairo. The flowers are very fragrant, and from its frequent representation in the sculptures of Egypt, it appears to have been regarded as a sacred plant by the ancient Egyptians.—*Eng. Cyc.*

NYMPHÆA NELUMBO, *Linn.* Syn. of Nelumbium speciosum, *Willd.*

NYMPHÆA PUBESCENS, *Willd.*

N. lotus, Burm.

Kyrob,	Assam.	Kawal-gutti,	Hind.
Buro-shaluk,	Beng.	Kahlara; Kumuda,	Sans.
Kya-phyu,	Burm.	Kooni,	Sind.
Lotus; Egyptian Lotus,	Eng.	Juda-tel-olu,	Singh.
Koi, Kumul,	Hind.	Tella kaluva,	Tel.
Bhambar; bhambal,	„	Kaki-kaluva,	„
Sarang: Kuwal-gotta,	„	Alli-kalung.	„

A native of Africa of all the E. Indies and Java. It was venerated by the Egyptians and is held sacred by the hindoos, being regarded as an emblem of fertility. It has large white flowers with sepals. Has peltate leaves, sharply serrated; the under surface is pilose at the nerves, and pubescent between them, red at the margins: the root is large, tuberous and eatable; like that of the Tawmaray, (Nelumbium speciosum), the root can only be found in dry weather, in the beds of the tanks; it is pleasant to the taste, and is made by the natives into curries and other dishes. The seeds were dried by the ancient Egyptians, and made into bread. Dr. Buist gave a highly interesting account of the breathing of the Lotus, but Lotus is a name applied to various plants by the ancients. The Lotus of the Lotophagi was the Zizyphus lotus; that of Homer and Dioscorides, a species of Lotus, or Trifolium; the Lotus of Hippocrates is the Celtis australis; and the Italian Lotus is the Diospyros lotus. The halved-dried flowers, consisting of numerous yellowish thin petals, are considered by native writers to be a dry and cold astringent remedy, used in fever and cholera, bilious affections and piles, also in diarrhœa and eruptions of the mouth. The root is mucilaginous and demulcent, and is used in piles. The fruit called Napa bij or Kumud bij, is used similarly, is considered by natives cool and used as an antidote for poisons also in skin-diseases and leprosy.—*Eng. Cyc.*; *Irvine, Gen. Med. Top.*, *p.* 198; *Powell's Hand-book, Vol.* i, *p.* 330; *Ainslie's Materia Indica, p.* 248.

NYMPHÆA PYGMIA, a diminutive water-lily, the flower of which is no larger than a half-crown; grows on the Khassia hills, in China and Siberia, a remarkable fact in the geographical distribution of plants.—*Hooker's Him. Journ.*, *Vol.* ii, *p.* 312.

NYMPHÆA RUBRA, *Roxb.*

Buro-rakta kumbul,	Beng.	Rakta sanduka?	Hind.
„ kamala,	„	„ kamala,	„
Kya-nee,	Burm.	Ruta-tel-olu,	Singh.
Water-lily,	Eng.	Rakto-sanduka,	Sans.
Red-flowered lotus,	„	Erra kaluwa,	Tel.
Kamal,	Hind.		

This water-lily grows in tanks in the peninsulas of India and in Bengal. Its flowers appear at the close of the rains, are of an intense red, or dark crimson colour.

var. β. Nymphæa rosea.

Ch'hoto-rukto kumul,	Beng.	Rakta kamala,	Hind.

This has large rose-coloured flowers. It is cultivated in tanks but grows wild.—*Irvine, Gen. Med. Top.*, *p.* 198; *Riddell*; *Voigt.*

NYMPHÆA STELLATA, *Willd.*

Ch'hoto Nil-padma,	Beng.	Nilumbo-janma,	Sans.
Soondi,	„	Nal-tel-olu,	Singh.
Blue lotus,	Eng.	Indivara,	Tel.
Star-flowered water-lily	„	Nalla kaluwa,	„
Kahlara; Indevara,	Sans.		

Grows common in ponds and tanks, in the peninsulas of India and in Bengal, it has small blue flowers;

var. β. N. cyanea, *Roxb.*

Buro-nil-padma,	Beng.	Nil-padma,	Hind.
Blue water-lily,	Eng.	Lila phool,	„

Grows in Bengal, is common in the Ajmir and Pashkur lake, has largish, bluish flowers; they are used medicinally being considered astringent and refrigerant.—*Irvine, Gen. Med. Top.*, *pp.* 144 *&* 198; *Roxb.*

NYMPHÆA VERSICOLOR, *Roxb.*

Buro-sundhi, Beng.

A native of Bengal, has large rose-coloured or bluish-white flowers, the *var.* β N. alba, a native of Bengal, has white flowers.

NYMPHICUS NOVÆ HOLLANDEA, Cockatoo parrakeet.

NYNA, Bhot. Ovis ammon.

NYOAY-SHA, Burm. A tree of Moulmein, wood used for building material.—*Cal. Cat. Ex.*, 1862.

NYOLBA or Nyalba, Tib. The Naraka, Sans., or hell of the hindoos.

NYOUNG Bu-Dee, Burm. Ficus bengalensis.

NYOUN GOO AND PAGAU MYO, Burm. Towns three miles apart, are both embraced in the space thickly spotted with the ruined temples of the ancient Burmese capital Pagau. They are the chief seat in Burmah proper, of the manufacture of the boxes and cups made of the varnished basket work, commonly called lackered ware. See Pagau.

NY-OUNG-GYAT, Burm. Ficus cordifolia.

NYOUNG OUNG, Burm. Ficus benjaminoides, *Mason.*

NYOUNG-LAN, Burm. A tree of Moulmein, wood used for building material.—*Cal. Cat. Ex.*, 1862.

NYOUNG-MEN-TARA, see Ava.

NYOUNG-THA, Burm. A tree of Moulmein. A strong wood for any ordinary purpose.—*Cal. Cat Ex.*, 1862.

NYSA, see Bactria, Greeks of Asia, Kafir.

NYU, Hind. of Kanawar, Alnus nepalensis, Himalayan alder.

NYUL, Hind. Herpestes griseus, *Geoff.*, *Bly.* Herpestes malaccensis, *Fleur.*, *Bly.*

NY-UNG-BU-DI, Burm. Ficus indica, fibre.

NYUNG-YUWE, see Shan.

O is the fifteenth letter and fourth vowel of the English language, in which it has several sounds ;—long as in *tone*, *grown*, *old* ; short as in *lot*, *not*, *lodge*, *rot* : a sound as of the Italian or German *u*, or the French *ou*, as in *move*, *do*, *booty* ; a similar but shorter sound as in *wolf*, *boot*, *foot*, and a longer sound as in *form*, *mortal*. In Sanskrit *o*, like *e*, is always long, but in the Southern dialects, there is a still more prolated quantity of it.

OADHAL, Assam. Sterculia villosa, a native of the mountainous countries to the eastward of Bengal. Trunk straight, the bark is smooth, but fibrous bags are made of it. Its fibres are made into cords by the natives of the eastern frontier of Bengal, to bind wild elephants with. The rope is made most readily ; the bark, or rather all the layers, can be stripped off from the bottom to the top of the tree with the greatest facility, and fine pliable ropes may be made from the inner layers of bark, whilst the outer yield coarse ropes. The rope is very strong and very lasting—wet doing it little injury.

OADAL, a creeper in Kemaon, with fine strong fibres.

OAK, Eng.

Baalut,	Arab.	Quercia,	It.
Eeg,	Dan.	Quercus,	Lat.
Eik,	Dut.	Dab,	Pol.
Chene,	Fr.	Roble,	Port., Sp.
Eiche,	Ger.	Carbalho,	„
Drus,	Gr.	Bubb,	Rus.
Balania,	„	Ek,	Sw.

In the tract of country from Asia Minor, along the north of Persia to China and Japan, also in the Tenasserim provinces, several oaks occur, but, in the presence of other valuable timber trees, their woods do not attract the same attention as that of English oak. An oak is mentioned in the Holy Scriptures, but it is not identical with the British oak, being either the evergreen oak (Quercus ilex,) or a species nearly resembling it. Near Shechem there stood also a tree of the same genus which probably was remarkable for its size, being called in Genesis, xxxv, 4, "The oak which was by Shechem." In the war of 1812-13 and 14, the natives of the peninsula and the French both frequently fed on the acorns in the woods of Portugal and Spain. In Morocco and Algiers the acorns of Quercus ballota are sold in the public markets, and the acorns "balut" of some of the oaks are met with in all the Indian bazars. The genus of Quercus embraces about 150 species. Several species are indigenous in the Tenasserim provinces, and on the mountains of South-Eastern Asia. Wallich found seven different species of oak Quercus fenestrata, turbinata, velutina, Amherstianus, Tirbbæ, growing in Burmah and on the Tenasserim Coast, and all affording useful timber, though inferior to the English oak. No oak nor chestnut ascends above 9,000 feet in the interior of Sikkim, where they are replaced by a species of hazel (Corylus) ; in the North Himalaya, on the other hand, an oak (Quercus semecarpifolia, see vol. i, p. 187) is amongst the most alpine trees, and the nut is a different species, more resembling the European. On the outer Sikkim ranges oaks (Q. annulata ?) ascend to 10,000 feet, and there is no hazel. It is not generally known that oaks are often very tropical plants ; not only abounding at low elevations in the mountains, but descending in abundance to the level of the sea. Though little known in Ceylon, the Peninsula of India, tropical Africa, or South America, they abound in the hot valleys of the Eastern Himalaya, East Bengal, Malay Peninsula, and Indian islands ; where perhaps more species grow than in any other part of the world. Such facts as this disturb our preconceived notions of the geographical distribution of the most familiar tribes of plants, and throw great doubt on the conclusions which fossil plants are supposed to indicate. In Borneo, the trees which are abundant, and produce excellent timber, amount to upwards of sixty species, many of the other kinds not useful as timber trees, are, or might be valuable, for making charcoal, pot-ash, pearl-ash, &c. Several kinds of oaks are found in the forests, but being of quick growth and soft wood, their timber is not esteemed. Ebony is abundant in many parts of the island, particularly on the west coast, but it is said to be inferior to that from the Mauritius, although it has been found a very profitable export to China. In the neighbourhood of the Lundu river, in the Sarawak territory, are large forests of it. There are three species of oak in the Sutlej valley, Quercus incana, "ban." Common hoary oak, Q. semicarpifolia, "karsu," Q. dilatta, "morhu," which are next in importance to the pines. Vast forests of them occur in various places, as on the east side of Hattu, on the upper track between Muttiana and Nagkanda, in Mandi, Sukhet, &c. The trees are of great size, 80 to 100 feet in height, they prefer dry situations, and are not generally convenient to the river. The logs do not float the first and second years, being in this respect like the black wood of Malabar. Oak wood has been well reported of by General Cautley at Marri.—*St. John's Forest Trees of Britain, Vol.* i, *p.* 51 ; *McCulloch's Commercial Dictionary, p.* 854; *Drs. Faulkner ; Mason ; Wight ; Hooker, Him. Jour., Vol.* ii, *p.* 336 ; *Low's Sarawak, pp.* 59-61. See Acorns, Japan, Quercus, Tree.

OAK GALLS are produced on different species of oak by the female of the Cynips, or Diplolepis, piercing the buds of Q. imfectoria and depositing its eggs. Dr. Falconer, when travelling in the Punjab, was informed that galls were produced on the Balloot oak, Q. ballota. East India Galls of commerce are Bussorah Galls, re-exported from Bombay. Mecca Galls are also Bussorah Galls. The Himalayan oak (Quercus incana), Chil, (Pinus longifolia), and small rhus (R. continus), are employed for tanning.—*Cleghorn's Punjab Report, pp.* 41, 191; *Royle.*

OAK-AN, Burm. A tree of Moulmein. This wood is made into canoes.—*Cal. Cat. Ex.*, 1862.

OAK-LEAVED POLYPOD, Polipodium quercifolium.

OAKUM.

Pakal,	Malay.	Pamakal,	Malay.

Old hempen ropes pulled loose, and used in the caulking of sailing vessels. Oakum in China is made of the baru, a gossamer-like substance found at the base of the petioles of the Arenga saccharifera.—*Faulkner.*

OAN-NAIH, Burm. A tree of Moulmein, used for house-building purposes.—*Cal. Cat. Ex.* 1862.

OANT, Hind. In Central India, accommodation bills. These are termed, on the faces of the bills, "chelaun" or current, in opposition to "Rokra," or ready money bills. The person who accepts these from the drawers, enters the amount against him in his books at interest.—*Malcolm's Central India, Vol.* ii, *p.* 90.

OARACTA, see Kishm island.

OASIS, a fertile portion of land in the deserts of Africa and Arabia. Hugh Murray derives this word from the Egyptian, and quoting Strabo and Abulfeda makes it synonymous with Auasis and Hyasis, but it is believed to be a mere corruption of the Arabic word wady. The "wady" is, generally speaking, a rocky valley bisected by the bed of a mountain torrent, dry during the hot season. In such places the Bedouins love to encamp, because they find forage and drink,—water being always procurable by digging. M. Langles suggested the derivation of Oasis from the Arabic, and Dr. Wait, in a series of interesting etymologies suggests vasi from vas, to inhabit. Vasi and oasis or vasis are almost identical. Sir W. Ouseley gives nearly the same signification of Wadi as appears in Johnson's edition of Richardson, viz., a valley, a desert, a channel of a river, a river; wadi-ul-kabir, 'the great river,' corrupted into Guadalquiver, which example is also given in d'Herbelot and by Thompson, who traces the word water through all the languages of Europe. The Saxon wœter, the Greek hudor, the Islandio udr ; the Slavonic wod, (whence woder and oder, 'a river') : all appear derivable from the Arabic wad, 'a river' —or the Sanscrit wah ; the word bas (classically vas) is applied to one of these habitable spots. The word bustee,- a hamlet, is from vasna, to inhabit ; vasi, an inhabitant ; or vas, a habitation, perhaps derivable from wah, indispensable to an oasis.—*Burton's Pilgrimage to Mecca, Vol.* i, *p.* 219 ; *Asiatic Journal, May* 1830 ; *Tod's Rajasthan, Vol.* ii, *p.* 294. See Wadi gehennem.

OATH.

Kasm, Ar., Hind., Pers.

Oath, a religious affirmation, an appeal to witness of the Supreme God. The British nation have, in England and Ireland, the custom of kissing the book, pronouncing the words "so help me God." The French custom raises the hand as in Gen., xiv, 22; Deut. xxxii, 40; Jeremiah, v, 7, forbids swearing by idols, and in II Kings xi, 2, and I Sam. i, 26, the soul (or life) of the exalted man is invoked. The Greeks and Romans swore by their tutelary gods and the mediæval christians by their guardian saints. The oath administered to the person who erects the boundary pillars, if a hindoo, is the gunga-jul, or the chour or raw hide of the cow, or swearing by his son. The leaves of the tulsi and water are swallowed after an oath. If a musulman the Koran, or the placing his hands on his son's head. To a hindoo the chour, and swearing by his own child, are the most binding. In the "Book of the Oath," which a Burmese witness places on his head in swearing, one of the numerous and tremendous imprecations which it contains is, "All such as do not speak truth...... if they travel by water whether in ships or boats, may they sink, or may they be bitten or devoured by crocodiles.—*History of the Punjab, Vol.* i, *p.* 151 ; *Yule, p.* 24. See Jaffri oaths.

OATS.

Havre,	Dan.	Avena sativa, *L.*	Lat.
Haver,	Dut.	Owies,	Pol.
Common oat,	Eng.	Avea,	Port.
Avoine,	Fr.	Ovyoss : owes,	Rus.
Hafer,	Ger.	Avena,	Sp.
Bromion : bromos,	Gr.	Hafre,	Sw.
Vena, avena,	It.		

The oat (*βρῶμος* of Dioscordes) was known to the Greeks. The oat is distinguished among cereal grains by its loose panicle. A native probably of the Persian region. Several varieties are cultivated in Europe. The grains of oat when deprived of their integuments form groats, when these are crushed, embden and prepared groats.

When the grain is kiln-dried, stripped of its husk and delicate outer skin, and then coarsely ground, it constitutes the oatmeal of Scotland. The husk, with some adhering starch from the seed, is sold under the inconsistent name of seeds. Oats according to Vogel, consist of 34 of husk and 66 per cent. of meal, and oatmeal, in 100 parts, 59 of starch, 43 of albuminous matter. Bitter extractive and sugar, 8·25, gum, 2·5 with 23·95 of Lignin and moisture. Dr. Christison finds as much as 72 per cent. of starch, and that it consists therefore of nearly five-sixths of real nutriment. Groats and oatmeal are nutrient and demulcent. When boiled with water (3 oz. to 1 pint, boiled down to ½ a pint), gruel is formed, which is so useful as diet for the sick. Oatmeal, when of thicker consistence, forms porridge, and may be employed for making poultices. Oats are in demand for horses. The following is a fair estimate of the comparative production :—

England, Acres	2,500,000	Produce	12,500,000
Ireland, „	2,300,000	„	11,500,000
Scotland, „	1,300,000	„	6,500,000

It is the hardiest of all the cereal grains cultivated in Britain, of which there are about 40 species known to botanists. Oats were introduced into Patna and Monghyr, but the cultivation is not carried on to any great extent.—*Royle; Hassell; Cat. Ex.*, 1862, *Nees von E., p.* 28.

OB, a serpent: for Obi-women, Obion, Oboth, and Oub, see Serpent.

OBAL, Hind. Fagopyrum emarginatum, *Meisn.*

OBAN, the principal gold coin of Japan, worth about £4 2*s.*—*Simmond's Dict.*

OBAR, Hind. Kotaha, land dependant on rain for irrigation same as Barani.

OBARA, Hind. Houbara macqueenii, one of the bustards.

OBAIRIA, hard, rather fine, generally close-grained, heavy Ceylon wood, presenting, however, many open cells.

OBEH, see Kalmuck, Jews.

OBELISKS, see Maha deva.

OBIRA, or Kakesa and Tella pidusa, Tel. Streptium asperum, *R.* iii, 90; *Cor.* 140. Perhaps Obera or Obhera would be a more correct orthography.

OBLATIONS, Jeremiah, xliv, 17, says, 'To pour out drink-offerings to the queen of heaven.' The hindoos pour out water to the sun three times a day; and the moon at the time of worshipping this planet. Amongst hindoos, kula means a family, a race, a tribe. Properly the got of a hindoo is his tribe, and kula is the race. But kula, among the Rajputs means a tribe; and corresponds to the Affghan kheil. Amongst the hindoos there are three kinds of devata or deities to whom worship is given, the Gramma Devata or village-god; the Kula Devata, the race, household or family-god; and the Ista Devata, the patron or personal deity of individuals. Adhi-devata is the primitive deity, Sthana-devata, local deity. The Aryan hindoo does not recognize the village gods of Southern India, but the non-hindoo Turanian races largely worship them, and even many of those Turanian races who have been converted to hinduism, worship them. They are mostly shapeless pieces of wood or stone smeared with vermilion, and mostly represent evil sprits or devils. These are the Amma, Ammun and Amoor of the eastern and southern parts of the peninsula, and the Satwai, Bhairo, Massoba, Chamanda, Asra, Ai and Marryai of the northern and western parts of the peninsula, all of whom are recognized as causing harm to indiduals. In health, they are neglected, but when sickness occurs, either to individuals, or as an epidemic, these spirits of evil are worshipped with much solemnity and bloody sacrifices are made to them of goats and sheep and bullocks and buffaloes. Gotra or Kula mean a family and existed amongst Kshatrya and Vaisya as well as Brahmans. The Gotra depend on a real or imaginary community of blood and then correspond to what we call families. No hindoo house is supposed to be without its tutelary divinity, but the notion attached to this character is now very far from precise. The deity who is the object of hereditary or family-worship, the Kula-devata, is always Siva, or Vishnu, or Durga, or other principal personage of the hindoo mythology, but the Griha devata or household god rarely bears any distinct appellation. In Bengal, the domestic god is sometimes the Saligram, sometimes the tulasi plant, sometimes a basket with a little rice in it, and sometimes a water jar, to any of which a brief adoration is daily addressed, most usually by the females of the family: occasionally, small images of Lakshmi or Chandi fulfil the office, or should a snake appear, it is worshipped as the guardian of the dwelling. In general, in former times, the household deities were regarded as the unseen spirits of ill; the ghosts and goblins who hovered about every spot, and claimed some particular sites as their own. At the close of all ceremonies, offerings were made to them in the open air, to keep them in good humour, by scattering a little rice with a short formula. Thus at the end of the daily ceremony, the house-holder is enjoined by Menu—3.90 "to throw up his oblation (bali) in the open air to all the gods, to those who walk by day and those who walk by night." In this light the household gods correspond better with the genii locorum than with the lares or penates of antiquity.—*Wilson's Hind. Th.*

OBLON, Sp. Hops.

OBOS, see Jullundhur.

OBSIDIAN, a black mineral: it will scratch a paste, but not a pure gem.

OBST, Ger. Fruit.

OBUL, Hind. Rumex acutus.

OBUN, a river in the Banda district.

OBY and Irtish, rivers of Siberia.

OCCHUS of Pliny, the Akantheon aria of Theophrastes, supposed to be the Alhagi maurorum of Tournefort.

OCEAN.

Bahr, Bahr mahit,	Ar.	Darya,	Pers.
Darya,	Hind.	Samudra,	Sans., Tel.
Kala-pani,	„	Samandr,	Tam.

The south and east of Asia is girt by the ocean, portions of which are known as the Red Sea, the Persian Gulf or Bahr-i-Oman, the Arabian Sea, or N. Indian Ocean, the South Indian Ocean, the Bengal Bay and the Pacific Ocean. Edrisi says, "The Ocean Sea is called the Dark Sea, because it is dark, and is almost always in commotion with violent winds, and covered by thick fogs." To the ocean near land the Arabs give the name of Bahr-ul-Khazr, or Green Sea; the natives of India, generally style the Great Ocean as the Kala pani or Black Water. The Indian and Pacific Oceans are studded with islands in a state of formation by polypi and corallines. In the Indian Ocean, the tide follows the moon to the west with a somewhat northerly course. Dr. Buist, on the authority of Mr. Laidly, stated the evaporation at Calcutta to be "about fifteen feet annually, and that between the Cape and Calcutta, it averages in October and November, nearly three-fourths of an inch daily; between 10° and 20° in the Bay of Bengal, it was found to exceed an inch daily. Supposing this to be double the average throughout the year, we should have eighteen feet of evaporation annually." All the heat received by the intertropical seas from the sun annually would not be sufficient to convert into vapour a layer of water from them sixteen feet deep. It is the observations as to the rate of evaporation on shore that have led to such extravagant estimates as to the rate at sea. The mean annual fall of rain on the entire surface of the earth is estimated at about five feet. The rivers of India are fed by the monsoons, which have to do their work of distributing their moisture in about three months. Thus we obtain 0·065 inches as the average daily rate of effective evaporation from the warm waters of the N. Indian ocean. If it were all rained down upon India, it would give it a drainage which would require rivers having sixteen times the capacity of the Mississippi to discharge. Nevertheless, the evaporation from the North Indian ocean required for such a flood is only one-sixteenth of an inch daily throughout the year. The total amount of evaporation that annually takes place in the trade wind region generally at sea, according to Maury's estimate does not exceed four feet, Sir John Herschel gives to the winds the entire right of setting the ocean streams in motion; Lieutenant Maury holds the universal circulation of the sea to be caused by nothing else than the difference in its specific gravity, and Dr. Carpenter (or rather Professor Buff) would bring about a general interchange of polar and equatorial water by the aid of sunshine and frost alone. The water of the Indian Ocean is warmer than that of any other sea, therefore it may be inferred that the evaporation from it is also greater. The north Indian Ocean contains about 4,500,000 square miles, while its Asiatic water-shed contains an area of 2,500,000. Supposing all the rivers of this water-shed to discharge annually into the sea four times as much water as the Mississippi discharges into the Gulf of Mexico, we shall have annually on the average an effective evaporation from the North Indian Ocean of 60 inches or 0·0165 per day. The waters of the Indian Ocean are hotter than those of the Caribbean Sea, and the evaporating force there is much greater. These two facts, taken together, tend, it would seem, to show that large currents of warm water have their genesis in the Indian Ocean. One of them is the well-known Mozambique current, called, at the Cape of Good Hope the Lagulhas current. Another of these warm currents from the Indian Ocean makes its escape through the Straits of Malacca, and being joined by other warm streams from the Java and China Seas, flows out into the Pacific, like another Gulf Stream, between the Philippines and the shores of Asia. Thence it attempts the great circle route for the Aleutian Islands, tempering climates, and losing itself in the sea as its waters grow cool on its route towards the north-west coast of America. Near the shores there is a counter-current of cold water. The Lagulhas current, as the Mozambique is sometimes called skirts the coast of Natal as the Gulf Stream does the coast of Georgia, where it gives rise to the most grand and terrible displays of thunder and lightning that are anywhere else to be witnessed. There is sometimes, if not always, another exit of warm water from the Indian Ocean. It seems to be an overflow of the great intertropical caldron of India; seeking to escape thence, it works its way polarward more as a drift than as a current. It is to the Mozambique current what the northern flow of warm waters in the Atlantic is to the Gulf Stream. This Indian overflow is very large. The best indication of it is afforded by the sperm whale curve. In shore of, but counter to the "Black Stream," along the eastern shores of Asia, is found the cold current of Okotsk a streak or layer, or current of cold water answering to that between the Gulf Stream and the American coast. This current, like its fellow in the Atlantic, is not strong enough at all times sensibly to affect the course of navigation; but, like that in the Atlantic, it is the nursery of most valuable fisheries. The fisheries of Japan are nearly as extensive as those of Newfoundland, and the people of each country are indebted for their valuable supplies of excellent fishes to the cold waters which currents of the sea bring down to their shores. There are also about the equator in this ocean some curious currents, which Maury called the "Doldrum currents" of the Pacific, but which he says, he does not understand, and as to which observations are not sufficient yet to afford the proper explanation or description. There are many of them, some of which at times run with great force. On a voyage from the Society to the Sandwich islands Maury encountered one running at the rate of ninety-six miles a day. These currents are generally found setting to the west. They are often, but not always, encountered in the equatorial Doldrums on the voyage between the Society and the Sandwich Islands. The Pacific Ocean and the Indian Ocean may, in the view we are about to take, be considered as one sheet of water. This sheet of water covers an area quite equal in extent to one-half of that embraced by the whole surface of the earth, and, accordingly Professor Alexander Keith Johnston so states it in the new edition of his splendid Physical Atlas. There is, also, at times another warm current running to the south midway between Africa and Australia, of which the whales give indications. These convey immense quantities of highly saline water which has to be replaced by colder water. The Aleutian Islands are in the tract of the current from the Straits of Malacca. They are as subject to fogs and mists as the banks of Newfoundland. No trees grows on them, and for all household purposes the natives depend on the drift wood, amongst which camphor wood and woods of Japan and China are often seen. The Japan stream known as the Kuro Sino sweeps along the outer or eastern shores of the Japanese islands. This stream carries with it the Gulf weed or Sargossa with many animal forms such as Clio, Cavolina, Pteropods, Spirialis, Atlanta and the Pelagian skeleton shrimps, Alima and Erichthys; also the Carapaces of the sailor-crab called Planes. Near Japan a current runs in a thin layer in shore similar to that between the gulf stream and the American coast, and like it is the nursery of many valuable fisheries. It is in the cold waters which the currents of the ocean bring to its shores that the people of Japan obtain their supplies of fish, there as abundant as those of Newfoundland. Surrounding the coasts of Southern Asia, patches of the waters become occasionally crimson, brown, black or white, which, especially in the Indian Ocean, occasionally extend as far as the eye can reach. These are caused by organic matter, but whether it is wholly animal or wholly vegetable, or both has not been satisfactorily ascertained. The water from pink-stained patches has been found to contain animalcules. The Red Sea is supposed to be named from the quantities of slimy red colouring matter which it, at certain times throws up on its shores and which consists of a delicate seaweed. Along the coasts of China, yellowish spots are said not to be uncommon, and red and white patches occur on the waters of the Pacific, which, when seen at night by navigators, cause alarm, as they are taken for shoals. In lat. 8° 46' S., and long. 105° 30' E., Captain Kingman entered a white patch at dusk, he filled a a tub with the water and found it filled with luminous particles, insects and worms, some like a hair and about two inches long. This patch was 23 miles in length, north and south, with a strip of dark water dividing its centre. The whole appearance was that of a plain covered with snow. There was scarcely a cloud, but the sky was as black as if a storm was raging. Whales are principally about Celebes and the Sulu and Banda Sea, north of the Bilolo passage, few English ships now visit there from want of success. The Red Sea is in a riverless and rainless region, and its waters are heavier than any other mere arm of the ocean. The saltest part is in the gulf of Suez, the saltness diminishes south of Socotra, and again increases eastwards to Bombay, the temperature of its waters for three or four hundred miles from the Straits, has been found as high as 95°. This is probably caused by the slight evaporation, as the more saline a fluid is the slower is its evaporation. Cyclones have been treated of by Colonel Capper, formerly Quarter Master General of Madras, Redfield of America, Reid in England, Tom of the Mauritius, and Peddington of Calcutta. These writers regard cyclones as rotatory storms, which revolve against the sun in the northern and with the sun with the handles of a watch in the southern hemisphere; also that the nearer the centre or vortex, the more violent the storm, while the centre itself is calm, which travels sometimes a mile or two in an hour and sometimes 40 or 50 miles; that in the centre, the barometer is low, rising as you approach the periphery of the whirl; that the diameter of these storms is sometimes a thousand miles, and sometimes not more than a few leagues; that they arise somewhere between the parallels of 10° and 20° N. and S.

travelling to the westward in either hemisphere, but increasing their distance from the equator, until they reach the parallel of 25° or 30°, when they turn towards the east or recurvate, but continue to increase their distance from the equator, *i. e.*, they first travel westwardly inclining towards the nearest pole; they then recurve and travel eastwardly still inclining towards the poles, and that such is their path in both hemispheres. It is known that the path of every wind, is a long curved line. Though the wind be blowing around in spirals against the hands of a watch, yet, from the fact that the centre about which it is blowing is also travelling along the changes of the wind as observed by a vessel over which the storm is passing will not under all circumstances, be against the sun in the northern or with the sun in the southern hemisphere. Great exaggeration has prevailed in respect to the altitude of ocean waves. Even learned writers, until very recently, continued to speak of their rising 40 or 50 feet high. In November 1840 a writer during a voyage from New York to Barbadoes, in a small barque, encountered one of the severest hurricanes of the present century. It was one of those great cycloidal storms, reported on by the late Colonel Reid, which swept down the whole length of the Carribean Sea, and, turning with the Gulf stream, followed the coast of North America to Newfoundland, and finally crossed the Atlantic to the shores of England. When they reached the middle of the Gulf stream, where the current was three knots an hour, off the Capes of Carolina, the wind was at its greatest force from the north, almost in an opposite direction to the current, thus raising the waves to what people delight to call in poetic language, "mountains high." When he mounted about 30 feet, he was on a level with the crest of the waves when the ship was at the bottom of the "troughs." They never rise above 16 or 18 feet above the ocean's level when at rest.—(i, 87), *Yule Cathay*, *Vol.* i, *p.* clxviii; *Dr. Buist's Report of the Bombay Geographical Society*, *from May* 1849 *to August* 1850, *Vol.* ix; *Ben. Pharm.*, *p.* 285; *Maury's Physical Geography*, *pp.* 130, 197-198, 199, 200, 202, 204, 330–31; *Adams*, *p.* 318; *Maury*, *Lt. M.F.*, *L.L.D.*, *United States sailing directions*, *Washington*, 1858; *Wilson's Science of Ship-building*; *Adams*, *p.* 240.

OCEANICA includes all the Indo-Pacific islands, but Mr. Logan proposed to use the word Asianesia to indicate the great south-east insular region which has intimate connexions, geographical and ethnic, with Asia. It would include Indonesia, Melanesia, Micronesia and Polynesia, but not the north-east chain that lies along the continent, because it forms a distinct and well-defined geographic and ethnic group. He would therefore call it Aino-japanesia, and it will include all the Japanese and Aino islands from Formosa to Kamtschatka. The Formosa people are called by the Chinese Tai-lokok, their hair is short and fringed on the forehead, behind it hangs loose. The language of Formosa or Tai-wan, according to M. de Rosner, appears to be a branch of the Oceanic. The great work of Baron William von Humboldt, on the Kavi speech, has afforded the important result that the resemblance known to exist between the nations of the islands in the pacific Ocean termed Polynesian, and the tribes of the Indian Archipelago, Malacca and Madagascar, are not the effect of casual intercourse, but are essential affinities, deeply-rooted in the construction of these languges. The Papua languages, or those spoken by the black and woolly-haired nations, are for the most part as yet unexplored. One observation to be made respecting them is, that the dialects of the Papuan races often partake more or less of the Polynesian. Whether this arises from the adoption by the Papua of the Polynesian vocabulary has not been determined, though most persons incline to this last opinion. It is however now well known that some black nations have Polynesian dialects. The idiom of the Fijian islanders, for example, is properly a dialect of the Polynesian language. Infanticide long prevailed in Eastern Polynesia and till recently in New Hebrides. The principal groups of Oceanica are—

Marquesa Islds.,		L.	139° to 141°	W.,	L.	7° to 10° S.
Society	„	„	148° to 153°	„	„	16° „ 18° „
Sandwich	„	„	154° „ 160°	„	„	18° „ 20° „
Hervey	„	„	157° „ 160°	„	„	18° „ 22° „
Humphreys	„	„	164° 4′	„	„	10° „ 28° „
Navigators'	„	„	168° to 173°	„	„	13-30° to 14° 30′ S.
Savage	„	„	169°	„	„	19° „
Bowditch	„	„	171°	„	„	9° to 11° „
Friendly	„	„	173° „ 175°	„	„	18° „ 21° „
Fiji	„	„	178°			17° „
Rolumah	„	„	177°			12° „
New Zealand		„	169°			20° „
„ Hebrides		„	169°			19° „
Britannia Islds.,		„	168°			21° „
Chabral	„	„	167°			21° „
Marshall or Ralick Islds.			168°			5° N.

—*Turner's Polynesia*, *p.* 175; *Tyerman & Bennet's Travels*; *Gill's Gems from the Coral Islands*; *Dr. Pritchard in Rep. Brit. Ass.*, 1847, *pp.* 241-250.

OCEANUS, see Osiris.

OCHE, Hind. Rubus lasiocarpus.

OCHNACEÆ, *DC.* An order of plants comprising 8 species of Ochna, 3 species of Gomphia and 3 species of Enthenus.

OCHNA SQUARROSA, *Linn.*

H'sen,	Burm.	Salanthi maram,	Tam.
H'sen-way,	„	Sunuri Tammi-chettu,	Tel.

A small but handsome tree, growing in southern India, *R. Br.*

OCHNA ZEYLANICA, *Lam.* Syn. of Gomphia angustifolia, *Vahl.*

OCHRA, or okro, Abelmoschus esculentus, the Hibiscus esculentus of authors, a plant of which the fruit issued as a vegetable in the East and West Indies, the United States, and in South America, and which is remarkable for the similarity of its name to the vegetable called Ochra by the Greeks, but which has not been ascertained by botanists. The names by which this produce of the New World is distinguished in the works of Marcgrave and Piso are Quingambo and Quigombo, and in the later works by that of Gombo and Gombaut or Gombeau. It is possible, therefore, that a classical name which was not otherwise engaged may have been applied to a new vegetable, and, as has been the case in many instances, without any attempt being made to identify the plant named with that which had been described by classical authors. The okra plant abounds all over the East and West Indies, and in the Tenasserim Provinces.—*English Cyclopædia, p.* 60 ; *Mason.*

OCHOOYOT, BENG. Morinda tinctoria.

OCHRE, Red.

Ch'ih-t'u,	CHIN.	R ed-chalk,	ENG
Red ochre,	ENG.	Bole,	„
Reddle,	„		

Yellow ochre.

Hawang-t'u,	CHIN.	Sonagaroo,	TEL.
Pewdee,	GUZ., HIND.		

An earthy mixture of alumina, silica, oxide of iron, and other substances, found in beds in various parts of England, India, on the Continent, &c. It is generally of a yellow or brown colour, but is sometimes reddened by calcination. It is prepared for use by grinding and elutriation ; and is employed as an ingredient in painter's colours, in the polishing of metals and stones, and for other purposes. Ochre sometimes contains a little calcareous matter and magnesia. The oxide of iron may occur in so large a proportion that the ochre becomes an ore of that metal. In England, ochre is found in beds some feet thick, generally above the oolite, and covered by sandstone and quartzose sands more or less ferruginous, and accompanied by grey plastic clays of a yellowish or reddish colour. All these substances enter into the composition of the ochres. The ochry earths are ground under edge millstones and elutriated for use : the yellow ochres may be changed into red or reddish brown by calcination, whereby the iron is raised to a higher degree of oxidation. Native red ochre is also called red chalk and reddle or bole. The ochres are used as pigments, and in China, as a dusting powder to burns, scalds, itchy and herpetic eruptions.—*Smith's Chin. Mat. Med., p.* 157 ; *Bingley, Vol.* i, *p.* 199.

OCHTERLONY, Sir DAVID, a general officer of the Bengal army, who was Resident at Delhi and afterwards commanded in the Nepaul war.

OCIMUM ADSCENDENS, *Willde.*

O. cristatum, *Kon.*	Plectranthus indicus, *Spreng.*
O. indicum, *Roth.*	Ban-tulsi, BENG.

Grows in the peninsula of India and in Bengal. It has small pale rose-coloured scentless flowers.—*Voigt.*

OCIMUM BASILICUM, BURM. Common Basil, has many varieties, differing in their size, in the form and colour of their leaves, and in minor particulars : in their qualities they are nearly alike. The small seeds are deemed cooling and mucilaginous, and consequently given in gonorrhœa, ardor urinæ, and affections of the kidneys. Common sweet basil is not rare in gardens, but not met with indigenous in Tenasserim ; the varieties are—

var. (*a*) O. pilosum, *Benth.*, *Willde.*	O. hispidulum, *Schum.*
O. minimum, *Burm.* not *L.*	O. ciliatum; *Horn.*
O. hispidum, *Lam.*	Basilicum indicum, *Rumph.*

Habak,	AR.	Rihan,	PERS.
Babui-tulsi,	HIND.	Naz-bu,	„

Grows throughout India. It has small white flowers, the whole plant is arómatic and fragrant, the seeds steeped in water swell into a pleasant jelly, which is demulcent and nourishing, and is used by the natives in cases of catarrh, diarrhœa and chronic dysentery. It is common in Upper India, and very common as a weed over all Rajwarra. The green leaves have a delicious smell, exactly like verbena, the seeds are exceedingly mucilaginous and sometimes used as a demulcent. The dried plant prevents bugs approaching beds, &c. The seeds are aromatic, and used by women to relieve after-pains.

var. β. O. anisatum, *Benth.*	Basilicum citratum, *Rumph.*
O. basilicum, *L.* not *Burm.*	Sweet Basil.

A native of Persia, with small white flowers, aromatic and fragrant.

var. γ. O. glabratum, *Benth.*	O. lanceolatum, *Schum*
O. caryophyllatum, *Roxb.*	Gulal-tulsi, BENG.
O. integerrimum, *Willde.*	

A native of Guinea, Bengal, and Penang. It has smallish white flowers. The whole plant is very aromatic and fragrant.

var. δ. O. thyrsiflorum, BENG. *L.*, *Roxb.*, *Jacq.*

A plant of the peninsula of India, with small pale pink flowers, the whole plant very aromatic and fragrant. The following are synonyms of the above varieties.

Badrooj,	AR.	Angusht-kuni-zakan,	PERS.
Bihan; Shahis ferum,	„	Tureh-khorasani,	„
Hebak,	„	Berunj-mishk,	„
Baklat-ul-zub,	„	Manjirika,	SANS.
Asaba-ul-fatiyat,	„	Naz-bu,	SIND.
Babui tulsi,	BENG.	Sawanda-tala,	SINGH.
Sabza,	DUK.	Tarnut-patchi,	TAM.
Sweet, common basil,	ENG.	Pashana cheddi,	„
Kali-tulsi,	HIND.	Rudra jada : Vepudu pachcha,	TEL.
Niaz-bu,	„		
Naz-bu: Deban shab,	PERS.	Bhu tulasi,	„

But it is not possible to distinguish the varieties indicated by them.—*Drs. O'Shaughnessy, pp.* 492-93 ; *Mason ; Irvine, Gen. Med. Top., p.* 200 ; *Roxb. Fl. Ind.* ; *Voigt.*

OCIMUM CANUM, *Sims., Linn.?*

O. album, *Roxb.*	O. americanum, *Linn.*
O. stamineum, *B., L.*	O. incanescens, *Mart.*

Badruj abiaz,	AR.	Viswa tulasi,	SANS.
Safaid tulsi,	DUK.	Cunjam koray,	TAM.
Hoary basil ; Wild mint,	ENG.	Kukka tulasi,	TEL.

A native of the Brazils, Madagascar, E. Indies and China ; in India, a shrub about a foot high, chiefly grown in native gardens. Flowers white, leaves have a most pleasant aromatic taste and smell. The juice is given to children in colds to the extent of a tea-spoonful twice daily. The dried leaves are used as a substitute for tea.—*O'Shaughnessy, p.* 593 ; *Riddell.*

OCIMUM CILIATUM, *Horn.* Syn. of O. basilicum, *Burm., Linn.*

OCIMUM FRUTESCENS, BURM. Syn. of O. sanctum, *Linn.*

OCIMUM GLABRATUM, *Benth.* Syn. of var. O. basilicum, *Burm., Linn.*

OCIMUM GRATISSIMUM, *Linn.*

O. petiolare, *Lam., Rheede.*	O. zeylanicum, BURM

Ban-jere,	HIND.	Ram tulsi,	HIND.

This species is cultivated near temples. It has white or pale yellow flowers with a very strong fragrance.—*Gen. Med. Top., p.* 200.

OCIMUM HISPIDUM, *Lam.*, and O. hirsutum, *Benth.*, are syns. of O. sanctum, *Linn.*

OCIMUM MICRANTHUM, *Willd.*

O. frutescens, *Sieb.*	O. montanum, *Hook.*
O. americanum, *Auctorius.*	O. pubescens, *Mill.*

A flagrant plant of N. America.

OCIMUM MINIMUM, *Burm.* Bush basil. Syn. of Ocimum basilicum, *Linn.*

OCIMUM SANCTUM, *Linn.*

O. hirsutum, *Benth.*	Basilicum agreste, *Rumph.*
O. tomentosum, *Lam.*	Plectranthus monachorum, *Spr.*
O. tenuiflorum, *Lam.*	
O. frutescens, *Burm.*	
Lumnitzera tenuiflora, *Spr.*	

Alsi-badruj,	AR.	Nalla tirtava,	MALEAL., TEL.
Kalo tulsi,			
Krishna-tulsi,	BENG.	Krishna tulsi,	MALEAL.
Kural,	„	Parnasa, Sorasa,	SANS.
Pein-zang-zee,	BURM.	Arjaka,	„
Tulsi,	DUK.	Kuli-mitan : tulsi,	TAM., TEL.
Holy basil,	ENG.		
Purple-stalked basil,	„	Krishna tulasi,	TEL.
Kala tulsi,	HIND.	Nalla gaggeru,	„

Whole plant slightly aromatic, prescribed by the hindoos in decoction in the bowel complaints of teething children. Every vaishnava household has a plant in its parterre, which is held in reverence by the family, and is encircled daily in the morning and worshipped.

The Root.

Toolsi ki jar,	DUK.	Tolasee vayr,	TAM.

The Beads.

Toolsike munke,	DUK.	Tolasee vayr munni,	TAM.

The tulasi plant is sacred to Vishnu, held in the highest veneration by all his followers, and is grown in the court yard of almost every vaishnava house, however small. Its root is made into beads and worn round the necks and arms of the Vishnu brahmins. The root of the plant is given in decoction in fevers, half a tea-cupful twice daily. The brahmins use it in their funeral ceremonies. The Malays also strew it over the graves of their dead. In the Dekkan it is grown in almost every native garden, and is used for various purposes by Europeans for flavouring sauces, wine or vinegar. It is seen about the temples of hindoos, where it

———" waves
Its flagrant blossoms o'er their graves."

In Pegu, it is steeped in water and drunk as a sherbet. The leaves have a pleasant aromatic smell and taste, and are used as stomachics, and in the catarrhs of children. The seeds are mucilaginous and are used in gonorrhœa.—*Drs. Roxburgh's Fl. Ind.* ; *O'Shaughnessy, p.* 493 ; *Ains. Mat. Med., p.* 143 ; *Rheede* ; *Riddell* ; *Mason ; Cat. M. Ex.*, 1857 ; *Powell's Handbook, Vol.* i, *p.* 366 ; *Genl. Med. Top., p.* 200.

OCIMUM THYRSIFLORUM, *Benth.* Syn. of var. Ocimum basilicum, BURM., *Linn.*

OCIMUM TOMENTOSUM, *Lam., Spreng.* Syn. of Ocimum sanctum, *Linn.*

OCIMUM TUBEROSUM.

Ka-tang.

Its root is used for food in Java. See Convolvulus batatas.

OCIMUM VILLOSUM, *Roxb.* Woolly basil.

Pen-zeing-blung,	BURM.	Arjakarm,	TEL,
Sufaid tulsi,	HIND.	Tella gaggera chettu,	.,
Tulasi,	TAM., TEL.		

Cultivated in gardens and near temples. An aromatic herb, leaves used for seasonings, of easy cultivation. In all Courts of Justice, the hindoos are sworn by these leaves, which are placed on the palm of the hand by a Brahmin, who repeats the prescribed oath, and at the termination they are masticated and swallowed. A good number of the species of this genus are used in cookery.—*Genl. Med. Top., p.* 199; *Jaffrey.* See Vegetables of Southern India.

OCODOMA, a genus of ants. See Ants.

OCOTEA. Species of Ocotea extend from Sylhet to Deyra Dhoon, and ascend to 7,000 feet. The fruit, Sassafras nuts, or Pichurim beans, would be worth examination. The Massoy bark of commerce is of doubtful origin. It is light, soft to the touch, in long, convex fragments, covered with an epidermis of a whitish grey colour, with numerous lichens, internally reddish, tissue rather spongy, brittle, fracture irregular, thickness not surpassing two lines. Taste pungent, bitter, and peppery, odour strongly that of sassafras, with a trace of nutmeg. The natives of India attribute tonic properties to this bark ; it is rich in essential oil, and proceeds from a lofty and robust tree, very common in New Guinea and in Java. M. Guibourt has detected in this bark the volatile substance previously observed in the pichurim bean. Fee adds to the preceding articles brief notices of two more species of Ocotea, and three of Litsea, but their properties are not of material importance.—*O'Shaughnessy, pp.* 546-547.

OCK-SEU, or Wu-Kiu, three islands on the east coast of China, the western and largest of which is in lat. 24° 59′ N., long. 119° 27½′ E.

OCTOPODIDÆ, a family of Cephalopodous mollusca which may be thus shown:

Class I.—Cephalopoda, Cephalopods.
Order I.—Dibranchiata.
Section A. Octopoda.
Family I. Argonautidæ.
Genus.—Argonauta. Argonaut or paper sailor; *recent*, 4 sp., *fossil*, 1 sp. *Syn.* octhoe nautilus.
Family II. Octopodidæ.
Genera.—Octopus, *rec.* 46 sp. *Syn.* cistopus.
Sub-genus. Tremoctopus, *rec.* 2 sp.
Pinnoctopus, Finned octopus, *rec.* 1 sp. P. cordiformis.
Eledone, *rec.*, 2 species.
Cirroteuthis, *rec.* 1 species. C. Mülleri.
Philonexis, *rec.* 6 species.

Professor Owen divides the Octopods into two groups or families, the Testacea and the Nuda. The Testacea consist of the genera Argonauta and Bellerophon. Of Argonauta, several species occur in the seas on the south and east of Asia, viz., A. argo; cornu; cymbium; gondola; hians; thanstrum; tuberculata; and vitrea. A. argo has been from the earliest periods an object of interest to zoologists, in consequence of the accounts of its sailor-like habits handed down to us from Aristotle, Pliny, Ælian, Oppian and others—and in consequence of the difference of opinion entertained with regard to the inhabitant of the shell by naturalists; some holding that the cephalopod found in it was a mere parasite or, even worse, a pirate that had destroyed the legitimate owner and possessed himself of the shell; and others, that the animal was the lawful possessor and original constructor of it. In 1836 Madame Jeannette Power laid before the academy at Catania her 'Osservazione Fisiche sopra il Polpo de l'Argonauta Argo,' in which, after a long and careful course of inquiry, she mentioned that it constructs its own shell. The Argonaut is furnished with eight arms, having on each two rows of suckers; the first two arms are more robust than the others, and should be so because they serve as masts to support the sails, which, spread out, act before the wind as such. At the base they have on the inferior sides the double row of suckers, like the other six; but from the inferior row, at about an inch from the base in adults, a rather furrowed membrane begins to develop itself, which extends as far as the tip of the arm, and, holding it bent, it can no longer execute the office of a rowing arm, but is employed by the animal as a sail. These sails are so large that, when turned backwards and pressed against the shell, they can entirely cover and protect it. The true office of these sails is that of keeping themselves applied to the shell at all times, in reserve for the moment when the animal, coming to the surface of the water, removes them, and, spreading them, raises them as sails. In fact, the series of suckers of the sail-arms, when the membrane of the sails is wrapped about the shell, is placed exactly over the keel of it in such a manner that each sucker corresponds to each point in which the ribs of the shell terminate, until they reach the two margins of the spiral. Captain Philip Parker King, R. N., during his well-known voyage, met with specimens of Argonauta. On his passage from Santos to St. Catherine's, in lat. 28° south, he caught, a Dolphin (Coryphæna), the maw of which was found filled with shells of Argonauta tuberculosa, [Arufa of Owen] and all containing the Octopus ocythoe that has been always found as its inhabitant. Most of the specimens were crushed by the narrow passage into the stomach, but the smaller ones were quite perfect, and to some of them was attached a nidus of eggs, which was deposited between the animal and the spire. The shells varied in size from two-thirds of an inch to two and a half inches in length; each contained an Octopus, the bulk and shape of which were so completely adapted to that of the shell, that it seemed as if the shell increased with the animal's growth. In no specimen did there appear to be any connection between the animal and the shell. Several species are already known as inhabitants of the seas of warm latitudes, both littoral and pelagic;

Eledone (*Aristotle; Leach*).—Arms provided with a single series of sessile acetabula.

E. ventricosa (Octopus ventricosus, *Grant*). Body short, round, the eight arms connected at their base by a membrane.

Octopus, *Lam.* Πολύπους, *Leach.* Its arms are provided with a double alternate series of sessile acetabúla.

O. vulgaris (Sepia octopodia, *Linn.*; Sepia octopus, *Gmel.* Body short and ovid, the eight arms connected at their base by a wide membrane.

Madame Power writing on the habits of the Poulpe or Cuttle, mentions that into one of her aquaria she had put a living Pinna nobilis adhering to a fragment of rock; this aquarium also contained an Octopus vulgaris and some living testaceous mollusca. One day she saw that the Poulpe was holding a fragment of rock in one of its arms, and watching the Pinna, which was opening its valves. As soon as they were perfectly open, the Poulpe, with incredible address and promptitude, placed the stone between the valves, preventing the Pinna from closing them again, when the Octopus set about devouring the mollusc. The next day she saw the Poulpe crush some Tellinæ, then search about amongst other shells, and finally stretch itself close to a Triton nodiferum. The Triton extended half the body from its shell, no doubt with the purpose of going to seek its food, when the Poulpe sprang upon it, and surrounded it with his arms; the Mollusc retired precipitately into its shell, and in closing this with its operculum, pinched the point of one of the arms of the Poulpe, which, by struggling, at last left the tip of its arm in the shell of the Triton. The voracity of the Poulpe is such, that notwithstanding the abundance of nourishment with which she furnished it, she was compelled to remove it from the aquarium, or it would have devoured all the mollusca. So great is its voracity that it even attacks man, tears away his flesh, and eats it. In the port of Messina, they occur in great numbers and of large size. One Octopus chinensis, measured by Adams was six feet from tip to tip of the arms.—*Voyages of the Adventure and Beagle, Vol.* i, *p.* 106; *Madame Jeanette Power, in the Annals and Magazine of Natural History; Eng. Cyc.*; *Woodward's Recent and fossil shell*; *Indian Field*; *A. Adams' Travels in Japan and Manchouria.* See Mollusca.

OCYPODA, a genus of swift-footed crabs which run with swiftness on level sand.

Ocypoda cordimana, *Edws.*, Mauritius.
" frbricii, *Edws.*, Oceanica.
" ceratophthalma, *Edws.*, Egypt, Mauritus, New Holland.
" brevicornis, *Edws.*, East Indies.
" macrocera, *Edws.*, East Indies, Brazil.

See Crabs. Crustacea.

OCYPODE CORDATA, syn. of Gecarcinus carnifex.

ODA, KARN. A ferry boat.

ODALLAM, MALEAL. Cerbera odallam, *Gært.*

ODALAPORE battle, fought on the 4th Dec. 1848.

ODASSI, a hindoo sect, founded by Sreechund, son of Nanuk. The sect is widely diffused, and all are proud of their connection wish the Sikhs.

ODAY OIL, of Cochin, is extracted from a creeper of that name and given to cattle when much worked. It sells at 8 annas a quart. It was sent to the Exhibition of 1851.

ODDA, a river of Rewah.

ODDA-MARAM, TAM.? A tree of Travancore, 3 feet in circumference, wood of a dark colour, used for tent-pegs, mallets, &c.; very strong wood.—*Col. Frith.*

ODDY-SAGA, TAM.? A wood of Travancore, of a dark-brown colour. Used for common building purposes.—*Col. Frith.*

ODEYPOOR, see Mahratta government, Rajputanah.

ODIAL, see Kelingoo.

ODIN, a deity of the Scandinavians; Odin, like Zeus was the Æther. See Hindoo, Sacrifice, Sati.

ODINA PUMATA.

Woodiah wood,	ENG.	Æaythya marum,	TAM. —*M. C. C.*

ODINA WODIER, *Roxb.*

Dhantika, sulambra,	BEAS.	Kembal,	RAVI, BEAS.
Hnan bai, Na-bhay, Na bai,	BURM.	Hik-gass, Hig-gass,	SINGH.
Kambal,	CHENAB.	Pichka,	SUTLEJ.
Batrin,	"	Lidra; Dila,	"
Kunlu,	"	Ani carra,	TAM.
Kiamil,	HIND., JHELUM.	Ooday maram,	"
Mageer,	MAHR.	Goompana chettu,	TEL.

A large tree which grows in the warmer parts of the island of Ceylon, up to an elevation of 1,500 feet. It is a native of mountainous districts in the peninsula of India, grows in Coimbatore, and is found in the coast jungles of the Bombay presidency. In the Madras presidency it is grown from cuttings and planted in avenues, but it yields no shade in the hot weather, being without leaves till June. The tree is rather common on the hills of British Burmah. The heart-wood is red and is used for sheaths of swords, spear handles, oil presses and rice-pounders. A cubic foot weighs 65 lbs. In a full-grown tree on good soil the average length of the trunk to the first branch is 50 feet, and the average girth, measured at 6 feet from the ground, is 12 feet. It sells in Pegu at 12 annas per cubic foot. The wood is very difficult to season, requiring to be kept, even in planks, 2 or 3 years: but, once well-seasoned, it is a close-grained, beautiful wood, well adapted for cabinet-making purposes, the central reddish portions in particular. It is a rare tree in Murree and Hazara. It, or another species, occurs quite common from Moulmein to Toungoo, where it yields a valuable timber. It is much used at Shawaygyen, in the manufacture of oil presses and rice-pounders. The tree sometimes attains a girth of twelve feet. A considerable quantity of gum exudes from the trunk of this tree, which the natives use as a medicinal application. Its gum, the Kania or Koonee gond, also gum-jingna, resembles the true gum arabic both in appearance and properties, and is often largely mixed up with the East India gum arabic of commerce, which often contains gums, collected indiscriminately from a number of different trees, including several species of Acacia, Odina wodier, and Feronia elephantum. In some places it is lopped for fodder. The gum is used in cloth-printing, also by weavers for stiffening their thread, and is given in asthma, and as a cordial to women. It ascends the slopes of the mountains in the Bhabar forests of Kumaon, attains a height of 12 to 15 feet clear of branches with a girth of 4 feet. In the Siwalik region of the Punjab, up to near the Indus and near the Salt Range, to a height of 3,500 to 4,000 feet, this tree attains a considerable size. The outer wood is liable to be attacked with worms, the inner is dark-coloured and tolerably durable and is used for door frames.—*Cal. Cat. Ex.* 1862; *Rohde's MSS.*; *Thompson's MSS.*: *Thw. En. Pl. Zeyl., p.* 78; *Drs. Roxb., Voigt, Wight, Cleghorn, Gibson, Mason, Brandis, O'Shaughnessy, p.* 276, *and J. L. Stewart, p.* 46.

ODOARDO BARBOSA, a gentleman of Lisbon, who, in his youth, travelled in the East, and he appears to have visited Malacca before it was taken by the Portuguese in 1511. He wrote a book in 1516. In 1519 he joined Magellan and was treacherously murdered in 1521 by the natives of Zebu, one of the Philippines, four days after the great Navigator had suffered a like fate.—*Bikmore, p.* 100.

ODOOJATEE, Hind. Justicia ecbolium.

ODOORAH VENGA, Tam.? A strong good wood of Travancore, of a dark-brown colour, specific gravity 0·853. 4 feet in circumference, and 40 feet long; used for wheels, gun carriages, &c.—*Col. Frith.*

ODORICUS, a friar, who visited many parts of the east. He commenced his travels in 1318, and died at Padua in 1331. From the southern part of the coast of Coromandel, he proceeded by a navigation of twenty days, to a country named Lamori (perhaps a corruption of the Arabian Al-rami,) to the southward of which is another kingdom named Sumoltra, and from thence a large island named Java. His account, which was delivered orally to the person by whom it was written down, is extremely meagre and unsatisfactory.—*Marsden's History of Sumatra, p.* 7.

ODRA or Orissa. General Cunningham believes that the kingdom of U-cha, or Oda, spoken of by Hwen Thsang, corresponds exactly with the modern province of Odra, or Orissa. In the time of that budd'hist pilgrim, the province was 7,000 li, or 1,167 miles in circuit, and was bounded by the great sea on the south-east, where there was a famous seaport town named Che-li-ta-lo-ching, or Charitrapura, that is, the "town of embarkation" or "departure." This, General Cunningham supposes to have been the present town of Puri, or "the city," near which stands the famous temple of Jaganath. Outside the town there were five contiguous stupa with towers and pavilions of great height, and he supposes one of these, which is now dedicated to Jaganath. The three shapeless figures of this god and his brother and sister, Baladeva and Subhadra, are simple copies of the symbolical figures of the buddhist triad, Buddha, Dharma and Sangha, of which the second is always represented as a female. The buddhist origin of the Jaganath figures is proved beyond all doubt by their adoption as the representative of the brahmanical avatar of Buddha in the annual almanacs of Mathura and Banaras. The political limits of Orissa under its most powerful kings, are said to have extended to the Hooghly and Damuda rivers on the north, and to the Godavari on the south. But the ancient province of Odra-desa, or Or-desa, was limited to the valley of the Mahanadi and to the lower course of the Suvarna-riksha river. It comprised the whole of the present districts of Katak (Cuttack) and Sambhalpur, and a portion of Medinipur. It was bounded on the west by Gondwana, on the north by the wild hill-states of Jashpur and Singhbhum, on the east by the sea, and on the south by Ganjam. These also must have been the limits in the time of Hwen Thsang, as the measured circuit agrees with his estimate. Pliny mentions the Oretes as a people of India in whose country stood Mount Maleus: but in another passage he locates this mountain amongst the Monedes and Suari; and in a third passage he places Mount Mallus amongst the Malli. As the last people were to the north of the Calingæ, and as the Monedes and Suari were to the south of the Palibothri, we must, he says, look for the Oretes somewhere about the Mahanadi river and its tributaries. The Monedes and Suari must therefore, says General Cunningham, be the Munda and Suar, and the Oretes must be the people of Orissa. Malle is one of the Dravidian terms for a mountain; and as the Uraon, or people of west Orissa, still speak a Dravidian dialect, he thinks it probable that Mallus was not the actual name of the mountains, but may have been the famous Sri-Parvat of Telingana, which gave its name to the Sri-Parvatiya Andhras?—*Cunningham's Ancient Geography of India, pp.* 507-511.

ODRE, Tam. A Ceylon tree which grows to fourteen inches in diameter, and ten feet in height; used by carpenters for palanquins and coach-work.—*Edye, on the Timber of Ceylon.*

ODUGAL, Tam. Tiles.

ODUL OIL, or Adul oil of Travancore, separates into two portions; the upper fluid, of the colour of golden sherry; the lower, reddish white, of the consistence of ordinary hard salt butter.

ODYKARY, see Korambar.

O'E, of the Limbu, Hystrix longicauda, *Marsden.*

ŒDICNEMUS CREPITANS, the bastard floriken of Europeans in India, is very common on the banks of rivers. It is tame and easily shot, consequently little sought after by sportsmen.

OEL, Ger. Oil.

ŒNOTHERACEÆ, *Lindl.* The evening primrose tribe of plants, comprising 5 genera, 17 species, viz., 10 Œnothera; 2 Clarkia; 2 Jussieua; 2 Ludwigia; 1 Lopezia. There are between 70 and 80 species and varieties of œnothera. The plants are raised from seeds, cuttings and layers, during the rains, will grow in any good garden soil, succeeds best in flower beds, requires plenty of water during the hot months. There are 85 species enumerated by Don, growing chiefly in North America. They are handsome border-flowers and deserve to be cultivated, but have no valuable properties. The yellow and white flowering kinds are easily cultivated by seed, in any good garden soil, and will continue during the hot weather to blossom.—*Dr. Riddell*; *Mr. Jaffrey*; *Eng. Cyc.*

OESAR or Oesaran, Jav. A whirl in the hairs of the head, indicating a good sign.

ŒSTRUS, the Cephalæmia ovis (syn. Œstrus ovis) is found in Europe and the E. Indies, it lays its egg in the nostrils of the sheep, and the worm from it occupies the frontal sinuses.

ŒSTRUS EQUI occurs in the south of Europe and in Persia. It is a dipterous insect. Its eggs are deposited on the hair of the horse and licked into the stomach, and when complete the insects pass through the canal—*Figuier.*

OETHRA SERUPOSA, a greyish coloured crab, length 2 to 3 inches. It is found near the Island of Mauritius and in the Indian Archipelago.—*Eng. Cyc.*

ŒUFS, Fr. Eggs.

O'FAH, see Mesopotamia.

OGAI, Hind. Astragalus tribuloides.

OGAL, Hind. Fagopyrum emarginatum, Ban ogal is Fagopyrum cymosum.

OGECERAS MAJUS.

Hulsi, Beng.

A small tree, a native of the Delta of the Ganges, and such other places as are overflowed at spring tides. Flowering time, the hot season.

OGEL, Heb. Adjel, Arab., a calf.

OGHUZ KHAN is supposed by Mr. Prinsep to be king Azes, a Tartar conqueror who united Tartar tribes and attacked and conquered Kashgar and Khotan. Then, returning by the frontiers of India, he took Talash, Saram and Tashkund, and sent his son to reduce Turkistan and Andejan on the Jaxartes which was effected in six months. Oghuz Khan then advanced and conquered Samarkand and Bokhara. Next he took Balkh, and in the middle of winter he crossed the mountains to Chor (Charikar?) suffering much from snow and frost. Here he wintered, and reviewed his army in the spring, and then marched against Kabul, Ghazni and Kashmir, where a king named Jagma (Hermæus?) reigned, who maintained himself in mountain positions for a year, but in the end was defeated and slain. Oghuz Khan then returned to Samarkand by Badakhshan and sent an expedition westward against Khorasan. Oghuz Khan was the third prince of the Moghul dynasty, being the grandson of Moghul Khan, its founder. Over the early history of British India, much obscurity rests; for it is generally recognized that prior to Alexander's time and in long periods subsequent thereto, there are doubts as to the correctness of the Indian accounts of kings and localities. It is, however, certain that several conquerors, in ancient times approached the present western boundaries of British India without absolutely invading it. The conquest of the Hercules Belus of Cicero, who is supposed to be the Osiris that invaded India, extended only up to the Indus. It was undoubtedly approached by Semiramis, B.C. 1230, but the warrior-queen was driven back across the Indus with great loss, retreating into Bactria with only a third of her army. This great Assyrian queen, however, extended her conquests into Central Asia, until they even embraced Bactria or Bactriana, which is now represented by the modern Balkh. Darius the Persian conqueror of Babylon, spread his rule over Bactria, which is enumerated as one of his provinces in the extraordinary inscription which he caused to be carved on the rock of Behistun. Alexander afterwards overran this same country, and penetrated from it, into the valley of the Indus, which he merely crossed. But in the days of the decline of Syrian power, Bactria was erected into an independent state by Theodotus I. in 256 B.C., and he extended his dominion over parts of India which the arms of Darius and Alexander had not reached; and it is this monarch's descendants who are designated as a Syro-Bactrian dynasty. Numerous relics of his successors have been found near Peshawar, Jellalabad, and in places near Cabul, in the shape of coins. Another name is mentioned in connection with Indian history, that of Ogyges, supposed to be Oghuz Khan the Scythian, whose historian, Abul Ghazi, relates that after establishing the religion of Japhet in his own dominions and in those of Tibet, Tanjat, Kitay, and other states immediately adjoining, he conquered Irak, Babylon, Azerbijan, and Armenia, and subsequently took Kashmir after a year's resistance.—*Malcolm's History of Persia, Vol.* ii, *p.* 289. See India.

OGLI, see Semetic races.

OGNEE, Beng. Plumbago zeylanica.

OGRI, a hill near Tezpur, looking into Central Assam and the Brahmaputra L. N. 26° 34′ 6″ and L. E. 92° 46′ 8″. It is near this that tea was mnch cultivated.

OGUNA. Taking a section of about sixty miles in the Alpine Aravalli, from the ascent at the capital of Oodipoor, passing through

Oguna, Panurna, and Meerpoor, to the western descent near Sirohi, the land is inhabited by communities of the aboriginal races, living in a state of primeval and almost savage independence, owing no paramount power, paying no tribute, but with all the simplicity of republics; their leaders, with the title of Rawut, being hereditary. Thus the rawut of the Oguna commune in the early part of the nineteenth century, could assemble five thousand bows, and several others could on occasion muster considerable numbers. Their habitations are dispersed through the valleys in small rude hamlets near their pastures or places of defence.

OHI, Hind. Acacia stipulata.

OHIND, Oaihand, or Utakhanda, has been identified with Embolima. The continual discovery of Indo-Scythian coins is a sufficient proof that the city was already in existence at the beginning of the christian era, which may perhaps induce us to put some faith in the tradition, mentioned by Abul Feda, that Wehand or Ohind, was one of the cities founded by Alexander the Great.—*Cunningham's Ancient Geography of India, p. 56.*

OH! ME! The Chinese buddhist invocation is Oh! me to Fo! Oh me to Fo!

OHUD, a mountain about four miles north of Medina, where a battle took place between Mahomed with 1,000 and the Koreish with 3,000 troops. Mahomed had the hill in his rear with archers placed on its flanks to annoy the enemy's horse, but the archers quitted their position to plunder and Mahomed was wounded and defeated.

OI, Hind., of Kangra, Acacia stipulata.

OIL.

Kyet-hsoo,	Burm.	Minak,	Malay.
Olie,	Dan., Dut.	Roghun,	Pers.
Huile,	Fr.	Masslo,	Rus.
Oel,	Ger.	Aceite,	Sp.
Elaion: Ladion,	Gr.	Olja,	Sw.
Tel,	Hind.	Yennai,	Tam.
Olio,	It.	Nuna,	Tel.
Oleum,	Lat.		

The oils which form the chief exports from different parts of India to England, France, the Mauritius, &c., are Cocoanut, Gingelly or Sweet oil, Ground nut, Mustard, Rape, Sandalwood, Roosa or Grass, oil and Fish oil. Oils are generally divided into two primary groups, "Fixed" and "Volatile," the former class being again subdivided into drying, greasy, and solid oils. The value of oil as an article of commerce and its numerous uses in candle and soap-making, wool-dressing, food and medicine, as well as its importance as a lubricating agent, are well-known. The following table compiled from the official reports of the Madras Custom House will show the quantity and value of all the oils and oil seeds exported from the Presidency:—

Comparative Statement of the Gross Quantity of Oils and Oilseeds, exported from the Madras Territories to the United Kingdom, Foreign Ports and Home Ports, for the years 1847-48 *to* 1852-53.

NAMES.	1847-48.		1848-49.		1849-50.		1850-51.		1851-52		1852-53.	
	Quantity.	Value Rs.	Quantity.	Value Rs.	Quantity.	Value Rs.	Quantity.	Value Rs.	Quantity.	Value Rs.	Quantity.	Value Rs.
Cocoanuts, dry	Cwt. 74,061	2,90,393	Cwt. 1,52,042	5,60,764	Cwt. 1,32,219	5,45,876	Cwt. 1,11,216	4,31,008	Cwt. 1,28,819	5,05,316	Cwt. 1,51,528	5,30,928
Cocoanut oil	Gl. 5,67,801	1,26,476	Gl. 6,26,425	1,64,201	Gl. 10,97,080	2,46,335	Gl. 6,56,118	1,44,952	Gl. 9,56,937	2,11,669	Gl. 14,57,741	3,18,655
Gingeley seed	Qr. 17,513	1,60,134	Qr. 8,594	1,02,720	Cwt. 1,44,125	2,99,412	Cwt. 2,27,779	4,37,185	Cwt. 1,09,414	3,02,559	Cwt. 2,51,613	5,31,864
Gingeley oil	Gl. 19,520	14,766	Gl. 14,686	11,535	Gl. 52,721	36,294	Gl. 77,262	48,605	Gl. 46,196	26,722	Gl. 72,667	43,608
Lamp oil seeds	Qr. 1,876	13,736	Qr. 3,921	27,388	Cwt. 1,10,076	53,870	Cwt. 6,011	12,347	Cwt. 6,125	9,993	Cwt. 73,215	54,228
Lamp oil	Gl. 26,379	12,637	Gl. 17,157	9,483	Gl. 20,181	10,570	Gl. 26,093	13,386	Gl. 24,475	11,979	Gl. 51,084	20,927
Ground nuts	Cwt. 939	6,315	...	...	...	...	Cwt. 795	1,728	...	...	...	...
Ground nut oil	...	...	Gl. 37,204	17,438	Gl. 1,07,731	50,499	Gl. 1,10,566	52,840	Gl. 31,027	14,760	Gl. 57,207	23,603
Fish oil	Gl. 3,512	2,786	...	...	...	...	Gl. 39,489	12,717	Gl. 77,240	22,157	Gl. 2,57,217	71,769
Margosa oil	Gl. 1,587	1,240	...	...	...	...	...	...	Gl. 1,917	1,048	Gl. 8,111	1,701
Pinnacottay oil	Gl. 3,871	2,116	...	...	...	...	...	...	...	...	...	...
Pinnacottay seeds	Cwt. 508	1,353	...	...	...	...	...	...	...	...	Cwt. 860	1,167
Cassia oil	Gl. 794	2,121	Cwt. 50	2,240	Gl. 718	2.069	Gl. 1,000	3,053	Cwt. 33	1.572	Cwt. 30	1,701
Sandalwood oil	Cwt. 39	25,619	Cwt. 61	38,995	Cwt. 93	45,015	Cwt. 141	38,215	Cwt. 93	45,758	Cwt. 96	59,037
Cotton seed	Cwt. 2,458	2,751	Cwt. 5,141	4,581	...	...	Cwt. 4,143	3,540	Cwt. 4,498	3,624	Cwt. 8,090	7,613
Fœnugreek	Cwt. 301	1,079	Cwt. 1,191	3,837	Cwt. 1,567	5,628	Cwt. 591	2,136	Cwt. 1,078	3,555	Cwt. 1,451	5,322
Mustard seed	Cwt. 5,828	11,009	Cwt. 6,767	14,963	Cwt. 9,435	25,559	Cwt. 9,909	22,097	Cwt. 3,636	9,319	Cwt. 16,075	34,048
Castor oil	...	...	...	...	Gl. 8,670	26,969	Gl. 15,971	25,132	Gl. 12,600	15,690	Gl. 8,059	7.818
Castor seeds	...	...	Cwt. 5,168	8,790	...	...	Cwt. 14,617	24,096	...	...	Cwt. 2,764	4,247
Linseed	...	...	Cwt. 1,256	3,897	Cwt. 401	1,539	Cwt. 801	2.271	Cwt. 1,067	2,927	Cwt. 1,106	3,278
Linseed oil	...	...	...	...	...	...	...	...	...	...	...	...
Fennel seed	...	...	...	...	...	...	Cwt. 122	1,097	Cwt. 191	1,712	...	...

In addition to the above, about 300,000 lbs. of Wax and Wax Candles, are yearly exported.

These exports are sent to the United Kingdom, America, Arabia, Persian Gulf, Cape of Good Hope, Ceylon, China, France, Maldive Islands, Mauritius, New South Wales, Pegu, West Coast of Sumatra, West Indies, Bengal, Bombay, Concan, Cutch, Goa, Guzerat, French, (Indian) Ports, Scinde, Malacca and the Straits, Travancore.

The value of the exports from all India was in

1852-53..	£90,039	1857-58..	£265,271
1853-54..	104,159	1858-59..	192,562
1854-55..	130,958	1859-60..	180,066
1855-56..	154,540	1860-61..	234,379
1856-57..	179,164		

The exports were equally distributed amongst the three presidencies. Oils are found both in the animal and vegetable kingdoms. They are divided into fixed and volatile. The latter are principally products of the vegetable kingdom. The fixed oils are composed of carbon, hydrogen, and oxygen. Most of them are composed of two compounds, a liquid called Olein, and a solid called Margarin, or another called Stearin. According as these solid substances abound in oils, they are liquid or solid at the ordinary temperatures of the atmosphere. Fixed oil is found in the fat or adipose tissue of animals. Fixed oil is found amongst plants principally in their seeds. In some cases as in the olive (Olea) it is yielded by the fruit. Some families of plants especially abound in oil. Thus among the Cruciferæ we have mustard, rape, and colza seed oil, with other species cultivated in Europe, India, and Japan, of which some have of late years been imported into England. Several of the family of Compositæ secrete oil in quantities large enough to render it desirable to cultivate them for this purpose alone, as some species of Carthamus, or Bastard saffron, and also the Verbesina sativa of India, now known to be identical with the Abyssinian Guizotia oleifera, and of which the oil is known in India as Gingely oil and in commerce by the name of hutsyelloo oil. So Madia sativa yields madi oil, and its seeds are said to be more abundant in oil than any plant introduced into Europe. Most of the Cucurbitaceæ also, as the melon, gourd, cucumber, and the numerous varieties, cultivated especially in India, contain a large proportion of oil, which is expressed in the East Indies as it formerly was in Europe. The Rasaceæ also store up a large proportion of oil in the kernels of their fruit, as in the almond, which is particularly valued; so also that of the apricot, as well as that of the Briancon apricot, and other species of Prunus. In the Himalaya, oil is also expressed from the apricot kernel, and has been made of a fine quality. From among the Amentaceæ also nut oil is obtained from the Hazel; beech-nut oil, from Fagus sylvatica; walnut oil, from Juglans regia. Besides these, poppy oil, ben-nut oil, (Hyperanthera), ground-nut oil (Arachis), physic-nut oil (Jatropha), are well known. The cotton-seed and the seeds of the tea-plants, yield oil especially of the species called Thea oleifera and some of the Camellias. Two species of Bassia, B. longifolia and B. latifolia, both yield oil; another species, B. butyracea, yields a vegetable butter, and is commonly known as the ghee tree or butter-tree of Almora. The native name of this tree is Choonee, and Mr. Traill describes it as not being found in Kemaon, but in the adjoining Goorkha province of Dotee. Oils are extensively used for candle and soap-making, for burning in lamps, for diminishing friction in machinery of all kinds, and especially for locomotives,—in wool dressing, in the manufacture of paints and varnishes, as an article of food, for medicinal purposes, &c. The time of burning of equal quantities of the following oils is found to be :—

Oil of poppy... Hours,	14	Gold of pleasure, (Camelina sativa)Hours	9½
„ sunflower	13	„ olives........	9
„ rape........	11	„ hemp seed..	8
„ mustard..	11½	„ tallow.......	10½
„ flax seed.	10		

The imports of foreign vegetable oils have greatly increased while those of fish oils have decreased.

	1821—Tons.	1845—Tons.	1850—Tons.
Cocoanut oil ...	—	2,148	98,040
Olive oil..... ...	1,900	12,315	20,783
Palm oil	3,200	25,285	448,589 cwts.
Rape-seed oil...	800	3,973	—
Linseed oil......	10,500	38,634	—
Fish oils.........	32,356	22,626	21,328

The ultimate analysis of fats and oils reduces them all to carbon, hydrogen and oxygen. Some of them yield minute portions of nitrogen, the result of adhering impurities. The following table shows the relative proportions of the three elements in 100 parts of each of the oils named :—

	Carbon.	Hydrogen.	Oxygen.
Olive	77·21	13·36	9·43
Almond	77·40	11·48	10·82
Linseed	76·01	11·35	12·62
Nut	79·77	10·57	9·12
Castor	74·17	11·03	14·78
Whale	76·13	12·40	11·50
Spermacetti	78·91	10·97	10·12
Hog's lard	79·09	11·14	9·75
Suet	78·99	11·70	9·30
Butter	65·60	17·60	16·80

The following is a list of the principal unctuous oils of commerce :—

	Sp.Gr.
Linseed oil—Linum usitatissimum et perenne. Drying	0·9347
Nut oil, Corylus avellana, and Juglans regia, D	0·9260
Poppy oil—Papaver somniferum, D	0·9243
Hemp-seed oil—Cannabis sativa, D	0·9279
Oil of sesamum—Sesamum orientale, Greasy.	
Olive oil—Olea europea, G	0·9176
Almond oil —Amygdalus communis, G.	0·9180
Oil of ben—Guilandina moringa, G.	
Cucumber oil, Cucurbita pepo et melapepo, D	0·9231
Beech oil—Fagus sylvatica, G	0·9225
Oil of mustard—Sinapis nigra et arvensis, G	0·9160
Oil of sunflower—Helianthus annuus et perennis, D	0·9231
Rape-seed oil, Brassica napus et campestris, G	0·9136
Castor oil—Ricinus communis, D	0·9611
Tobacco-seed oil—Nicotiana tabacum et rustica, D	0·9232
Plum-kernel oil—Prunus domestica, G	0·9127
Grape-seed oil—Vitis vinifera, D	0·9202
Butter of cacao—Theobroma cacao, G	0·8920
Coconut-nut oil—Cocos nucifera, G.	
Palm oil, Cocos butyracea vel Avoira elais, G	0·968
Laurel oil —Laurus nobilis, G.	
Ground nut oil—Arachis hypogæa, G.	
Piney tallow—Vateria indica, G	0·926
Oil of Julienne—Hesperis matronalis, D	0·9281
Oil of Camelina—Myagrum sativa, D	0·9252
Oil of weld-seed—Reseda luteola, D	0·9328
Oil of garden-cresses—Lepidium sativum, D.	0·9240

Oil of deadly nightshade—Atropa belladonna, D	0·9250
Cotton-seed oil—Gossypium barbadense, D...	
Colza oil—Brassica campestris, B. oleifera, G.	0·9136
Summer rape-seed oil—Brassica præcox, G.	0·9139
Oil of radish-seed—Raphanus sativus, R. oleifera, G	0·9187
Cherry-stone oil—Prunus cerasus, G	0·9239
Apple-seed oil—Pyrus malus, G.	
Spindle-tree oil—Euonymus europæus, G...	0·9380
Cornel-berry-tree oil—Cornus sanguinea, G.	
Oil of the roots of cyper-grass—Cyperus esculenta, G	0·9180
Henbane-seed oil—Hyosciamus niger, G.....	0·9130
Horse-chestnut oil—Æsculus hippocastanum, G.	0.9270
Pine top oil—Pinus abies, D.	0·9280

Linseed contains 20 per cent. of oil; rapeseed from 35 to 40; castor oil seeds as much as 60 per cent. The volatile oils are very numerous in the vegetable kingdom. They are called volatile on account of the ready manner in which they may be volatilised under the influence of heat. The facility with which they are diffused in the atmosphere renders them easy of detection, and it is to this class of substances that plants owe their peculiar odours. Many of them are employed in perfumery, others are used as stimulants in medicine, and some are poisonous. Their composition is much more varied than that of the fixed oils, and to the chemist they offer an exceedingly interesting field of research. Many of them have a constitution analogous to the compounds obtained by chemists from the compound radicals. They are divided by chemists into three groups:—1, those containing only carbon and hydrogen, as oil of turpentine; 2, those containing also oxygen, as oil of cloves; 3, those containing sulphur, as oil of garlic. Many natural orders are characterised by yielding volatile oils. Thus the Lamiaceæ, Myrtaceæ, and others, embrace species all of which contain volatile oil in their leaves. Many of the Umbelliferæ yield a volatile oil in their fruits. The petals are often the seat of these secretions, and especially those most prized as the rose, the jasmine, the heliotrope, and many others. Appended is a table of volatile oils employed in medical practice. They are almost all powerful stimulants and carminatives. A drop or two dissolved in a few minims of spirit, and an ounce of water added, gives an extemporaneous substitute for the distilled water of the plant, and a useful vehicle for many draughts or mixtures. These oils are often added in minute quantities to pill-masses, either to give an agreeable flavour or counteract their tendency to griping:—

Table of Volatile Oils.

Names.	Native names.	Part used.	Colour of Oil.	Sp Gr.	Uses and Remarks.
Pimpinella anisum, common anise....	......	Fruits ...	Yellow ...	0·985	Carminative congeals at 50°.
Ilicium anisatum, star anise... ...	Badian kutai. ...	Do. ...	Do.	Do.	Ditto.
Anthemis nobilis, chamomile ...	Baboone...	Flowers ...	Deep blue.	......	Tonic, anthelmintic.
Lavandula vera, lavender... ...	......	Do. ...	Yellow ...	0·877-0·905	Fragrant, stimulant.
Ruta graveolens, & other species, rue.	Sudab ...	Do., and herb ...	Do. ...	......	Stimulant given in amenorrhœa.
Andropogon iwaranchusa... ...	Roosa ...	Grass ...	Do. ...	......	Fragrant & stimulant.
Anethum graveolens, dill...	Sonf. ...	Fruits ..	Do. ...	0·994	Stimulant in flatulence.
——— sowa					
——— panmori... ...					
Carum carui, carraway ...	Zeera seeah	Do. ..	Do. ...	......	Ditto.
——— nigrum					
Eugenia pimento (allspice) ...	......	Do. ...	Do. ...	......	
Amomum zingeber, (ginger) ...	Ada ...	Root ...	Do. ...	......	Ditto.
Fœniculum officinale, (fennel) ...	.. ...	Fruits ...	......	0·997	
Melaleuca cajeputi, (cajeput) ...	Kyapooti...	Leaves ...	Green ...	0·927	
Juniperus communis, (juniper) ...	Hoober ...	Fruits ...	Do. ...	0·878	Stimulant & diuretic.
Piper cubeba, (cubebs)	Kubab chinee ...	Do. ...	Yellow ...	......	Ditto.
Caryophyllus aromaticus (clove) ...	Long ...	Unripe flowers dried ..	Do. ...	1·055	Almost caustic.
Laurus cinnamomum, (cinnamon) ...	Darchinee..	Bark ...	Reddish yellow...	......	Ditto.
Juniperus sabina, (savine) ...	... ..	Tops ...	Yellow ...	......	In amenorrhœa.
Ocimum basilicum, (basil) ...	Tulsi ...	Herb ...	Do. ...	......	
Rosmarinus officinalis, (rosemary) ...	......	Tops ..	Do. ...	0·934	Carminative.
Moringa pterygosperma, (sohunjuna)	Sohunjuna	Roots ...	Do. ...	......	Vesicatory.
Mentha piperita, (peppermint) ...	......	Herb ...	Do. ...	0·920	Ditto. much used in cholera.
Mentha pulegium, (pennyroyal) ...	......	Do. ...	Do. ...	......	Ditto. stimulant.
Mentha viridis, (spearmint) ...	Pudina ...	Do. ...	Do. ...	......	Ditto.
Amomum cardamomum, (cardamom)	Elachee ...	Fruits ...	Do. ...	......	
Origanum majorana, (marjoram) ...	......	Herb ...	Do. ...	......	Ditto.
Sassafras officinale,* (sassafras) ...	.. ...	Bruised root ...	Do., or colourless.	1·094	Fragrant and diuretic.

---

* A beautiful oil has been obtained from the Nipal sassafras.

Of vegetable substances of Southern Asia, producing "volatile oils" there is an immense variety, but with the exception of the oils of cassia and cinnamon, roosa and the rose utter, few are of any commercial importanee, nor are they prepared in any quantity for consumption in India. Scented oils erroneously termed "volatile" obtained by the repeated distillation of fragrant herbs, &c., over into a receiver containing a portion of any fixed oil, to which the aroma is imparted, are prepared to some extent but chiefly for native use. Sandalwood oil and the large variety of at'r, attar or otto, &c., which form the principal part of native perfumery are included in this class. The subjoined list will serve to exhibit the richness of the produce of different seeds of Southern Asia, from which varieties of oil are extracted; it gives the proportion of oil per cent. in weight :—

Black til (Verbesena sativa),	46·4
Gingely oil (Sesamum orientale),	46·7
Ground nuts, Arachis hypogæa	45·5
Pounded seeds of Calophyllum inophyllum.	63·7
Kurunj seeds, from the Pongamia glabra	26·7
Ramtil, the seeds of Guizotia oleifera	35
Poppy seeds (Papaver somniferum)	43 to 58
Silaam, an oil seed from Nepaul	41
Rape seed (Brassica napus)	33

The foregoing are only a few of the seeds from which oil is extracted by the natives of Southern Asia. The oil seeds most generally cultivated in India are the castor, gingely, rape, mustard, ground nut, ramtil, linseed, and poppy, but the latter is cultivated for its opium the seed forming a secondary consideration. The following plants grow in a wild state, their fruit being collected and the oil expressed as occasion requires; margosa, ben, bramadundoo, pinnacottay, soap nut, kurunj, cashew-nut, poovana, piney, neradimootoo, physic-nut, cheeronjee, coorookoopilly, &c. &c. &c. Oil is, in Malay, minak, and in Javanese, langa, both of them words of extensive currency throughout the Malay and Philippine Archipelagos. The plants from which fatty oils are chiefly extracted are the coco-palm, the ground pea, the sesame, and the palma christi; the first for edible use, and the three last for the lamp. In the islands of the Molucca sea, a fine esculent oil is expressed from the nut of the kanari tree (Canarium commune). Crawfurd was not aware that oil is expressed in any of the islands from cruciform plants, nor is flax reared for this purpose. Animal oils are hardly used in any shape: essential oils are obtained from the clove, the nut-meg, the kayu-puti (Melaleuca cajeput) and in great abundance and cheapness from the Malay camphor-tree (Dryobalanops camphora). One hundred and twenty fixed oils are known to be produced throughout the Madras presidency and Burmah. These may be arranged as follows :

Fixed vegetable oils, including drying, greasy and solid oils	105
Wood oils	10
Mineral oil	1
Animal oils	4
Total	120

Of the first class, cocoa-nut, castor, groundnut, gingely and its variety, rape, mustard and linseed form considerable articles of foreign trade. The first three being exported in the shape of oil, the last two as oil seed, and gingely, both as an oil and oil seed. In addition to these, the following are consumed to a large extent in India—lamp, ramtil, kurunj, pinnacottay, illoopoo, piney or doopada, margosa or neem, physic nut, brumadundoo, safflower and poppy. Of the remainder some are medicinal and some are prepared only in those localities, in which the substances producing them happen to abound in a wild state. The prices of these products vary very considerably, not only in different parts of British India, but even in various towns of the same district. It is therefore difficult, if not altogether impracticable, to fix their respective values, with any degree of certainty; an increased demand or greater facility of transit moreover considerably affect their present value. The following list contains the names of the better known oils of Southern Asia :—

Sweet flag	Acorus calamus.
	Adenanthera pavonina.
Belgaum walnut	Aleurites triloba.
Almond oil	Amygdalus communis.
Caju oil	Anacardium occidentale.
Khus-khus, or vetiver	Anatherum muricatum.
Grass oil, or oil of spike-nard (roosa ka tel)	Andropogon calamus aromaticus.
Bishop's weed seed	Anethum sowa.
	Apricot oil, Choohara and Zind Aloo ka tel.
Ground nut oil	Arachis hypogæa.
Prickly poppy oil.	Argemone mexicana.
Margosa, or bitter oil	Azaderachta indica.
Hingum, or hingota oil	Balanites ægyptiaca.
Butter or ghee tree	Bassia butyracea.
Do. mawa	Bassia latifolia.
Do. illoopoo	Bassia longifolia.
Do. kawan	Bassia, *species*.
Downy mountain ebony.	Bauhinia tomentosa.
Limbolee	Bergera konigii.
Butter of Shanghae	Brassica chinensis.
	Brassica eruca.
	Brassica juncea.
Rape seed	Brassica napus.
Chironjee berries & seeds	Buchanania latifolia.
Pulas oil	Butea frondosa.
	Cæsalpinia oleosperma.
Poon seed oil	Calophyllum inophyllum.
Oil of hemp seed	Cannabis sativa.
	Carthamus oxyacantha.
Do. koosum	Carthamus tinctorius.
Do. of cloves	Caryophyllus aromaticus.
Deodar oil	Cedrus deodara.
Malkunganee, or staff tree oil	Celastrus paniculata.
Oil of cheeronjee	Chirongia sapida.

Oil of cassia	Cinnamomum, *species.*
Do. of cinnamom	Cinnamomum zeylanicum.
Do. of lemons	Citrus limonum.
Do. cocoanut	Cocos nucifera.
Do. of coriander	Coriandrum sativum.
Nut oil	Corylus colurna.
Oil of cucumber seed	Cucurbita pepo.
Do. melon seed	Cucumis melo.
Coloquintida seed oil	Cucumis colocynthis.
Cucumber seed oil	Cucumis sativus.
Oil of pumpkin seed	Cucurbita maxima.
Do. of cummin	Cuminum cyminum.
Do. purging	Curcas purgans.
	Cyperus, *species.*
Poongum oil	Dalbergia arborea.
Thorn apple oil	Datura, *sp.*
Wood oil	Dipterocarpus, several *sp.*, empyreumatic.
Agait, or napoota	Didynamia gymnosperma.
Oil of mijo	Dolichos soja.
Moneela gram oil	Dolichos biflorus.
Oil of cardamom	Ellettaria cardamomum.
Persimmon oil	Embryopterus glutinifera.
Oil of Japan	Erysimum perfoliatum.
Eugenia oil	Euphorbia dracunculoides
Oil of sweet fennel	Fœniculum dulce.
Do. gamboge butter	Garcinia pictoria.
Cotton seed oil	Gossypium, *species.*
Kokum oil	Garcinia purpurea.
Oil of bonduc nut	Guilandina bonduc.
Do. ramtil	Guizotia oleifera.
Do. of Ben, Sohujna	Hyperanthera moringa.
Sun flower	Helianthus annuus.
Oil of glaucus-leaved physic nut	Iatropha glauca.
Do. of star anise	Illicium anisatum.
Balsam oil	Impatiens, *species.*
Do. „	Impatiens tingens.
Oil of jessamine.	Jasminum, (*var. sp*).
Physic nut	Jatropha curcas.
Do. „	Jatropha glauca.
Walnut oil	Juglans regia.
Chinese oil	Kin.
Linseed oil	Linum usitatissimum.
	Litsæa, *species.*
Sweet basil	Ocimum or Lavandula.
Oil of cajaput	Melaleuca cajuputi.
Do. neem	Melia azaderach.
Do. of mint	Mentha piperita.
Do. mimusops	Mimusops elengi.
Do. ben	Moringa pterygosperma.
Do. nutmeg	Myristica moschata.
Do. of tobacco	Nicotiana tabacum.
Do. fennel flower	Nigella sativa.
Olive oil	Olea europea.
Peppermint oil	Mentha sativa.
Oil of keora	Pandanus odoratissimus.
Do. poppy seed	Papaver somniferum.
Do. anise	Pimpinella anisum.
Pine oil	Pinus gerardiana.
Oil of pepper	Piper nigrum.
Do. putchapat	Pogostemon patchouli.
Do. kurrunj	Pongamia glabra.
	Prinsepia utilis.
	Prunus armeniaca.
Castor oil	Ricinus communis.
Oil of roses	Rosa, *species.*
Kikuel oil	Salvadora persica.
Sandal oil	Santalum album.
Do. of sandalwood	Sapindus emarginatus.
Do. poonga	Sarcostigma kleinii.
Do. of sassafras	Sassafras officinale.
Saul	Shorea robusta.
Oil of shayncotay	Semecarpus anacardium.
Do. gingely	Sesamum indicum.
Do. mustard of kinds. Kalee surson, Surson, Tira, Toria kurwa, Raee	Species of sinapis, viz., Sinapis alba. Sinapis chinensis, Sinapis glauca, Sinapis nigra, Sinapis toria.
Chinese tallow tree	Stillingia sebifera.
Oil of pea.	Suchaw.
Oil of fetid sterculia	Sterculia fætida.
Do. nux vomica	Strychnos nux vomica.
	Symplocos cratægiodes.
Do. wild almond	Terminalia catappa.
Do. portia nut	Thespesia populnea.
	Theobroma cacao.
Do. croton	Tiglium officinale.
Thorny Trichilia	Trichilia spinosa.
Oil of vegetable tallow	Vateria indica.
Kuttsella, Black til of Deccan, Kala-til-ka-tel	Verbesina sativa.
Khatzum oil	Vernonia anthelmintica.
Carab oil	Xylocarpus granatum.

Cotton-seed oil is used for lamps. Castor oil and Argemone seed similarly used. Oil obtained from the fruit of Melia azadirachta, &c., for medicine and lamps. Apricot oil in the Himalayas, sunflower oil, oil of cucumber-seed for cooking and lamps, oil of colocynth seed, used as lamp oil. The seeds of bastard saffron (Carthamus tinctorius) yield oil. Mustard oil, the produce of various species of Sinapis, &c. Shanghæ oil, from Brassica chinensis; Illipie oil, from Bassi longifolia, which is used for frying cakes, &c., in Madras; and Mahwa oil, from Bassia latifolia, another species of the same genus. Oil is expressed from the seed of Cesalpinia oleosperma, a native of the East. The neem tree seeds afford a very clear or bitter oil, used for burning. Wood oil is a remarkable substance, obtained from several species of Dipterocarpus, by simply tapping the tree. The seeds of the Argemone mexicana, also contain a bland, nutritious, colourless, fixed oil. The mass from which the seed is expressed is found to be extremely nutritious to cattle. A solid oil, of a pale-greenish colour, a good deal resembling the oils of the Bassia in character, though rather harder, and approaching more in properties to myrtle wax, was shown at the Great Exhibition, from Singapore. It is supposed to be the produce of the tallow tree of Java, called locally "kawan," probably a species of Bassia. It is very easily bleached; indeed, by exposure to air and light, it becomes perfectly white; if not too costly, it promises to become a valuable oil. According to Mr. Low, there are several varieties of solid oil commonly used in the Islands of the Eastern Archipelago, and obtained from the seeds of different species of Dipterocarpus. Piney tallow is obtained from the fruit of the Vateria indica, a large and quick-growing tree, abundant in Malabar and Canara. It is a white solid oil, fusible at a temperature of 97 degrees, and makes excellent candles, especially when saponified and distilled in the manner now adopted with palm oil, &c. It has one great advantage over cocoa-nut oil that the candles made of it do not give out any suffocating acrid vapors when extinguished, as those made with the latter oil, do. An oil is produced from the inner shell of the cashew-nut, Anacardium occidentale var. indicum, in the East Indies. In Japan a kind of butter called mijo, is obtained from species of the Dolichos bean (Dolichos soja). The kernel of the seeds of the tallow tree of China, Stillingia sebifera, an evergreeen shrub, contains an oil, which when expressed, consolidates through the cold to the consistence of tallow, and by boiling becomes as hard as bees' wax. The plant also yields a bland oil. A similar fatty product is obtained from a shrub in British Guiana, the Myristica (Virola) sebifera. Oil is obtained in South America from the sand box tree (Hura crepitans), and from the Carapa guianensis. The seeds of several plants of the cucumber family frequently supply a bland oil, which is used in the East as a lamp oil and for cooking. Among the vegetable oils imported into Ningpo and other Chinese ports, from Shantong, Leatong, and Teisin, are oil of teuss, obtained from green and dried peas; black oil of the fruit of the tree kin (?) and oil from the pea of suchau. A pale brownish yellow oil is obtained from the seeds of Carthamus tinctorius, in Bombay, the seeds of which contain about 28 per cent. of oil. Excellent oil is expressed in various parts of India from the seeds of different species of Sinapis, especially from the black mustard seed, and S. glauca, S. dichotoma, and S. juncea are extensively cultivated in the East for their oil. The Erysimum perfoliatum is cultivated in Japan for its oil seeds. A beautiful pale yellow oil is procured from the seeds of the angular-leaved physic nut, Jatropha curcas, a shrub which is often employed in the tropics as a fence for enclosures. It is used by the natives in medicine and as a lamp oil. About 700 tons of this oil was imported into Liverpool in 1850 from Lisbon, for the purpose of dressing cloth, burning, &c. An oil called Carab oil is also obtained in the East, from the almonds of Xylocarpus granatum, or Carapa moluccensis of Lamarck, which is used by the natives to dress the hair and anoint the skin, so as to keep off insects. Cacao fat, the butter-like substance obtained from the seeds of Theobroma cacao, is esteemed as an emollient. The Agaiti, as it is called by the Portuguese, or Napoota by the natives and Arabs (Didynamia gymnosperma ?), is much cultivated in all Eastern Africa for its oil, which is considered equal to that of olives, and fetches as high a price in the Indian market. The plant, which is as tall and rank as hemp, and equally productive, having numerous pods throughout the stems, is found everywhere in a wild as well as cultivated state. The *Cape Shipping Gazette* of August 1850, says—that an excellent oil, equal to the olive oil of Italy, can be extracted from the kernel of the fruit known by the name of "T'kou Pijte" and "Pruim Besjee," Cocum oil, or butter, is obtained from the seeds of a kind of mangosteen (Garcinia purpurea), and used in various parts of India to adulterate ghee or butter. It is said to be exported to England for the purpose of mixing with bears' grease in the manufacture of pomatum. It is a white, or pale greenish yellow, solid oil, brittle, or rather friable, having a faint but not unpleasant smell, melting about 94 degrees, and when cooled after fusion remaining liquid to 75 degrees. An excellent solid oil, of a bright green colour, is obtained from Bombay, having a consistence intermediate between that of tallow and wax, fusible at about 95 degrees, and easily bleached; it has a peculiar and somewhat aromatic odour. There is some uncertainty as to the plant from which it is obtained. It was referred to the Salvadora persica, and to the Vernonia anthelmintica, a plant common in Guzerat and the Concan Ghats. A pale yellow clear oil is obtained from the seed of Dolichos biflorus (?). Oil is also expressed in India from the seed of the Argemone mexicana, which is used for lamps and in medicine; and from the seeds of the cashew nut (Anacardium occidentale), from Sapindus emarginatus, and the country walnut (Aleurites triloba.) The fruit of the Chirongia sapida, (or Buchanania latifolia,) yields oil. From the seeds of the Pongamia glabra, or Galedupa arborea, a honey-brown and almost tasteless oil is procured, which is fluid at common temperature, but gelatinises at 55 degrees. Other sources of oil are the Celastrus paniculatus, Balanites egyptiaca and the saul tree (Shorea robusta.) Cinnamon suet is extracted by boiling the fruit of the cinnamon. An oily fluid floats on the surface, which on cooling subsides to the bottom of the vessel, and hardens into a substance like mutton suet. The Singhalese make a kind of candles with it, and use it for culinary purposes. It emits a very pleasant aroma while burning. According to the analysis of Dr. Christison, it contains eight per cent. of a fluid not unlike olive oil; the remainder is a waxy principle. Croton oil is obtained by expression from the seeds or nuts of Croton tiglium, a tree, 15 to 20 feet in height, belonging to the same order as the castor oil plant, producing whitish green flowers, and seeds resembling a tick in appearance, whence its generic name. It is a native of the East Indies. 100 parts of seeds afford about 64 of kernel. 50 quarters of croton nuts for expressing oil were imported into Liverpool from the Cape Verd Islands, in 1849.

The Croton tiglium grows plentifully in Ceylon, and the oil, if properly expressed, might be made an article of trade. The best mode of preparing it is by grinding the seeds, placing the powder in bags, and pressing between plates of iron; allow the oil to stand for fifteen days, then filter. The residue of the expression is triturated with twice its weight of alcohol, and heated on the sand-bath from 120 to 140 degrees Fahrenheit, and the mixture, pressed again. In this step the utmost caution is necessary in avoiding the acrid fumes. One seer of seed furnishes by this process rather more than eleven fluid ounces of oil, six by the first step, and five by alcohol. The oil acts as an irritant purgative in the dose of one drop. In large doses it is a dangerous poison. When applied externally it produces pustules. In 1845 eight cases of croton oil and six cases of the seed were exported from Ceylon. Other species of croton as C. pavana, a native of Ava and the north-eastern parts of Bengal, and C. roxburghii yield a purgative oil. The bark of C. eleuteria, C. cascarilla, and other species is aromatic, and acts as a tonic and stimulant. It forms the cascarilla bark of commerce already spoken of. When bruised, it gives out a musky odour and is often used in pastilles. The oil obtained from the seeds of Jatropha curcas, a native of South America and S. Asia, is purgative and emetic, and analogous in its properties to croton oil. It is said to be a valuable external application in itch. In British India it is used for lamps. Oil of Ben, known as Sohunjuna in Bengal, and Moringa in Malabar, is obtained from the seed or nuts of the horse-radish tree, the Hyperanthera moringa, of Linnæus. This clear limpid oil, having no perceptible smell, is much esteemed by watch-makers and perfumers; it is expensive and not often to be procured pure, consequently the oil would be a very profitable export. It grows rapidly and luxuriantly everywhere in British India, in Jamaica, particularly on the north side of the island as well as in Trinidad and other quarters of the West. It is easily propagated either by cuttings from the tree (the branches) or by seeds, and bears the second year. The produce of each tree may be estimated at from one to two gallons. From the flowers a very pleasant perfume might be easily distilled. It is a small tree, of about twenty feet in height, of most rapid growth, coming into flower within a few months after it has been sown, continuing to produce seeds and blossoms afterwards throughout the year. The timber is said to dye a fine blue, and the gum, which exudes from wounds in the bark, bears a strong resemblance to that obtained from the Astragalus tragacantha, for which it might, no doubt, be substituted. The numerous racemes of white blossoms with which the tree is constantly loaded, are succeeded by long triangular pods, somewhat torulose at the ends, and about two feet in length, when arrived at the full growth. These pods, while yet young and tender, are not unfrequently cooked and served up at the tables, in India, like asparagus, for which they are not a bad substitute. The pods, when full-grown contain about fifteen seeds; each considerably larger than a pea, with a membraneous covering expanding into three wings, whence the specific name of pterygosperma. On removing the winged envelope the seeds appear somewhat like pith balls; but upon dividing them with the nail, they are found to abound in a clear, colourless, tasteless, scentless oil, of which the proportion is so large that it may be expressed from good fresh seed by the simple pressure of the nail. Geoffry informs us, that he obtained 30½ ounce. of oil from eight pounds of the decorticated seeds being at the rate of very nearly 24 lbs. of oil from 100 lbs. of seed. All over British India, it is cultivated for the sake of its young pods or the horse-radish of its roots, as luxuries for the table, but its gum is used medicinally and its leaves and flowers as greens. The oil is peculiarly valuable for the formation of ointments, from its capability of being kept for almost any length of time without entering into combination with oxygen. This property, together with the total absence of colour, smell, and taste, peculiarly adapts it to the purposes of the perfumer, who is able to make it the medium for arresting the flight of those highly volatile particles of essential oil, which constitute the aroma of many of the most odoriferous flowers, and cannot be obtained by any other means in a concentrated and permanent form. To effect this, the petals of the flowers, whose odour it is desired to obtain, are thinly spread over flakes of cotton, wool saturated with this oil, and the whole enclosed in air-tight tin-cases, where they are suffered to remain till they begin to wither, when they are replaced by fresh ones, and the process thus continued till the oil has absorbed as much as was desired of the aroma; it is then separated from the wool by pressure, and preserved under the name of essence, in well stopped bottles. By digesting the oil thus impregnated in alcohol, which does not take up the fixed oil, a solution of the aroma is effected in the spirit and many odoriferous tinctures or waters, as they are somewhat inaccurately termed, prepared. By this process most delicious perfumes might be obtained from the flowers of the Acacia tortuosa, Pancratium carribeum, Plumieria alba, Plumieria rubra, and innumerable other flowers, of the most exquisite fragrance. which abound within the tropics, blooming unregarded, and wasting their fragrance on the barren air. Three varieties of til are extensively cultivated throughout India, for the sake of the fine oil expressed from their seeds, the white-seeded variety, the parti-coloured, and the black. It is from the latter that the sesamum or gingely oil of commerce is obtained. Sesamum seed contains about 45 per cent. of oil. Good samples of oil were shown at the Great Exhibition from Vizianagram, Ganjam, Hyderabad, Tanjore, the district of Moorshedabad, and Gwalior. The gingely seed is stated to be worth about £4 per ton in the Northern Circars. An oil resembling that of sesamum is obtained from the seed of Guizotea oleifera or Abyssinica, a plant introduced from Abyssinia, and common in Bengal. The ram til, or valisaloo seeds, yield about 44 per cent. of oil. The oil is generally used for burning, and is worth locally about six annas per gallon. Black til (Verbesena sativa) is known as kutsela or kala til, in the Deccan. It is largely cultivated in Mysore and the western districts of Peninsular India, as well as in the Bombay presidency. About Seringapatam, as soon as the millet crop has been reaped the field is ploughed four times, and the seed sown, a gallon per acre, during the month of July or August, after the first heavy rain. No manure or weeding is required, for the crop will grow on the worst soils. It is reaped in three months being cut close to the ground, and stacked for a week. After exposure to the sun for two or three days, the seed is beaten out with a stick. The crop in Mysore rarely yields two bushels per acre, but about Poonah the produce is much larger. The seed is sometimes parched and made into sweetmeats, but is usually grown for its oil. This is used in cooking, but it is not so abundant in the seed, nor so good as that of the sesame. Bullocks will not eat the stems unless pressed by hunger. About 5,000 maunds are exported annually from Calcutta. 3,730 bags were imported into Liverpool in 1851. The price per quarter of eight bushels, in January 1853, was from 30*s.* to £2; of teel oil, in tins, weighing 60 to 100 lbs., £2 to £2 4*s.* Bombay linseed was worth £2 11*s.* to £2 12*s.* the quarter of eight bushels, in January 1853. Bengal ditto., 2*s.* less. The imports into Liverpool were 68,468 bags and 54,834 packets in 1851, and 14,490 bags and 33,700 packets in 1853. Abont 9,000 bags of mustard seed and from 18,000 to 20,000 bags of rape seed are also imported thence. The price of the latter is about £2 the quarter.

Cocoa-nut oil.—The chief oil made on the seaboard of India, is that yielded by the cocoa-nut palm. The nut having been stripped off the husk or coir, the shell is broken and the fatty lining enclosing the milk is taken ont. This is called cobra, copra, or copperah in different localities. Three maunds, or ninety pounds of copra, are thrown into the mill with about three gallons of water and from this is produced three maunds, or seven and three-quarter gallons of oil. The copperah in its unprepared state is sold, slightly dried, in the market. It is burned in iron cribs or grates, on the top of poles or torches, in processions, and as means of illumination for work performed in the open air at night. No press or other contrivance is made use of by the natives of India for squeezing out or expressing the oil from the cake, and a large amount of waste, in consequence of this necessarily ensues.

Apricot oil, of the finest kind, is made in India by expression from the kernels of the apricot. It is clear, of a pale yellow colour, and smells strongly of hydrocyanic acid, of which it contains, usually, about 4 per cent.

Sun-flower oil is raised in Tartary chiefly for the oil expressed from it. But it is also of use for many other purposes. The people eat the seeds, which, when boiled in water, taste not unlike boiled Indian corn. In some districts of Russia the seeds are employed with great success in fattening poultry; they are also said to increase the number of eggs more than any other kind of grain. Pheasants and partridges eat them with great avidity, and they cause the same effects on them as other birds. The dried leaves are given to cattle in place of straw; and the withered stalks are said to produce a considerable quantity of alkali.

Linseed oil is but little made in India.

Margosa, or Neem oil, is made from the pericarp or fleshy part of the fruit of the Melia azaderachta, and of the Azaderachta indica. Dr. Maxwell has found this oil equally efficacious was cod-liver oil in cases of consumption and scrofula. He began with half-ounce doses, morning and evening, which were gradually reduced.

Bassia oils.—The seeds of three species of Bassia trees, indigenous to British India, and one of E. Africa yield solid oils, and are remarkable for the fact, that they supply at the same time saccharine matter, spirit and oil, fit for both food and burning in lamps: they are

a. The *Illepe* (B. longifolia): it is abundant in the Madras presidency, the southern parts of Hindoostan generally, and the northern province of Ceylon. In Ceylon the inhabitants use the oil in cooking and for lamps. The oil cake is rubbed on the body as soap, and seems admirably adapted for removing the unctuosity of the skin caused by excessive perspiration, and for rendering it soft, pliable and glossy, which is so conducive to health in a tropical climate. The oil is white and solid at common temperatures, fusing at from 70 to 80 degrees. It may be advantageously employed in the manufacture of both candles and soap; in Ceylon and some parts of India this oil forms the chief ingredient in the manufacture of soap.

b. Mahwa (B. latifolia) is common in many parts of British India. The oil a good deal resembles that last described, obtained from the Illepe seeds; and may be used for similar purposes. It is solid at common temperatures, and begins to melt at about 70 degrees.

c. Vegetable butter is obtained from the Choorie (B. butyracea). Though far less generally abundant than the other two species, it is common in certain of the hilly districts, especially in the eastern parts of Kumaon; in the province of Dotee it is so abundant that the oil is cheaper than ghee, or fluid butter, and is used to adulterate. It is likewise commonly burnt in lamps, for which purpose it is preferred to cocoa-nut oil. It is a white solid fat, fusible at about 120 degrees, and exhibits very little tendency to become rancid when kept.

d. Shea, or galam butter, is obtained in Western Africa from the Bassia parkii or Pentadesma butyracea, a tree closely resembling the B. latifolia and other species indigenous to Hindoostan. According to Park, the tree is abundant in Bambara, the oil is solid, of a greyish white colour, and fuses at 67 degrees. Its product is used for a variety of purposes—for cooking, burning in lamps, &c. This tree has much of the character of the laurel, but grows to the height of eighteen to twenty feet. Its leaf is somewhat longer than the laurels and is a little broader at the point; the edge, of the leaf are gently curved, and are of a dark sap green colour. The nut is of the form and size of a pigeon's egg, and the kernel completely fills the shell. When fresh it is of a white drab colour, but, if long kept, becomes the colour of chocolate. The kernel, when new, is nearly all butter, which is extracted in the following manner:—The shell is removed from the kernel, which is also crushed, and then a quantity is put into an earthen pot or pan, placed over the fire with a portion of water and the nut kernels. After boiling slowly about half an hour, the whole is strained through a grass mat into a clean vessel, when it is allowed to cool. Then after removing the fibrous part from it, it is put into a grass bag and pressed so as to obtain all the oil. This is poured into the vessel along with the first mentioned portion, and when cold is about the consistence of butter. The nuts hang in bunches from the different boughs, but each nut has its own fibre, about seven or eight inches long, and about the thickness and colour of whip-cord. The nut is attached to the fibre in a very singular manner. The end of the fibre is concealed by a thin membrane, about half an inch wide and three-quarters of an inch long. This membrane is attached to the side of the nut, and, when ripe, relinquishes its hold, and the nut falls to the ground, when it is gathered for use. A good-sized healthy tree yields about a bushel of nuts, but the greater number are not so prolific. The trees close to the stream present a more healthy appearance, probably on account of being better watered, and the fire being less powerful close to the stream. Very extensive collection of Madr.s oils was exhibited the Madras Exhibition of 1855, by Lieut. Hawkes, viz.:

The Adul oil of Travancore was forwarded to the Great Exhibition of 1851, It seems to be medicinal, but the botanical name of the plant producing it is not given.

Aleurites triloba,

Belgam walnut oil. | Hidjlee Badam ka tel, HIND.

The Molucca tree, which produces the 'Lumbang nut' grows plentifully near Hyderabad. The nuts yield a very large percentage of oil, and the tree is found to be very prolific. The nuts are said to be strung upon a thin strip of bamboo, and when lighted will burn like a candle; a notice of this interesting substance may be found in the Transactions of the Agri-Horticultural Society of India, Vol. viii, p. 220.

Allium sativum.

Garlic oil | Vellay-pundoo yennai, TAM.

This medicinal oil is obtainable in most parts of British India.

Anacardium occidentale, Cashew-nut oil.

Kajoo ka tel, HIND. | Moondree cottay yennai, TAM.

The light yellow, sweet tasted and edible oil obtained from the nut of this tree, is in every respect equal, if not indeed superior, to either olive or almond oil. It is however very seldom prepared, the nuts being used as a table fruit.

Another oil is prepared from the Anacardium occidentale and called Cashew apple oil. It is a powerfully vesicating oil obtained from the pericarp of the Cashew apple and has been long known to the native physicians of India. It much resembles in its properties the acrid oil obtained from the marking nut, Semecarpus anacardium.

Andropogon calamus aromaticus, Roosa grass oil, differs but little either in appearance or quality from the Lemon grass oil. It is used for the same purposes.

Andropogon chœnanthus

Camachie pilloo tylum, TAM. | Lemon grass oil. ENG.

is obtained by distillation from a grass which grows plentifully in many parts of British India. It is much used as a rubefacient for rheumatic affections, as well as in perfumery, for which purposes it is said to be largely exported from Travancore. When newly made, this oil is of a light straw-colour, but age changes it to a deep-red.

Anethum sowa, Bishop's weed oil. These well known carminative seeds yield by distillation a very useful oil which is given medicinally, as a stomachic.

ANIMAL OILS.

Fish oil is chiefly prepared in Malabar and the Western Coast of the peninsula of India, whence it is exported to England in large quantities, the demand is also yearly increasing.

Fish liver oil, is also prepared chiefly on the Western Coast although some is now made at Madras. The liver of the white shark is that generally used. The best cod liver oil is prepared early in January when the livers are plump, firm, large, white, and full of oil—the livers are sometimes found diseased, and are specifically lighter than water, should be rejected. Good livers should cut smooth, and not tear, when cut none of the substance should flow out in a half liquid state. The quantity of oil produced by livers depends much upon the time of the year. In the beginning of January 1,000 livers were found by experiment to yield 37 imperial gallons, and at the end of February an equal number only gave 23 gallons of oil. In the beginning of January 1,000 livers of average size weighed 900 lbs. whilst in the last day of March the same number weighed only 575 lbs. The oil at these different seasons was equally pale, and the livers equally white, although much smaller and more flabby in the latter season. To prepare the oil—wash the liver very carefully, first removing the gall bladders which adhere to them, and infuse them in rain or other water free from salt. Place them over the fire and never allow the heat to exceed 120 or 130°. On this head especial care must be taken, a higher degree of heat although yielding a larger product, communicates a rank fleshy taste and smell and heightens the colour of the oil, thereby rendering it disgusting to the patient.

Neat's foot oil is used as a softener of leather, &c., &c.

Oleum ceræ, oil of wax. Bees wax submitted to destructive distillation with the addition of a little salt yields an empyreumatic oil which is much used in medicine by native doctors.

Iguana oil, a medicinal oil.

VEGETABLE OILS.

Arachis hypogœa, Ground nut oil.

Wilayeti-moong ki-phulli-ka tel. HIND.	Vayr-cuddala-yennai, TAM. Manilla noona, TEL.

This valuable oil is now exported from Madras to a large amount. It is obtained by expression from the seeds of the ground or Manilla nut, which is now cultivated to a considerable extent in most parts of the peninsula. In the year 1848-49—37,000 gallons were shipped, but in the two following years the exports exceeded 100,000 gallons. It has, however, fallen to 57,207 gallons in 1852-53. It does not seem to be consumed to any large extent in this country, although the nut itself is much eaten by the poorer classes. It is said to be used for adultering gingelly oil in North Arcot, where it costs Rs. 1-8-0, to 2-12-0 per maund. In the Nellore District, the seeds are procurable at Rs. 1-8-0 per maund, and in Tanjore about 200 acres are cultivated, producing annually 75 candies of oil at Rs. 2-6-0 per maund. The seeds yield about 43 per cent. of a clear straw-coloured edible oil, which is an excellent substitute for olive oil, and makes a good soap. Its value in London in January 1855 was £47-10 per ton. Perfect decolorization, far from depreciating, considerably enhances the value of this oil.

Argemone mexicana.	Prickly poppy oil.
Brumadundoo oil.	Jamiaca yellow thistle oil.
Coorookoo oil.	
Faringi datura ka tel, HIND.	Brumadundoo yennai, TAM. Brumadundi noona, TEL.

A pale yellow limpid oil may be obtained in large quantities from the round corrugated seeds of the prickly poppy, which was originally introduced from Mexico in ballast, but now flourishes luxuriantly in all parts of India. It is sometimes expressed by the natives and used in lamps, but is doubtless adapted to other and more important uses. In North Arcot it costs from Rs. 1-14-0 to Rs. 2-1-0 per maund.

Bassia longifolia. Illoopoo oil.

Mohay ka tel, HIND.	Illepie yennai, TAM.

This semi-solid oil is expressed from the seeds of a tree which is everywhere common in Southern India. It is seldom sold in the bazar, but the seeds are collected, and the oil manufactured by the natives for private consumption. The seeds contain about 30 per cent. of oil of a bright yellow colour. It is procurable in South Arcot at Rs. 25 per candy, or Rs. 1-4-0 per maund—in Bellary at 3-8-0, in Bhopaul at Rs. 3-12-0 In Tanjore it may be had to the extent of 2,702 candies at the rate of 2-8-8 per maund. This oil makes excellent candles and soap. Its chief use is, however, for burning in lamps, and as a substitute for butter in native cookery. A very great difference is observable in colour, consistence and flavour, but is entirely attributable to the mode of preparation, and to the presence in some cases of a very large proprotion of mucilage and other extraneous matter.

Bassia latifola, Mahwa oil is a solid oil or butter. The B. latifolia grows plentifully in the Northern parts of British India.

Bombax pentandrum, Silk cotton seed oil. A dark-brown, though clear, oil is obtained by expression from the seed of the silk cotton tree, the fibre of which is largely used as a stuffing for pillows, mattresses, &c., &c.

Bryonia oil.

Toomuttikai yennai, Tam. | Boddama kaia noona, Tel.

This oil is used for burning in lamps in those parts of British India where the fruit abounds. It is extracted by boiling in water, and is procurable only in very small quantities.

Broonga Malagum ointment and *Vishnamoosty or snake tree ointment* of Masulipatam appear to be new products.

Butea frondosa, Moodooga oil. The seeds of this tree yield a small quantity of a bright clear oil which is sometimes used medicinally.

Cabbage seed oil, is prepared in small quantities.

Calophyllum calaba? a new oil under the name of Cherroo pinnacottay was sent from Cochin.

"Pootronjie." A new oil from Mysore and Madras.

Calophyllum inophyllum. Pinnacotay or Poon-seed oil.

Surpun ka tel, Hind. | Pinnay noona, Tel.
Pinnay yennai, Tam.

The fresh seeds of the "Alexandrian laurel" when shelled and subjected to pressure, yield a dark-green oil of a peculiar odour. Old seeds yield a higher coloured and thicker product. In the year 1847-48, gallons 3,871 of the oil, and cwt. 508 of the seeds, were shipped from Madras chiefly to Ceylon and the Straits, it has now ceased to be an article of export. In Tanjore, 437 acres producing on an average 24⅝ cullums per acre of seed are covered with this tree: this yields 2,671¼ maunds of oil at Rs. 20-4 per maund. In Tinnevelly, it costs As. 4-8 and Trichinopoly As. 4 per seer. In Tanjore, it is used for lamps, and for caulking vessels, but it appears to be chiefly valuable as a medicine. It is seldom procurable in the bazaar, but is expressed when required. Samples from Canara, under the name of "Honay," from Goa by the name of "Oleum unda," from Cochin called "Perun poonaka," and from Masulipatam.

Canabis sativa, Hemp seed oil.

Ganja yennai, Tam.

This oil is obtained by expression from the seeds of the common hemp, which is cultivated in many parts of the country. In Russia, the oil is much used for burning in lamps, but it is unknown to the natives of India, Of three specimens exhibited, at the Madras Exhibition of 1855 one was of a deep-green colour from Tanjore, another of an olive-green, sent by Lieut. Hawkes.

Cardamom seed oil, (This fixed oil is well known.

Carthamus tinctorius, Safflower oil.

Kurrur or Coosum ka tel, Hind. | Chendoorookoo yennai, Tam.
Koosumba noonay, Tel.

A light yellow clear oil obtained from the seeds of the plant, yielding the well known dye. It grows plentifully in Mysore and Tinnevelly. In Mysore and Bellary it costs about Rs. 2-8-0 per maund, and is used for lamps, culinary and other purposes.

Celastrus paniculata, Malkungunee or staff tree oil.

Malkungunee ka tel, Hind. | Bavungi noona, Tel.
Valuluvy yennai, Tam.

The deep scarlet coloured oil obtained by expression from the seeds of this shrub is used in medicine, the seeds submitted to destructive distillation yield the

Oleum nigrum.

Vaylari tylum, Tam.

An empyreumatic oil obtained by the destructive distillation of the seeds of this Celastrus, either alone or in combination with other ingredients. It is much used in the treatment of Beri-beri.

Cheerongie oil, Chirongia sapida or Buchanania latifolia.

Cheeronji or Charooli ka tel, Hind. | Saraypuppo noonay, Tel.

The kernels of this tree are eaten by the natives to promote fatness, they abound in a straw-coloured, sweet tasted and limpid oil which is seldom extracted. The tree grows plentifully in Mysore and Cuddapah.

Cocos nucifera, Cocoanut oil.

Narel-ka-tel, Hind. | Tencaya noona, Tel.
Taynga yennai, Tam.

The average annual quantity of this oil exported from Madras, from 1847-48 to 1852-53 was about gallons 900,000 per annum. Of this by far the largest portion was sent to the United Kingdom and France, the remainder found its way to Arabia, Mauritius, Bombay and the (Indian) French ports. The prices of this oil vary considerably in different parts of the country. For the quarter ending 31st October 1854, the max. and the min. were Rs. 8-5-4 at Jubbulpore, and Rs. 1-12-9 at Mhow per maund. The average of 21 large stations in the Madras presidency giving Rs. 4-9-5 per maund, or about £41-2 per ton. The market-value of "Cochin oil" in London (January 1855) was £46-10—the average being £46 to 48. The best oil is that exported from Cochin, and the neighbouring ports on the Malabar Coast. It usually fetches 20*s.* per ton more than the Ceylon or Coromandel coast article. In Europe, it is used for candle and soap manufacture, for lubricating machinery, &c., &c. In India, for making soap, anointing the person, for cookery, lamps and in medicine. An empyreumatic oil and pyroligneous acid are obtained by the destructive distillation of cocoanut shells. The latter substance has been used successfully in developing photographs by the collodion process. The oil of tar mixed with ordinary "japan varnish" is said to be used with advantage in the "backing up" of positive pictures.

Croton tiglium, Croton or Napalah oil.

Jumalgotay ka tel, Hind. | Naypalum noonay, Tel.
Neervalum yennai, Tam. |

This is a well known medicinal oil, the use of which as a drastic purgative, seems to be decreasing.

Cucumis colocynthis, Colocynth seed oil.

Cucumis melo, Melon seed oil. Pitcha pusjhum, the Tharbooza, Khurbooza, or Pumpkin seed oil.

Cucurbita pepo, Cucumber seed oil.

Valerikai yennai, Tam. | Thosa noona, Tel.

A clear edible oil.

Garcinia pictoria, Gamboge butter (*Rox.*)

Arasinagoorghy yannai, Can. | Mukki-tylum, Tam.

A solid butter is contained in the seeds of the "Gamboge tree," a species closely allied to the G. purpurea which produces the "cocum butter" and has attracted attention. The Gamboge tree grows abundantly in certain parts of the Mysore and Western coast jungles. The oil which is procurable in moderate quantities, is prepared by pounding the seed in a stone mortar and boiling the mass, until the butter, or oil rises to the surface. Two and a half measures of seed should yield one seer and a half of butter. In the Nuggur Division of Mysore, it is sold at the rate of As. 1-4 per seer of 24 Rs. weight, or at £36-6 per ton, and is chiefly used as a lamp oil.

Ghirgilly oil, from Canara obtained from the pulp of the tree; considered an excellent remedy for rheumatic pains.

Guilandina bonduc, bonduc nut oil.

Calichi-kai yennai, Tam.

The oil of this common seed is mentioned by Ainslie, as being considered useful in convulsions and palsy. The seeds themselves are believed to possess tonic virtues. Used solely as a medicine.

Guizotia oleifera, Ramtil oil—Verbesina sativa.

Kala til ka tel, Hind. | Valeesaloo noonay, Tel.

This sweet-tasted edible oil is plentiful in the Mysore, Vizagapatam and Ganjam Districts. It is used for nearly the same purposes as the sesamum. It is procurable in the Nuggur Division of Mysore at Rs. 3–8–0 per maund, but is considered inferior to gingely oil.

Hura crepitans, Sand-box tree oil. This tree has been introduced from Jamaica. Its seeds yield by expression an oil; as the whole tree abounds in poisonous matter, this oil probably partakes of its deleterious nature.

Hydnocarpus inebrians, Thortay oil. From Canara a very valuable vegetable tallow, used for sores.

Inga dulcis, Coorookoopilly oil. The seeds of this common hedge plant yield by expression a light coloured oil, about the consistence of castor oil. Its qualities and uses are unascertained.

Jatropha purgans, or Curcas purgans, Angular leaved physic-nut oil.

Jangli erandi ka tel, Hind. | Catt-amunak yennai, Tam.
| Adavi amedapoo noona, Tel.

This oil, has of late been imported into England, as a substitute for linseed oil; it is expressed from the fruit of a species of Jatropha, which abounds in all parts of the Madras presidency. The colour is somewhat paler than the best linseed oil. It can be obtained in some parts of the country where it is plentiful, for little more than the cost of manufacture. It is now chiefly used in lamps.

Jatropha glauca, Glaucous-leaved physic-nut.

Addale or Authaulay yennai, Tam.

This in appearance approaches castor oil; and seems to be but little known. It is fluid and light straw-coloured, and is procurable in South Arcot, where the plant grows on waste land. It is now chiefly used medicinally as a counter-irritant, but if procurable in sufficient-quantity seems likely to prove a useful oil. A high coloured specimen was sent to the Madras Exhibition from Tinnevelly and one of a pale straw colour from Madras.

Lepidium sativum, Country Cress oil.

Ali-veri yennai, Tam.

This oil is extracted from the seeds of the "Chinese wall cress." It must not be confounded with "Linseed oil," the Tamil name of which is the same as that of the present article.

Linum usitatissimum, Linseed oil.

Ulsee ka tel, Hind. | Aveesee noona, Tel.
Al liveri yennai, Tam. |

The seed from which this oil is expressed, has long been cultivated to a limited extent in Nagpore, Bellary and other parts of the Madras presidency. There is an impression that the oil obtained from the Indian plant is inferior to that imported from England, but it will be found on experiment, that this arises from the former having been imperfectly freed from mucilage, which prevents its drying. The seed is now an article of export from Madras to the amount (1852-53) of cwt. 1,106. In the year 1852-53, English Linseed oil to the amount of gallons 4,552 and valued at Rs. 8,763 was imported into Madras, whilst at the same time cwt. 1,045 of the seed were exported from hence mostly to England: it can be made on the spot for much less than the average value of the English oil. It would, however, be necessary to guard against the adulteration of this oil, with any of the other greasy oils which would of course infallibly destroy its drying properties.

Macassar oil, is used by the natives of Singapore as a hair oil.

Manaloo oil, of Canara, is used for lamps.

Azadirachta indica, and Melia Azadirach, Margosa or Neem oil.

Neem ka tel, Hind. | Vapa noona, Tel.
Vapum yennai, Tam. |

This valuable and much used medicinal oil is obtained by either expression or boiling, from the seeds of species of Melia and Azaderachta, which are common throughout Southern Asia. It enters much into the practice of native Physicians, by whom it is administered internally as an anthelmintic, and externally as a liniment in rheumatism, and headache and as an application to ulcers. The oil is of a deep yellow colour, has a strong smell and an unpleasant bitter taste. In the year 1847-48, gallons 1,587 were exported from Madras, and in the year 1851-52, gallons 1,917, in 1852-53, gallons 3,111. The chief market is Ceylon, but the demand is not constant.

Mesua ferrea, Naga-sumpunghee oil. This valuable oil is procurable in Canara, at the rate of Rs. 4 and the seed at 1-8-0 per maund. It is used both as a lamp oil and as a healing application to sores.

Mimusops elengi, Mimusops oil, a medicinal oil, obtainable in tolerably large quantities in some parts of the country. It is known in England.

Mooroogana tallow. This valuable substance, which even at high temperatures is perhaps the most solid oil with which we are yet acquainted, is made in Canara. If procurable in large quantities, and at a moderate cost, it promises to be a valued material for the manufacture of candles, &c., &c. It is used for medicinal purposes, &c., &c., and as a cure for cattle wounded by tigers.

Hyperanthera moringa: Moringa pterygosperma, Ben or moringa oil.

Sahujna, Hind. | Morunga noona, Tel.
Morunghy yennai, Tam. |

Ben nut oil has long been considered valuable on account of the lengthened period, which it may be kept without contracting rancidity. The tree from which the "nuts" are obtained, is common in all parts of British India the flowers, leaves and fruit are eaten by the natives, and the rasped root is used by Europeans as a substitute for horse-radish, to which circumstance it owes its common name of "horse-radish tree." The oil however is seldom made in India, nor does it now form an article of export.

Myristica moschata, Nutmeg butter.

Japhul ka tel, Hind. | Jaikkarra noona, Tel.
Jadipootri tylum, Tam. |

It is obtained by expression from the nutmeg, it has an aromatic smell from the volatile oil it contains.

Neeradimootoo oil. Neerada.

Jungli badam ka tel, Hind. | Mootoo yennai, Tam

This valuable oil was sent to the Madras Exhibition of 1855 under the various names of Neeradee-mootoo, Jungle almond, Maroty, Tamana, Maravetti, Neervetti and Soorty. It is in great repute, as a medicine amongst native practitioners, and the kernel enters largely into their prescriptions. It might probably be found of use in the arts, it much resembles almond oil but is rather thicker. The seeds cost in Madras As. 2-6 per seer.

Nigella sativa, Fennel flower oil.

Kulonjee ; Siah Danah, Hind. | Carun seeragum, Tam.
| Nalla gillikarra, Tel.

The black aromatic seeds of the Nigella sativa, yield by expression a dark coloured fragrant oil.

Papaver somniferеum, Poppy oil.

Khush-khush-ka-tel, Hind | Cas-casa yennai, Tam.
Casa-casa noona, Tel. |

The poppy is largely cultivated throughout Malwa and the opium districts, where the drying oil obtained from the seed is more extensively used than any other, both in lamps and as food. At Bhopaul the oil is procurable at the rate of Rs. 4-8-0 per maund of 25 lbs. or £40-6 per ton. By simple exposure to the rays of the sun in shallow vessels, this oil is rendered perfectly colourless. It is much prized by European artists.

Wild olive, or Pootroojie oil, obtained by expression from a handsome tree growing plentifully in Canara and Mysore.

Polanisia viscosa, Viscid Cleome oil.

Nahi-cadaghoo, Tam.

This warm and pungent little seed when subjected to very powerful pressure, yields a moderate per-centage of a light, olive-green, coloured limpid oil, which promises to be useful for purposes requiring a very liquid oil.

Poonga or Kurunj oil, Dalbergia arborea, or Pongamia glabra.

Kurunj ka tel, Hind. | Poonga yennai, Tam.
Kanoogoo noona, Tel. |

This oil, which, in some parts of the country, is used to a large extent in adulterating lamp oil, is expressed from the seeds of a tree; common in most parts of the Madras presidency. In North Arcot, Bellary, and the Nuggur Division of Mysore, the oil is procurable at Rs. 2-8-0 per maund. It is chiefly used as a lamp oil by the poorer classes.

Sahocottay oil, from Canara, is used for cutaneous diseases.

Santalum album, Sandal seed oil.

Chundana pusjhum yennai, Tam.

The seeds of the sandalwood tree yield by expression a thick and viscid oil which is burnt by the poorer classes in lamps.

Santalum album, Sandalwood oil.

Chundana yennai, Tam.

This oil is made in Salem, Mysore and Canara from the sandalwood. The exports amount annually to about 100 cwt.

Raphanus sativus, Radish seed oil.

Ricinus communis, Castor oil, Fructibus minoribus, or small seeded variety.

Barik erundi ka tel, Hind. | Chitt-amindialoo noona, Tel.
Sitt-amunaku yennai, Tam. |

Two varieties of the Ricinus communis, one being small and the other large-seeded, are produced all over India. The small-seeded variety yields the best product, and is employed in preparing the oil exported for medicinal purposes. The fresh seeds after having been sifted and cleaned from dust, stones, and all extraneous matters, and slightly crushed between two rollers, freed by hand from husks and coloured grains, are enclosed in clean gunny. They then receive a slight pressure in an oblong mould which gives a uniform shape and density to the packets of seed. The "Bricks" as they are technically called, are then placed alternately with plates of sheet iron in the ordinary screw or hydraulic press. The oil thus procured is received in clean tin pans, and water in the proportion of a pint to a gallon of oil being added, the whole is boiled until the water has evaporated, the mucilage will be found to have subsided and encrusted the bottom of the pan, whilst the albumen solidified by the heat, forms a white layer between the oil and the water. Great care must be taken in removing the pan from the fire, the instant the whole of the water has evaporated, which may be known by the bubbles having ceased, for if allowed to remain longer, the oil which has hitherto been of the temperature of boiling water or 212°, suddenly rises to that of oil or nearly 600°, thereby heightening the colour and communicating an empyreumatic taste and odour. The oil is then filtered through blanket, flannel, or American drill, and put into cans for exportation. It is usually of a light straw colour, sometimes approaching to a greenish tinge. The clean seeds yield from 47 to 50 per cent. of oil, worth in England from 4*d*. to 5*d*. per lb. The following is the result of experiments made at Madras and Calcutta to ascertain the percentage of oil in the Castor seed on January 27th, 1853.)

Calcutta.—1,400 lbs. of seed yield kernels and raw oil as follows :—

1st sort Kernels . . 632 lbs. Oil . . 324 lbs.
2nd sort " . . 184 lbs. " . . 87½ lbs.
3rd sort " . . 164 lbs. " . . 76½ lbs.

making a total of 980 lbs. of kernels and 488 lbs. of raw oil from 1,400 lbs. of seed.

Madras.—1,400 lbs. of seed yield raw oil as follows :—

1st sort . . . . 318 lbs. of oil.
2nd sort . . . . 88 lbs. do.
3rd sort . . . . 74 lbs. do.

making a total of 480 lbs. of oil from 1,400 lbs. of seed.

The cost of the Madras oil was Rs. 76-1-0 as follows :

1,400 lbs. seed at Rs. 3-3 per bag of 164 lbs.	27	3	4
Husking and selecting kernels and cooly hire	3	11	9
Crushing, moulding, pressing and boiling	2	7	1
Filtering and sundries	2	8	0
Overseer's pay, godown rent, &c. &c. .	1	6	2
300 empty quart bottles, corks, &c. .	34	4	8
Cleaning and packing charges	4	8	0

Or an average of Annas $4\frac{17}{300}$ per quart of first, second and third sort oil = 4*d*. per lb. This oil is chiefly used as a mild purgative. Soap of good quality may be made of it, but the cost and disagreeable smell which it communicates, preclude its general use. The average exports for the 4 years 1849-50 to 1852-53 11,325 gallons per annum. The qualities of clearness and limpidity do not arise from any superiority of the seed, or care in extraction, but from repeated decolorization with animal charcoal, which in the opinion of many eminent medical men, considerably detracts from its strength and efficacy. When manufactured in the ordinary native mill, this oil is sometimes used by the richer classes in lamps.

Castor oil, extracted hot, differs from the preceding only in the mode of preparation. The seeds are boiled for two hours in water, dried for three days in the sun, freed from the shells, pounded and then boiled in fresh water, until the whole of the oil has risen to the surface. Five seers of the seeds or 3⅛ lbs., should by this process, yield a quart of oil. This is the sort generally used in medicine by native practitioners, it is straw-coloured, and free from any unpleasant taste or smell.

Ricinus communis, Castor oil or lamp oil; Fructibus majoribus, large seeded variety.

Chiragh-ka-tel,	HIND.	Ped-amidam,	TEL.
Vullak ennai,	TAM.		

This oil which is obtained from the large-seeded variety of the "Ricinus communis" is sometimes drawn cold, it is then of a straw-colour scarcely distinguishable in quality from the oil of the small-seeded variety. It is however more usually extracted by heat, and forms the common "lamp oil" of the bazaar. The seeds having been partially roasted over a charcoal fire, both to coagulate the albumen and to liquify the oil, are then pounded and boiled in water until the oil rises to the surface. The roasting process, however, gives it a deeper red colour and an empyreumatic odour. The price of this oil varies in different parts of the country from Rs. 1-10-0 to Rs. 3-13-6 per maund of 25 lbs. The average of nineteen large stations, in all parts of the Madras presidency for the quarter ending 31st October 1854, was Rs. 2-8-6 per maund. It is used chiefly for lamps. Average exports of the six years ending 1854, were gallons 27,561 per annum.

Castor oil, from a new wild species in Canara, is burnt in lamps.

Sapindus emarginatus, Soap-nut oil.

Reethay ka tel,	HIND.	Poongum-kai yennai,	TAM.
Poovandi cottay,	TAM.	Koocoodi noona,	TEL.

This semi-solid oil is used medicinally by the natives, and is extracted from the kernel of the soap-nut. Its cost prevents its general use.

Sarcostigma kleinii, Poovana oil, made in Tinnevelly, Travancore and Cottayam, is reported to be useful for rheumatism. This substance has been long known under the name of Poovana and Poovengah, as medicinal oil; it is used largely on the western coast,and seems especially to merit further investigation.

Semecarpus anacardium, Marking nut oil.

Bhilawan ka tel, HIND.	Nellajidi noona, TEL.
Shayng cottay yennai, TAM.	

The acrid and vesicating oil which is found between the two laminæ of the pericarp of the marking nut is collected and used as a preventive against the attacks of white ants, and by native practitioners in rheumatic and leprous affections. By boiling the whole nut not divested of its pericarp, an oil is also obtained which acts as a blister. The preparation or collection either of the oil or acrid juice is liable to cause much irritation and inflammation of the hands, face, &c., of those engaged in the work.

Sesamum orientale, Gingelly oil or sesamum oil (black-seeded variety.)

Meetha Til ka tel, HIND.	Nool ennai, TAM.
	Mundie noonay, TEL

This oil which is perhaps consumed to a greater extent than any other by the natives of India, is, moreover, second only to cocoanut oil in its importance as an article of commerce. It is extensively cultivated throughout the whole of the Madras presidency, and its seeds and oil have been exported as follows :

Gingelly Seed.

Year 1847-48.	Year 1848-49.
Qr. 17,518...Rs. 160,134	Qr. 8,594...... Rs. 1,02,726
Year 1849-50.	Year 1850-51.
Cwt. 1,44,125,Rs. 299,412	Cwt. 2,27,779, Rs. 4,37,185
Year 1851-52.	Year 1852-53.
Cwt. 1,09,414, Rs. 302,559	Cwt. 2,51,613, Rs. 5,31,664

Gingelly Oil.

Year 1847-48.	Year 1848-49.
Gl. 19,520......Rs. 14,766	Gl. 14,686......... Rs. 11,535
Year 1849-50.	Year 1850-51.
Gl. 52,721......Rs. 36,294	Gl. 77,262......... Rs. 48,605
Year 1851-52.	Year 1852-53.
Gl. 46,196......Rs. 26,722	Gl. 72,607 ....Rs. 43,608

Of the gingelly seed exported in 1852-53 the United Kingdom received cwt. 12,713—Ceylon, cwt. 590—France, cwt. 2,87,225—Pegue cwt. 741—Bombay, cwt. 113—Malacca, cwt. 33 and Travancore, cwt. 148. Of the quantity of oil (72,607 gals.) exported in the same year—gals. 42,043 were shipped to the United Kingdom—gallons. 2,968 to Ceylon—gals. 4,232 to Mauritius and Bourbon—gals. 19,698 to Pegue—gals. 46 to Bengal—gals. 27 to the French (Indian) ports, and gals. 3,593 to Malacca.

First sort Gingelly oil.—The great disparity of colour observed in the samples of this oil is merely to be attributed to the mode of preparation. The method sometimes adopted is that of throwing the fresh seeds, without any cleansing process, into the common mill, and expressing in the usual way. The oil thus becomes mixed with a large portion of the colouring matter of the epidermis of the seed, and is neither so pleasant to the eye, nor so agreeable to the taste, as that obtained by first repeatedly washing the seeds in cold water, or by boiling them, for a short time, until the whole of the reddish-brown colouring matter is removed, and the seeds have become perfectly white. They are then dried in the sun, and the oil expressed as usual. This process yields 40 to 44 per cent. of a very pale straw-coloured sweet smelling oil, an excellent substitute for olive oil, for which indeed it is largely sold. In India, it is chiefly used in cookery, in anointing the person, for making soap, and for burning in lamps. In Europe, it is chiefly used for the manufacture of soap, and for burning in table-lamps, for which it is better suited than cocoanut oil, owing to the lower temperature at which the latter congeals. The value in England (January 1855) £47-10 per ton. In different parts of the Madras presidency the price of this oil varies from Rs. 1-5-0 to Rs. 6 per maund of 25 lbs. In S. Arcot it is procurable at Rs. 27-12-5 per candy. The prices per maund of this oil at the undermentioned stations, for the quarter ending 31st October 1854, were as under :

Arcot............	Rs.	3	8	0	Madura.........	Rs.	5	8	3
Bangalore......	,,	3	7	3	Mangalore.....	,,	4	1	8
Bellary..........	,,	3	2	0	Nagpore........	,,	1	12	0
Berhampore...	,,	2	8	0	Palamcotta ...	,,	4	12	0
Cannanore.....	,,	6	0	0	Paulghaut.....	,,	3	7	0
Cuddapah.......	,,	2	13	0	Samulcotta	,,	2	10	8
Jaulnah.........	,,	2	6	0	Secunderabad.	,,	2	3	11
Jubbulpore....	,,	1	5	0	Trichinopoly..	,,	4	1	8
Madras..........	,,	3	14	0	Vellore..........	,,	3	14	0
Masulipatam..	,,	3	9	0	Vizagapatam..	,,	3	2	0

Second sort Gingelly oil, is, in commerce, erroneously called 'Rape,' (Kharasanee yelloo), is expressed from a variety of sesamum and differs but little from the one above-mentioned. In Tanjore, it is procurable at Rs. 3 per maund.

The following particulars concerning the two varieties of plant, yielding this important oil have been furnished by F. Copleston, Esq., Rajahmundry. He tells us that two varieties of sesamum are cultivated for the sake of the oil,

The 1st sort of gingelly seed is the produce of the plant, which is sown in the month of March, after the rice crop, and is irrigated twice, once at sowing, and once afterwards. The seed which is black, and is called 1st sort gingelly, from the fact of its yielding the largest percentage of oil, ripens in May, and sells at the rate of Rs. 60 per candy of 500 lbs. The oil obtained from both varieties, sells at the same price, viz., Rs. 2-14-6 to Rs. 3 per maund of 25 lbs. according to quality.

The 2nd sort of gingelly is sown in June, and produces a red seed. The plant although a little larger, resembles in most respects the former, it has, however, a somewhat longer leaf, and the flower differs a shade or two in colour. A candy of 500 lbs. of this seed sells at Rs. 57-8-0. The price of the oil is the same as that of 1st sort gingelly. This seed about A. D. 1850 began to be largely exported to France, in consequence of which the price doubled.

Sinapis, species, Mustard oil.

Rai ka tel, HIND. | Avaloo noona, Sarsava noona, TEL.
Kadaghoo yennai, TAM. |

Five or six species of Sinapis are cultivated in all parts of India, for the sake of the valuable oils they yield, those most frequently seen are S. glauca, S. toria and S. racemosa. The seeds of the 'Sinapis alba' yield by expression 36 per cent. of a bright yellow, pleasant tasted, edible oil, having a strong smell, and slight taste of mustard. The seeds of 'sinapis nigra,' yields only 28 per cent. of an oil in all respects similar to the above. The average price of mustard seed in eighteen large stations, in all parts of the Madras presidency, for the quarter ending 31st October 1854 was Rs. 1-2-8 per maund of 25 lbs., the maximum being Rs. 1-11-6 at Cannanore and the minimum As. 10-5 at Nagpore. In Vizagapatam it costs Rs. 208 per Sicca garce. The oil is not exported, but the seeds have been shipped as follows:

1847-48...Cwt.	5,828	1850-51...Cwt.	9,909
1848-49... „	6,767	1851-52... „	3,636
1849-50... „	9,435	1852-53... „	16,075

Uses.—This valuable oil, although seldom sold in the market, being made when required, is used in most parts of India in cookery, and is considered superior to all other oils for anointing the body, which it is supposed to invigorate. In medicine, it is sometimes given internally, but is more frequently applied as a rubefacient. The common mustard oil cake is obtained from four different sorts of Sinapis.

Sterculia fœtida, Fetid sterculia oil.

Coodira pasjun-yennai, TAM.

This semi-solid oil obtained by expression from the seeds of a large jungle tree, appears to contain a large per-centage of stearine, but it is doubtful if it can be obtained in large quantities.

Strychnos nux vomica, Nux vomica oil.

Carum jooty, CAN. | Moo yettie cottay yennai, TAM.

An empyreumatic oil prepared from the fresh nut, is used medicinally by native practitioners.

Terminalia bellerica, Belleric myrobolan oil.

Tanikai yennai, TAM.

A medicinal oil obtainable in small quantities from the kernel of the Belleric myrobolan, the drupe is used as a tanning material.

Terminalia catappa, Willd. Almond oil, the product of this species of Terminalia.

Terminalia chebula, Chebulic myrobolan oil. A medicinal oil procurable in very small quantities from the kernel.

Thespesia populnea, Portia nut oil.

Paras pippul, HIND. | Poorasam yennai, TAM.

This deep, red-coloured and somewhat thick oil, is obtained from the seeds of the portia tree, which grows in great abundance in the peninsula. It is extensively planted as an avenue tree, for which its quick-growth and the beauty of its flowers render it a favorite. The wood is capable of being worked when fresh cut and is used for boat-building and cabinet work. The juice of the tree is used on the western coast, as a remedy for various cutaneous affections, and the oil might probably be of use in similar cases. Its expense precludes its use otherwise than medicinally.

Thevetia neriifolia, the "exile" oil. The kernels of the seeds of this common shrub yield by expression a large percentage of a clear bright yellow coloured oil.

Thoronogullo oil, Pongamia glabra? from Canara used for cutaneous diseases.

Tuntapoo oil, (Cassia tora?) an empyreumatic medicinal substance called Tuntapoo oil known about Masulipatam.

Vateria indica, Piney tallow or Doopada oil.

Piney yennai, TAM.

This most valuable tree, which, besides the product under consideration, yields a resin nearly equal to copal, and furnishes an excellent building wood, grows plentifully in the jungles of the western coast. The oil which is perfectly solid even in hot climates, is prepared by cleaning the seeds, then roasting and grinding them into a mass. To 5 seers of seed, add 12 seers of water, and boil until the oil rises to the surface. Remove the oil, stir the contents of the vessel, and allow it to stand until the following day, when more oil will be observed on the surface, which may be collected and the process repeated. The oil is principally used for lamps, but is very suitable for soaps and candle-making.

Wood oils.—This class of oils is obtained for the most part from the Burmese coast and the Straits. They are usually procured by tapping certain trees of the noble order Dipterocarpeæ, and applying heat to the cavity. The oil which flows from the wound, is a mixture of a balsam and volatile oil, and when applied as a varnish to wood or other substance the oil evaporating deposits a hard and durable coat of resin. They are chiefly used as natural varnishes, either alone or in combination with coloured pigments, also as a substitute for tar in paving the seams of shipping, and for preserving timber from the attacks of white ants. They are said also to be useful as an ingredient in lithographic inks. Owing to the distance from which they are brought, and the imperfect knowledge we yet possess of the countries whence they are imported, the names of the trees from which these valuable substances are derived, are involved in some degree of obscurity. The oil, therefore generally receives the names of the localities from which they are imported. Some of them differ considerably in colour and consistence, but they all possess the same balsamic odour. About the end of the dry season, that is in March or April, several deep incisions are made with an axe into the heart of the wood, and a good sized piece scooped out; into these holes fire is placed, and kept burning until the oil begins to run, when it is received into a bamboo, and allowed to run slowly drop by drop.

Teakwood oil.—An opaque dull ash-coloured oil procurable in most of the large bazaars of India; when allowed to rest for some time, it separates into two layers, or an upper dark-coloured clear stratum and a lower and more solid deposit. Its chief use is for applying to wood-work of all sorts, either alone as a natural varnish, or in combination with certain resins.

Wood oil from Pegu.—The oil which is generally known by this name is a very clear and liquid substance forming a natural varnish when applied to wood or other substance.

Deodar or Shemanatahu oil, Erythroxylon areolatum. An empyreumatic medicinal oil.

Wood oil from Chittagong.—Much resembles Teakwood oil and Wood oil from Pegu. It is less liquid than the latter, but is used for the same purpose; procurable in all large bazaars.

Wood oil from Rangoon and Moulmein differs very considerably from any other specimen of "wood oil" sent to the Exhibition, it is quite white and almost solid, but has the usual resinous smell of this class of oils.

Wood oil from China, is one of the substances of which the well-known and much prized China lacquer is made. It is used in Singapore for painting the beams and wood-work of native houses, and may also be mixed with paint when not exposed to the sun.

Sissoo-wood oil, Dalbergia sissoo. An empyreumatic medicinal product.

Wood oil from Tinnevelly.—An empyreumatic product similar to tar, chiefly used medicinally by native practitioners.

Camphor wood oil, Dryobalanops camphora belongs to the class of "Volatile oils," is used largely in Singapore as a substitute for turpentine, and sells at from 15 to 20 cents. a bottle.

Wood oil of Malacca is obtained from the tree without any preparation. It is obtained from a large tree of the Dipteraceous family which is very common in the dense jungles of the Malayan peninsula, and grows to a great height. When not lopped too soon, the base of the trunk is of immense girth—the wood is reddish brown and has a smell not unlike that of English fir, the bark is smooth, the leaves alternate, pinnate and exstipulate, fruit a one-seeded drupe, seed angular and anatropal. The oil when permitted to remain at rest divides itself into two layers, the upper consisting of a clear chesnut-coloured liquid balsam, and the lower being in appearance like flakes of granulated sugar and consisting probably of the surplus resin deposited by the action of the atmosphere.

Mineral oils, or Petroleum, the produce of Burmah.

The Wound-tree oil, or Gayapa-noona of Rajahmundry.

Wrightia antidysenterica, Rosebay oil.

Vaipallay yennay, TAM.

A thick, scarlet-coloured, medicinal oil, partaking doubtless of the properties of the seed.

Although the number of oil-producing plants in Southern India is very large, but few are cultivated to any great extent, the larger portion consisting of trees, shrubs, or herbs growing in a wild state, the fruits of which are gathered by the poorer people, and the oil pressed as necessity requires. The oils of the peninsula may be classed under the following heads:

(1.) Oils procured from plants which are cultivated for the sake of their products, such as cocoanut oil (Cocos nucifera); gingelly oil (Sesamum orientale); castor oil, often in the South of India called lamp oil (Ricinus communis); ground-nut or Manilla-nut oil (Arachis hypogæa); linseed oil (Linum usitatissimum); ramtil oil (Guizotia oleifera): mustard oil, much used for anointing the body (species of Sinapis); poppy oil (Papaver somniferum).

(2.) Oils procured from plants which grow spontaneously and are found in sufficient quantities to admit of the produce becoming an article of inland trade. Such as margosa oil or neem-oil (Azadirachta indica and Melia azaderach); solid bassia oil, used for candles and for butter (Bassia longifolia and butyracea); pinacotay oil (Calophyllum inophillum); karinj oil (Dalbergia arborea); coorookoo oil (Argemone mexicana); cat-amunak oil (Jatropha curcas); piney tallow (Vateria indica); and gamboge oil (Garcinia pictoria).

(3.) Oils procured from plants which grow spontaneously, but to a limited extent, in many parts of the country. These oils are sometimes extracted by the poorer classes for home consumption;—Safflower oil (Carthamus tinctorius); Belgaum walnut oil (Aleurites triloba); poorana oil (Sarcostigma kleinii); jungle almond oil (Hydnocarpus inebrians); Addale oil (Jatropha glauca); cress oil (Lepidum sativum); cucumber, melon, and gourd oil (species of cucumis and cucurbita); coorkapilly oil (Inga dulcis) a common hedge plant.

(4.) Oils procured in small quantities from plants, and used chiefly for medicinal purposes, and for perfumery, such as soap-nut oil (Sapindus emarginatus); cashew oil (Anacardium occidentale); cotton oil (species of gossypium and bombax); croton oil (Croton tiglium); bryony oil (species of bryonia); colocynth oil (Citrullus colocynthis); fenugreek oil (Trigonella fœnum græcum), and others. The following are the particulars of an experiment made to ascertain the periods to which the same quantities of different oils burn, together with their respective powers of illumination:—

English Name.	Botanical Name.	Selling price. Per Madras Measure of eight Ollocks.		Quantity used in the Experiment.	Date of Experiment.	Thermometer and hour of the day at which experiment was made.	Duration of burning, i.e., period to which the oil lasts.		Distance from the lamp at which the printed letters in an Octavo Vol. of Burn's Poems page 3, became illegible.	
		Wholesale.	Retail.				Hs.	Ms.	Ft.	In.
		RS. A. P.	RS. A. P.		1857					
Coconut	Cocos nucifera	0 7 11	0 8 0	4 Oz.	July 10	87° 8, 20 A. M.	6	20	14	0
Lamp	Ricinus communis	0 4 10	0 5 0	4 do.	do. 10	90° 3, 0 P. M.	7	45	9	0
Poppy	Papaver somniferum	19 0 0	19 8 0	4 do.	do. 13	88° 2, 30 P. M.	8	55	15	6
Gingelly	Sesamum indicum	0 5 9	0 6 0	4 do.	do. 11	88° 8, 45 A. M.	6	50	8	6
Earth-nut	Arachis hypogea	0 6 2	0 6 4	4 do.	do. 12	87° 8, 30 A. M.	5	30	8	6

The place in which the experiment was made was the western sally-port of Fort St. George, closed, quite dark. Atmosphere during the burning of each kind of oil, calm and serene, wick stand, in each case, iron wire, 1-10th of an inch in circumference, 2½ inches high, with small round tin stand at bottom; wick, ordinary white lamp cotton, thickness in each case, 50 threads, burnt in a small tumbler half filled with water. Age of the party making the experiment 34 years, eyesight in perfect vigour. The gingelly oil (Sesamum indicum) must be extremely prejudicial to the health of those using it, from the vast amount of smoke it emits, the earth-nut oil (Arachis hypogea) emits a large quantity of smoke though not so much as the gingelly, but has a disagreeable smell whilst burning, the smoke from the other three kinds of oil is scarcely perceptible.

Kruing or Miniak kruing, a wood oil, of Borneo, is extracted from the trees which produce it, by simply cutting a large hole in the tree, to which fire being placed, the oil distils over.

Between balsam of copaiba and the wood oils there is this difference, viz., that the wood balsam distilled with the addition of a small quantity of an oxidizing agent, as chlorine, hypo-chlorite of lime, or bichromate of potash, yields an essential oil of a fine blue, whilst ordinary copaiba, containing "soft resin" affords hardly any coloured essential oil. Cold sulphuric acid produces with copaiba a purple coloration similar to that obtained with cod-liver oil, so that dishonest persons might substitute for the latter, a mixture of olive, oil or of some other fatty oil, mixed with a small proportion of copaiba.

To obtain wood oil, a large incision is made in the trunk of the Dipterocarpus turbinatus tree, at about 30 inches from the ground, in which a fire is lighted and kept up until the incision is charred: soon after this, the liquid begins to flow. It is conducted by a little trough into a vessel placed to receive it. The average produce of the better trees in a single season, is 30 gallons. Roxburgh says that wood oil is also produced by Dipterocarpus incanus, D. alatus, and D. costatus. The first of these three is reputed to yield the best sort, and in the greatest quantity. When filtered, it is a transparent liquid, of a somewhat dark-brown when seen by transmitted light, but appearing opaque and of an obscure green if viewed by reflected light. It possesses, therefore, in a very marked degree, the dichroism observable in all resin-oils obtained by the action of fire. This character determines the nature of wood oil, and shows that it is not simply a natural product like copaiba; but that it is in part the result of a liquid modification of the Dipterocarpus resin, effected by the agency of heat. Moulmein wood oil is of somewhat greater consistence than olive oil; it has a sp. gr. of 964, and possesses an odour and taste very analogous to those of copaiba. It dissolves in twice its weight of absolute alcohol, with the exception of a minute residue which is deposited upon repose. But the most curious property of this oil is that of solidifying when heated in a closed vial to 266° F.; at this temperature the oil becomes turbid and so gelatinous, that it is not displaced upon the inversion of the vial. After cooling, the solidification is yet more perfect; but a gentle warmth, assisted by slight agitation, restores its former liquidity.

Vegetable butters, is the name given to the concrete oils of certain vegetables, from the resemblance to the butter obtained from the milk of animals, and from being employed for similar purposes. The term is also occasionally, but improperly, applied to some vegetable products which are entirely of a waxy nature, such as the wax of Myrica cerifera. The name is likewise bestowed in Siberia on certain algæ, species of the genus Nostoe, such as N. pruniforme. The most important vegetable butters are produced by the Bassia butyracea, and other species of Bassia and certain palms, such as the Cocos butyracea, and the Elais guineensis; the former of which is of great utility to the inhabitants of Brazil, where it grows naturally, and to the negroes of St. Domingo, where it is cultivated: while the latter is very serviceable to the natives of Guinea. The generally known solid oils or vegetable butters are as follow:

Butter of Cacao, from Theobroma cacao; 1,000 parts of the seed yield 300 parts of a concrete oil or butter, of a most agreeable flavour.

Butter of Cinnamon, from Cinnamomum verum or C. zeylanicum. By strong decoction, the fruit yields a concrete oil, called Cinnamon wax, used for candles, and which exhales while burning a most delicious odour.

Butter of Nutmeg, from Myristica moschata; this is brought from the Moluccas, of two kinds, and is obtained by bruising the nutmegs into a paste which is compressed in bags between hot metallic plates.

Butter of Cocoanut, from Cocos nucifera, which yields a concrete oil, but perhaps expensive.

Cocoanut oil, prepared by rasping the pulp of fresh ripe cocoanut, adding a little hot water, squeezing and boiling the milky juice until the water has evaporated, and filtering through paper, produces an oil which separates into two portions, the one fluid and limpid, the other a solid concrete substance of a pure white colour, which in the shade remains unliquidated at all temperatures. It may possibly be found that the process of manufacture affects the out-turn of the solid product.

Butter of Palm oil, from Elais guineensis, a native of Africa and America. The concrete palm oil is much esteemed in Europe for unguents and has been lately recommended for culinary purposes.

Solid Palm oil, a new export from the western coast of Africa, has large quantities of solid palm oil, of the consistence of hard butter.

Galam butter or Ghee, from Bassia butyracea, Fulwa or Phulwara, Hind., a native of Nepal and Almora in northern India; produces an excellent butter.

Bassia latifolia, the Tam. Illoopai-yennai, Tel. Ippa noona; Hind. Mahwa ka tel. The oil of this Bassia separates into two portions, one on the surface, fluid, and of a pistacio green colour: the other of a brownish green, and almost solid.

Bassia longifolia, Tam. Illoopoo yennai; Tel. Ippa noona; Hind. Mohe ka tel. Of three samples of the Illoopoo oil, one separated into two portions; the upper, fluid, of a pale oil-green in colour; and the lower, greenish-white and of the consistence of ghee. Another specimen of the oil of this Bassia separated into three portions; the uppermost a golden yellow and fluid, the middle yellowish white, solid and floating in the upper; and the lowest solid, and brown in colour. A third sample in the Madras Exhibition of 1855, was of the consistence of ordinary ghee and was sent as a material fit for the lubrication of railway carriages, and another beautiful specimen, almost solid, from Tanjore, was of a light golden yellow colour.

Chinese vegetable butter from the Stillingia which sebifera, produces the butter and oil so much in use in China: the number of these trees in the province of Chekiang is immense.

Indian vegetable butter, Piney butter, or Doopada solid oil, from the Vateria indica or Piney marum, Tam., which grows on the western coast of India and in Canara. It is white or yellowish white, of the consistence of hard salt butter, and in the shade remains always solid. It can be procured in quantities in southern India. It is used for lamps principally, but is very suitable for soaps and candles. It is prepared by cleaning the seeds; then roasting and grinding them into a mass. In making it to five seers of seed, add twelve seers of water, and boil until the oil rises to the surface. Remove the oil, stir the contents of the vessel, and allow it to stand until the following day, when more oil will be observed on the surface, which may be collected and the process repeated.

African butter, also called Shea butter, from the Bassia parkii or Pentadesmis butyracea of Sierra Leone.

Japan wax, from Rhus succedaneum.

Almond butter.

Gamboge butter, a product of the Garcinia pictoria, *Roxb.*, is called Mukke tylum, Tam. Arasana ghoorghy yennai, Can. The tree grows abundantly in Mysore and the western coast jungles.

Cucum butter, Garcinia purpurea? is from one of the two species of Garcinia, G. pictoria and G. purpurea, the seeds of which produce solid oil, the former the Gamboge butter and the latter the Cocum butter: the Gamboge butters are solid and of a deep leek green colour. The G. pictoria grows abundantly in certain parts of Mysore and the western jungles. The oil is procured by pounding the seed in a stone mortar and boiling the mass until the butter or oil rises to the surface: 2½ measures of seed yield one seer of butter, and it is sold at the rate of Annas 1–4 per seer of Rupees 24, in the Nuggur division of Mysore, and is there used as lamp oil and as ghee.

Sterculia fœtida oil, in Tamil Coodiray yennai or Coodira pusjun yennai, is thick at all seasons of the year, and is obtainable probably in large quantities in the forests on the Nulla Mulla and Yella Mulla range.

Butter of Laurel, Laurus nobilis.

Solid oils are obtained from the Dipterocarpi, in the Indian Archipelago.

The Solid oil of the Horse eyes and Cacoons of Jamaica, Fevillea scandens, is white and hard.

Kawan solid oil is procured from a species of Bassia of Singapore or Java.

Mijo or Japan butter from Dolichos soja, Japan.

Solid oil from Myristica (Virola) sebifera, of British Guiana.

Solid oil from the Demerara butter tree, Saouari, Pekea tuberculosa.

Vegetable wax from Shanghae.

Myrtle wax from Cape of Good Hope.

Solid oil of Bombay from Salvadora persica or Vernonia anthelmintica.

Carap or Carab vegetable butter, from Carapa guianensis, a large tree in Trinidad, and British Guiana.

Butter of the Great Macaw tree, from Acrocomia fusiformis.

Broonja malagum oil or ointment from Masulipatam, separates into three portions, the uppermost, fluid, resembling brown sherry, the middle of the consistence of ghee, and brownish yellow; and the lowest almost solid and of a hair-brown colour.

Mooragana butter, or Mooroogana or solid oil of Canara, is used for medicinal purposes and as an ointment for the wounds of cattle, injured by tigers. It is said to be produced from a forest tree growing in the Canara jungles. The specimens are dark-brown and quite solid, and this product merits the best consideration. A very excellent sample of this solid oil was in the Madras Exhibition of 1857, from Mangalore. It is the most solid of the solid oils.

Odul or Adul oil of Travancore is separated into two portions; the upper, fluid, of the colour of golden sherry; the lower, reddish white of the consistence of ordinary hard salt butter.

Camujay tree oil, a small bottle, priced Rupees 2¼ from the same district, by the same exhibitor, was a dark gelatinous mass, of the consistence of blanc mange.

Oil of Hydnocarpus inebrians, the Thortay oil of Canara, a very valuable vegetable solid oil, used for sores, is solid and of the consistence of ordinary hard salt butter.

During British rule, the cultivation of cotton, sugar, oil seeds, fibres, tea, coffee and indigo have been largely increased.

**Table showing the range of prices in Bombay of the undermentioned Oil Seeds taken monthly for four years.*

Article.	1857. Range.	1857. Average.	1858. Range.	1858. Average.	1859. Range.	1859. Average.	1860. Range.	1860. Average.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Linseed, per cwt......	4-8 @ 6-2½	5-8	4-10 @ 5-12	5-3	4-10 @ 5-2	4-12	3-14 @ 5-1	4-9
Teil seed, per candy..	23 @ 32	26-13	23-8 @ 26-8	25-8	23-8 @ 25	24-14	22 @ 30	26-12
Rape seed, per cwt...	4-12 @ 6	5-6	4-8 @ 6	5-6	5 @ 5-9	5-4	5 @ 6	5-8
Mustard, „	5-8 @ 5-12	5-9	4-12 @ 5-8	5-2	4-8 @ 4-12	4-11	4-8 @ 5	4
Ground nuts, per candy	18 @ 25	21-6	16 @ 21	18-10	15 @ 18	16-7	16 @ 25	21
Niger seed, „ ..	15-8 @ 21	18-4	15-8 @ 20	17-12	15 @ 17-8	15-10	15-8 @ 21	19-10

Shacotty oil of Canara is used for cutaneous eruptions. The specimen of this oil in the Government Central Museum, Madras, separated into two portions; the upper, yellowish and fluid, and the lower brownish red and of the consistence of hard ghee.

Hibavania oil of Canara; under this name there was exhibited at the Madras Exhibition of 1857, a solid oil of a clove brown colour, from the Sampajoy district by Pedro Probhoo, a small phial was priced at Rupees 4½.

Places of chief production in India, the quality, prices, in 1861, *and quantity of the principal oils and oil seeds exported from Bombay for the year ending* 30*th April* 1860.

		In Bombay.	In London.		
Linseed	Sholapore, Khandeish...............	Best in the World.		Rs. 5-4 @ 5-6 ₹ cent.	262,970
Do.	Arvee, Hingunghaut, Oomrawutty	Good.	Good. ...	„ 5 @ 5-2	
Do.	Sind..................................	Inferior.	Good ...	4-14	
Teilseed.. ...	Khandeish	Best.	Best ...	Rs. 40 ₹ candy of about 5 cwt.	Qrs. 94,360
Do.	Sind and Guzerat..................	Good.	Good ...	38 do do.	
Rape seed.	Guzerat............................	Best in the World		6-9 ₹ cwt.	73,270
Do. ...	Sind, Ferozepore..................	Good.	Good	6 do.	
Do. ...	Cutch...............................	Do.	Do.	5-10 @ 6.	
Mustard seed	Guzerat	Best.	Good to Best	25 @ 26 ₹ candy of 5½ cwt.	
Do.	Ghattee................................	Good.	Poor to Good	22 @ 23 do.	1,039
Do.	Sind..................................	Do.	Do. ...	do do.	
Poppy seed...	Guzerat and Malwa................	Only description..		6	219
Niger seed...	Nassik and Sholapore........... ...	Do.	...	25 @ 26 ₹ candy of 5½ cwt	458
Ground nuts	Vingorla, Mhar, Barely, Nassik ...	Good.	Good ...	26 @ 27 ₹ do of 5 cwt.	4,057
Castor oil.....	Bulsar and neighbourhood.........	Do.	Poor ...	4-8 @ 5 ₹ md. of 28 lbs.	11,063 Gallons.
Tail oil........	Bombay................................	Do.	Good ...	5 ₹ maund of do.	407,089 Gallons.
Do.	Ghattee................................	Inferior.	Inferior. .	4 @ 4-4	
Safflower	Barsee................................	Best.	Do. ...	9 @ 10 ₹ do of 4,106 lbs.	23 7 cwt.
Do.	Rajapore and Compta..............	Good.	Do. ...	7 @ 8 do do.	
Kokum	Goa....................................	Best.	Do. ...	40 @ 45 ₹ cndy of 7 cwt.	None.
Do.	Mhar, Compta, Vingorla............	Poor.	Do. ...	20 @ 22 ₹ do.	

The candles used in Japan are made of an oil said to be pressed out of the seeds of the *Rhus succedanea*? This oil becomes, when concrete, of the consistence of tallow, and is not so hard as wax. The province of Fetsigo, more particularly, produces this tree, and consequently supplies the greatest quantity of this oil.

In the eastern parts of China, the product of the tallow tree, *Stillingia sebifera*, and beef and hog's tallow in the south, are used in the manufacture of candles. Wax is only employed to incase the tallow or lard, which, from the heat of the climate and its unclarified condition, never becomes hard.

Butter of Palm oil from Elais guineensis, a native of Africa and America a concrete palm oil, is much esteemed in Europe for ungents and has been lately recommended for culinary purposes.

Erysimum perfoliatum, is cultivated in Japan for its oil seeds.

Terminalia bellerica, in Tamil, Thaneeka or Tannekae yennay. This oil separates into two portions—the one fluid, of a pale oil-green colour, and the other white, floccular, and of the consistence of ghee.

Oils from the seeds of the gourd tribe.—Nearly all the species of gourds and melons and cucumbers, L. vulgaris, C. pepo, C. melo, C. utilissimus, C. sativus, Luffa pentangula, &c., yield mild clear culinary oils; the skin of the seed is removed, and the inside under the name of "maghz," khiyar, kadu, &c., &c., sold, and the oil expressed.

Atr, in Europe written Otto. These are very strong oils, containing the essential oils of the plants and substances sufficient to produce a perfume which is perfectly overpowering and produced a headache. The natives of British India have the phrase in their language "dimagh mu'attar hona," to be stupified with fragrance. These attars are principally made in Hindustan, at Amritsur and Delhi. See Attar, Otto.

Cheerongee seed oil of the Buchanania latifolia, is rarely extracted from the abundantly oleaginous seeds which are eaten by the natives to make them fat. The oil is clear, sweet, and straw-coloured the trees grow abundantly in Mysore and Cuddapah, &c. Its useful wood ·875 sp. gr., 9*d*. per cubic foot, is worked up generally into furniture, house doors and windows, presses, tables, &c. It requires to be polished, otherwise it stains a burnt sienna colour any cloth brought into contact with it.

Almond oil is a term applied to that of the common almond, Amygdalus communis: to the Indian almonds, the fruits of the Terminalia catappa and Canarium commune and the almonds of Gen. xliii, v. 2, have been thought to be Pistachio nuts.

Almond oil.

Badam-ka-tel,	HIND.	Ingudi-tailam,	SANS.
Miniak badam,	MALAY.	Badamcottay-yennay,	TAM.
Roughan-i-badam,	PERS.	Badama vittulu nune,	TEL.

This is from the fruit of Amygdalus communis, is not wholly an article of import, but chiefly so. The almond tree is a native of the Himalaya, and is abundant in Cashmere. The oil is colourless, of very slightly yellow, and is congealed with difficulty. It is obtained for native use in India, but does not as yet form a recognized article of export. Both varieties of almond, bitter and sweet, are imported into the northern parts of India from Ghoorbund, and into the southern parts from the Persian Gulf. According to Simmonds, there are about 80 tons of this oil annually imported into Britain, the price being about 1*s.* per lb. It is principally the produce of the Arzo tree, forests of which grow to the south of the empire of Morocco, which produce an exceedingly hard species of almond. Its fruit consists of two almonds, rough and bitter; in manufacturing the oil, they are well rubbed or shaken in a coarse bag, to separate a bitter powder which covers the epidermis; they are then pounded to a paste in marble mortars, and the paste subjected to a press. The almond is supposed to contain 46 p. c. of oil, but from 5½ lbs. only 1 lb. 6 oz. can be extracted by the cold process; and above 2 lbs. if heated iron plates be used. The oil of almonds is the basis of the great part of the liniments, ointments, and plasters, of the European pharmacists. It is however little used in Indian pharmacy, the oil of the Sesamum orientale answering perfectly as a substitute.

Indian oils. Messrs. Wilson of Price's candle works, recently received a consignment of oils from India, and found twelve specimens that were entirely new to them, some of which promised to be of the greatest value, and government might add half a crore to their revenue if they would only plant in waste lands along shore the oil-bearing palm of western Africa. A large and profitable trade might be had in palmine made from the cheap oils, the difficulty of transporting which is well-known. The same effect is produced on this oil and on olive oil by adding the nitrate of mercury.

Roosa oil, is from the Roosa grass, a native of the low hills along the base of the Himalaya, at Hardwar and the Kheeree pass and also found at Asseergurh and in Malwah, generally. The roots of this fragrant grass are used by the natives of northern India in intermittent fevers. In habit and taste it comes remarkably near Andropogon schœnanthus. The oil is used as a stimulant internally and externally, much in the same manner as oil of cajaput. Roosa oil has long been supposed to be the celebrated grass oil of Nemar, but Dr. Royle does not recognise the correctness of this opinion and refers the Nemar oil to the A. calamus aromaticus. It is probable, however, that the several species furnish oils of similar characters.

Essential oils, called also volatile oils, are obtained from various parts of odoriferous plants, chiefly by distillation, but also by the chemical perfuming process of enflowering. The best known are those of almonds, aniseed, bergamot, cajaputi, camomile, camphor, caraway, cassia, cinnamon, cloves, juniper, lavendar, lemons, mint, nutmeg, orange, peppermint, pimento, rhodium, rosemary, roses (otto), savine, sassafras, mint. But, in India, sandalwood, jasmine, nutmegs, indeed every odoriferous plant is by the perfumers made to yield an essential oil.

Chambeli-ka-attar of Lucknow, from Jasminum grandiflorum, extracted from the petals, sells at 2 rupees per tola. This plant is extensively cultivated in gardens in Lucknow for the sake of its flowers.

Motiah or Belak-ka-attar of Lucknow, Jasminum sambac, is also extracted from the petals, and sells at 2 rupees per tola. It is cultivated extensively in gardens in Lucknow for the sake of its flowers and is coloured red by means of dragon's blood.

Essential oils of cinnamon, citronelle and lemon grass, are made chiefly in the neighbourhood of Galle in the southern provinces of Ceylon. The oil of cinnamon is also made largely at Colombo: it is obtained from the broken or inferior pieces of bark rejected in packing the bales of spice. Citronelle and lemon grass oils are the produce of two highly scented grasses cultivated to a considerable extent by both natives and Europeans for the purpose of distillation. The extent of the trade in this may be thus stated, say for 1849, oil of cinnamon 32,400 ounces, oil of lemon grass 28,000 ounces.

Several kind of essential oils are produced from strong scented flowers. Other perfumed oils are manufactured without resorting to distillation, merely by the process of enflowering. The layers of the jasmine, or other flowers, four inches thick and two inches square, are laid on the ground and covered over with layers of sesamum or any other oil-yielding seed. These are laid about the same thickness as the flowers, over which a second layer of flowers like the first is placed. The seed is wetted with water, and the whole mass covered with a sheet held down at the end and sides by weights, and allowed to remain for eighteen hours in this form: it is now fit for the mill, unless the perfume is desired to be very strong, when the faded flowers are removed and fresh ones put in their place. The seed thus impregnated are ground in the usual way in the mill, and the oil expressed has the scent of the flower. At Ghazeepore, the jasmine and bela are chiefly employed: the oil is kept in leathern bottles or dubbers, and sold for about rupees 2 a seer.

The newest oils afford the finest perfumes. The process here described is the same as that pursued at Bombay. In Europe, a fixed oil, usually that of the ben or moringa nut, is employed. Cotton is soaked in this and laid over layers of flowers, the oil being squeezed out so soon as impregnated with perfume.

Animal oils are in frequent use amongst the people of India as medicinal substances, for external application such as, that from the pea fowls' fat, from the neats' foot, the crocodile and the iguana.

Mineral oils come from the Persian Gulf and Burmah, from the oil pits of Burmah, the Burmese government used to obtain 93,000 tons annually, the oil on the spot fetching about a shilling per cwt.: as it reaches the market it is the most filthy dirty stuff that can be imagined, chemically treated it supplies half a dozen of products of the greatest beauty, several being oils, one a hard wax of snowy whiteness, and one a rich perfume. In several places in the Jhelum district along the Salt Range, at Kafir Kote, at Jabba in the Shapoor district, and in very small quantities at Shah-ke-Noorpoor, in the Rawul Pindee district, a petroleum exudes out of the rocky soil, but hitherto, though every effort has been made by the Punjab authorities to utilize it in a commercial point of view, they have failed, chiefly owing to the enormous cost of carriage, and to the difficulty of retaining the substance itself within any other vessels than those made of tin or glass. Price and Co., of London reported favorably upon it, and asked for some tons of it for further experiments. Their application could not be complied with to the extent of the requisition, not more than eight maunds a day are obtainable, and it appears that the yield of oil is greater in the hot than in the cold weather. Wood smeared with the mineral oil, is effectually preserved from the ravages of white ants. The oil burns with a bright flame but the smoke is insufferable. The natives of India call it Gunduk-ka-tel, and use it only for burning in their lamps. The Jabba spring is the most extensive, it is situated within the jageer of Malik Ali Yar Khan, who claims the produce.

Oil mills. Oils are usually obtained by expression by means of oil mills of kinds. In Europe, an oil-mill is used for the purpose.

Lint or Rape; it is desirable first to pass such hard seed as lint or rape between iron rollers, in order to crack the shells. These rollers are of cast-iron turned truly in a lathe, and their spindles run in brass bushes, fixed in an iron frame bolted to the framework of the mill. These frames have mortises, in which the bushes for the rollers are placed and are adjusted by screws passing through the ends of the iron frames: this allows the rollers to be set at any distance apart, according to the size and hardness of the seed to be crushed. The rollers are sometimes of different sizes, so that different velocities may be given to their surfaces: this enables them to draw the seeds in, and to perform their work more quickly. One of the rollers has on its axis a small spur-wheel, which engages a cog-wheel on the main shaft of the mill. Its motion by another pinion to the second roller. By giving to the roller pinions a dissimilar number of teeth, they may be made to revolve with different velocities, which answers the same purpose as making them of different sizes. Above the rollers is a hopper containing the seed, which runs out at an opening in the bottom into a trough or shoe, which is agitated by a piece of wood nailed to it resting on the cog-wheel: the shoe thus feeds the rollers with a small quantity of seed at a time, and prevents them from being choked up. A plate of iron attached to the frame on each side presses by its edge against the lower part of the rollers, and scrapes off any adhering seed. The crushed seed falls upon an inclined board, and collects in a heap, from which it is removed to feed the running stones. The arrangement of the rollers resembles that of the crushing mill. The seed broken by the rollers is passed under two vertical mill-stones or runners, revolving on a horizontal bed, where it is further bruised and prepared for compression. In some places the rollers are not used, but the seed is at once subjected to the action of the runners. Hard and smooth grains are, however, liable to slip away from beneath the running stones, and thus require a much longer time to prepare them for the next process, that of compression. Rollers do their work rapidly, but they require great power to work them. When the seed is sufficiently bruised by either or both of these means, it is collected into hair bags and placed in what is called a wedge-press. In *olive oil-mills* ascrew-press may be used but the hardness and smoothness of the grains of lint and rape, and the cavities formed by the broken shell which retain the oil, require the exertion of a stronger force. The hair bags containing the crushed seeds are placed between wedges of wood contained within a strong framing. The wedges are then driven down by a heavy ram or pestle worked by machinery until the pestle rebounds from them three times, when they are judged to be sufficiently tight. The oil thus obtained is of the best quality, and is kept distinct from that obtained by the after-process. The seeds come out of the bags in the form of flat cakes: these are broken up, and pounded in mortars with heavy stampers, which reduce the parenchyma of the seed to a fine meal, so that the oil can escape more freely when subjected to a second compression, which is now aided by heat. The pounded seed or meal is heated in a pan, to the temperature of melting bees'-wax and is kept in agitation by a spatula worked by machinery. The meal is again put into hair bags and compressed, and the resulting oil is considered to be the best of the second quality. Another compression produces oil of the ordinary second quality. During the heating of the meal a little water is sometimes added; but in Holland this practice is considered to be injurious. The cakes are still fat and soft, and are sold as food for cattle; but the Dutch break them down and stamp them again. The result is an impalpable paste, which is hard with a very little water, and kept for some time at the temperature of boiling water, with diligent stirring. It is then subjected to the greatest pressure that has yet been applied, and the result is an oil of the lowest quality. The cake is dry and hard like a board, and is used for manure. Some of the small millers in Holland purchase oil-cakes from France and Flanders for the purpose of preparing this inferior oil.

All oils in Oudh are extracted by the native press called 'Kolhoo,' turned by means of bullocks, with the exception of the castor oil seed, the oil from which is extracted by boiling the water and afterwards skimming.

There are, however, two distinct forms of the native oil mill. One of these will be found described under sugar-making, it being used alternately as an oil or sugar mill—the other, of which there are some varieties, is a simple wooden mortar, with revolving pestle, and is of wood or stone—generally granite. Two oxen are harnessed to the geering which depends from the upper end of the pestle—a man sits on the top of the mortar, and throws in the seed that may have got displaced. The mill grinds twice a day,—a fresh man and team being employed on each occasion. When sesamum oil is to be made, about seventy seers measure, or two and a half bushels, of seeds are thrown in: to this ten seers, or two quarts and three-quarters of water are gradually added: this, on the continuance of the grinding, which lasts in all six hours, unites with the fibrous portion of the seed, and forms a cake, which, when removed, leaves the oil clean and pure at the bottom of the mortar. From this it is taken out by a cocoanut-shell cup, on the pestle being withdrawn. Other seed oils are described by Buchanan as made almost entirely in the same way as the sesamum. The exceptions are the erindi or harulu, or castor oil, made from either the small or large varieties of the ricinus. This at Seringapatam is first parched in pots containing something more than a seer each. It is then beaten in a mortar and formed into balls: of these from four to sixteen seers are put in an earthen-ware pot, and boiled with an equal quantity of water for the space of five hours—frequent care being taken to stir the mixture to prevent it from burning. The oil now floats on the surface, and is skimmed off pure. The oil mill made use of at Bombay and to the northward, at Surat, Cambay, Kurrachee, &c., differs a little from that just described, in having a very strong wooden frame round the mouth of the mortar: on this the man who keeps the seeds in order sits: in Sind a camel is employed to drive the mill instead of bullocks. Castor oil seed is thrown into the mill like other seeds, as already described—when removed the oil requires to be boiled for an hour, and then strained through a cloth to free it of the fragments of the seed. It is a curious fact, and illustrative of the imperfect manner in which the oil is separated from the seeds, that while the common pressman only obtained some 26¼ per cent., Boussingault, in his laboratory, from the same seeds, actually procured 41 per cent. When the oil cakes are meant for feeding stock, such loss is of little consequence, inasmuch as the oil serves a very good purpose, but when the cake is only intended to be used as a manure, it is a great loss, inasmuch as the oil is of little or no use in adding any food for crops to the soil. The chief oil on the seaboard of British India is that yielded by the cocoanut palm. The nut is first stripped of its husk, this furnishing the substance from which coir rope is made, while the shell is broken, and the copra, or fatty lining, enclosing the milk, is taken out. This is called copri or copra. Three maunds or ninety pounds of copra are thrown into the mill with about three gallons (eleven cutcha seers) of water, and from this is produced three maunds, or seven gallons and three-quarters of oil. The copra in its unprepared state is sold slightly dried in the market: it is burned in iron cribs or grates on the tops of poles as torches in processions, and as a means of illumination for work performed in the open air at night. No press or other contrivance is made use of in India for squeezing out or expressing the oil from the cake, and a large amount of waste in consequence of this necessarily ensues.

The manufacture of sandalwood, grass, and other essential oils employed in medicine, is differently conducted.

Chinese oils. In the markets of China, the following oils are obtainable.

Oil of Almonds, the Hang-jin-yu of the Chinese, is manufactured in Persia, N. India and China.

Oil of star Anise, the Pah-koh-yu of the Chinese, is of a pale colour, with a warm or sweetish taste. It is made by distilling the fruit in small retorts, a picul producing about seven catties of oil.

Oil of Apricot seeds, Hang-jin-yu of the Chinese, is prepared in the north of China from apricot kernels.

Oil of Beans, Tau-yu, Chinese, in the south of China, is prepared in large quantities from the Dolichos soja and is used in food.

Oil of Benzoin, Ngan-sih-yu, Chinese, is supposed to be the liquid storax or rose maloes.

Oil of Cabbage, or *Colza oil*, the Ts'ai-yu of the Chinese, is expressed from the seeds of the Brassica sinensis, all through the valleys of the Yang-tsze and the Han. It is used in cookery, as a hair oil, a lamp oil, and as a purgative.

Oil of Camellia, from the Camellia oleifera, the Ch'a-yu of the Chinese, is a thin yellow coloured oil, used in lamps. It is made in the hilly districts of Hunan and Kiang-si, where the Camellia grows in abundance. The Chinese call the Camellia plant by the same name as the tea plant, hence this oil is often erroneously called tea oil.

Oil of Camphor, the Nau-yu of the Chinese, is obtained from Formosa where it exudes from vats in which camphor is stored; it is oily or uncrystallizable camphor, is a strong smelling liquid of a yellow colour; it is scarcely saleable.

Oil of Camphor, from the Dryobalanops camphora of the west coast of Sumatra where the oil drops from the split timber of the tree, felled to procure the Baros camphor, and is these sold at the rate of a large quart bottleful for a Dutch guilder: it is a useful embrocation.

Oil of Chaulmoogra, the Ta-fung-yu of the Chinese, is obtained from the seeds of the Gynocardia odorata.

Oil of cinnamon, the Kwei-pi-yu of the Chinese, is a volatile oil, used as a perfume and flavouring ingredient and exported from Canton, it is made from the leaves and twigs of the Cassia or cinnamon and resembles the genuine oil of cinnamon prepared in Ceylon.

Oil of cloves, Teng-hiang-yu of the Chinese, is made at Canton; it is a heavy oil of a pale reddish-brown oil colour.

Cotton seed oil, the Mien-yu of the Chinese, expressed from Cotton seeds, is used for lamps, in cookery, and externally as an unguent.

Croton oil, the Pa-tau-yu of China, is a drastic purgative.

Fish oil, the Yu-chi, of the Chinese, is obtained from the porpoise which ascends the Yang-tsze river as far as Hang-kow: the oil is used for lamps and to make putty.

Another *fish oil*, called Hwang-ku-yu, is obtained from a small fish, the oil has a strong fishy smell, is used to destroy pedicular, parasitic and other skin affections, and in veterinary practice.

Ground nut or Pea nut oil, is the Hwa-sang-yu of the Chinese, is from the Arachis hypogæa. Sp. Gr. 0.916.

Hemp seed oil, Ho-ma-jin-yu, Chinese.

Linseed oil, Hu-ma-yu, Chin, from a species of Linum, in China, is used medicinally, internally and externally.

Myrrh oil, Muh-yoh-yu, Chinese, is a reddish oil, having the smell of Myrrh, is used in Cochin-China to dress ulcers.

Olive oil, Yang-kau-yu of the Chinese. The fruit of the Canarium is sometimes mistaken for the olive.

Pine oil, Sung-i, of the Chinese, a coarse turpentine obtained by heating pine woods; it is used in skin diseases.

Peppermint oil, the Poh-ho-yu, of the Chinese is made in Canton from several kinds of mint: used in sweetmeats and as a perfume.

Persimmon oil, Po-tsze-yu of the Chinese, a glutinous oil from the Embryopteris glutinifera. The fruits are of the size of an apple, and are crushed to obtain the dark resinous thick juice. It makes an excellent varnish for the paper umbrellas. An extract from the fruit is an internal and external a stringent.

Oil of Poppy seeds, the Chinese, Ying-tsze-yu.

Oil of roses, Mei-kwei-yu, an essential oil, used by Chinese women as a scent for the hair.

Sandalwood oil, Tan-hiang-yu, Chinese, a thick yellow fragrant oil extracted from sandalwood. It is used to colour woods in imitation of sandalwood.

Oil of stone chesnut, Shih-li-yu, Chinese, is obtained by expression from the fruit of the Aleurites triloba: it is superior to linseed oil as an economic substance: and is used medicinally with properties like castor oil.

Sesamum oil, Chi-ma-yu, also Hiang-yu, Chinese, from the black and white sesamum seed.

Sunflower oil, the Kwei-tsze-yu of the Chinese.

Oil of sweet basil, Su-tsze-yu, Chinese, is expressed from the seeds of a species of Ocimum or Lavandula. It is a fine drying oil, used in painting on porcelain and for varnishing.

Oil of the tallow tree seeds, Ts'ing-yu, the Stillingia sebifera, is clear but of a dark colour; about fifteen or sixteen catties of it can be obtained from one picul of berries. It is used to varnish umbrellas, to dress the hair, to fill lamps and to mix with the tallow of candles: given internally, it acts as a purgative and emetic.

Turpentine oil, Tuh-nau, hiang-yu, chinese. —*Monthly Bombay Times Newspaper, from 25th November* 1849 *to* 24*th June* 1850; ***Asst. Surgeon Edward Balfour in Madras Central Museum Reports and Records; Ibid., Commercial Products of the Madras Presidency; Eng. Cyc.***, *p.* 704; ***Simmond's Commercial Products, pp.***

510-519 ; *Madras Exhibition Juries' Reports for* 1855 *and* 1857 ; *Roxburgh, Flora Indica, Vol.* i. *p.* 275 ; *Voigt, Hortus Suburbanus Calcuttensis, p.* 707 ; *O'Shaughnessy, Bengal Dispensary, p.* 630 ; *O'Sh., Bengal Pharmacopœia, p.* 187 ; *Catalogue and Juries' Reports ; Great Exhibition of* 1851, *Catalogue Exhibition of* 1862 ; *Powell's Hand-book for the Panjab, pp.* 426-433 ; *Low's Sarawak, p.* 48 ; *Indian Field ; Madras Exhibition Juries Reports by Dr. H. F. C. Cleghorn,* M. D., *Dr. A. Hunter,* M. D., *Lt. H. P. Hawkes, Dr. A. J. Scott,* M. D., *Lieutenant Colonel Balfour,* C. B., *and Colonel G. P. Cameron,* C. B. K. T. *and* K. C. ; *Bremner, Interior of Russia ; Malcomson's Essay on Beriberi, p.* 312 ; *Smith's Chinese Materia Medica ; Letter from Mr. Barter to Sir W. Hooker ; Mr. F. Copleston in Madras Ex. Jur. Report ; Lt. E. J. M. Evans,* 51*st M. N. I., in do.* See Cocos, Grass oil of Nemaur.

OIL-KAUYINSEE, see Dipterocarpus turbinatus.

OIL of Neroli, see Citrus aurantium.

OIL of Prickly poppy, or Jamaica yellow thistle, the Coorookoo or Brumadundoo oil ; Argemone mexicana.

OIL of Vitriol, Sulphuric acid.

OIL, PALM, see Cocoanut palm, Elæis oil.

OIL PAPER, the Yu-chi of the Chinese, is made all over China, by brushing over paper with castor oil or some other drying oil. It is a very useful waterproof-paper, answers all the purposes of oiled silk and is so cheap that it may be freely used and frequently changed, no small matter in the treatment of wounds in a warm climate.

OILMEN, the teli of India, who express oil from seeds. In S. India they have 12½ sections, :

1 Mahratta.
2 Lingali.
3 Tehela.
4 Kanula.
5 Ekbaila.
6 Erandian.
7 Lat.
8 Saoji.
9 Termuk.
10 Kawno.
11 Mahomedan.
12 Teli.
12½ Mixed.

OIL of Mace, Adeps myristicæ, a concrete oil obtained from nutmegs.

OIL PEA, Su-chaw, CHIN.

OILY FLY, Cantharides.

OIMA in Persia, an overcoat used chiefly when on horseback. It resembles a lady's riding habit, fitting tight to the body from the neck to the waist where it is gathered into plaits or folds and swells out above the girdle, falling in ample folds to the feet. It is generally made of broad cloth. See Barani.

OIMA TIPILI, MALEAL. Scindapsus officinalis, *Schott.*

OIMOA, CHIN. Corchorus olitorius, *Linn.*

OINOPS, see Simiadæ.

OINDRA-DADHI, SANS., from Indra, and dadhi, curds.

OI PANDIONES, the Pandyan rulers of S. India at the beginning of the christian era. See Pandiya.

OIRO, SP., Oiro, Ouro, PORT. Gold.

OISEAU DE PARADIS, Chalybæus paradisæus.

OJEIN, an ancient city, in Malwah, belonging to Sindhia, built on the banks of the Seepra river. It has latterly become impoverished. See Oojainu, Oojein, Ujein.

OJHYAL, a Gond tribe, wandering bards and fowlers.

OKA or Poka, TEL. Areca catechu, *L.*

OKA CHETTU, or Vaka or vakudu, Carissa carandas, *L.*

OKAB, see Campanula edulis.

OKELIS, an ancient ruined city, according to Strabo and Pliny, the sea port of the Catabeni or Gebantæ, and long the centre of commerce between Europe and the East. The ruins are situated inside the Straits of Bab-ul-mandeb—about a mile in inland, at a place called by the natives Dakooa.

OKER of Nepaul, Helictis nipalensis, *Jerd.*

OKHAMANDIL is a sterile jungly tract in the extreme west of the Saurashtra peninsula, and contains about 13,000 inhabitants. These are the Wagher. Their only important places are the holy hindoo site of Dwaraka on the west coast, and Beyt a small island a few miles to the north, with shrines boasting of scarcely inferior holiness. Okhamandul, as also Umreyli in Kattyawar proper, and Korinar in south Kattyawar, are under the direct rule of the Gaekwar, and are the Alsatia of Kattywar. Thrice, in 1803, 1858, and in October 1859, they repulsed British troops, but at length, in 1860, they seemed entirely dispersed or surrendered. Kattaywar is rich in jungle fastnesses. Its population is habitually armed to the teeth and largely intermixed with mercenaries from Mekran, Arabia, Sind and Beluchistan. On a former occasion, the rapidity and severity of the vengeance, in the escalade of the stronghold of the Wagher pirates of Dwarika by the British force under the Hon. Colonel Lincoln Stanhope, induced Singram, the chief of the Badhail of Beyt to sue for terms, and he agreed to surrender Beyt, and to live at Aramra on a stipend furnished by his suzerain, the Gaekwar. These Wagher of Dwarika, who with the Badhail of Aramra, were so long the terror of these seas, are a spurious branch of the Jhareja family of Bhooj, one of whom, called Abra, with the cognomen of Moochwal or the whiskered, from a tremendous pair of these adjuncts to the face, came from Cutch in the time of Rinna Sowah, in whose family he intermarried, and from whom he held in charge the tha'na, or garrison of the castle of Goomtee, or Dwarika. His son had offspring by a woman of impure caste, and they assumed the name of Wagher, with the distinctive office of Manik, or gem. The last four chieftains of this race were Mahap-Manik, Sadool-Manik, Sameah-Manik and Muloo-Manik, who with all his kin and motley company of Wagher, Badhail, Arab, &c., after a desperate defence, was slain in the storm, or attempted retreat. Throughout the sea coast of Saurashtra, at Gogo, and Mandavie, are seamen who call themselves hindoos, but who keep entirely distinct from all other classes. Some of them claim a descent from the mariners of the Arabian shores, but still as hindoos. The Badhail fixed themselves in the district of Oka (Oka-mandala), on the migration of Seoji from Canouj.—*Tod's Travels, pp.* 220, 440–1 ; *Tod's Rajasthan, Vol.* ii, *p.* 14. See Badhail, India, Kattyawar.

OKHER, Nep. Wallnuts.

OKH-HYWAN, Ar. Anthemis nobilis, *Linn.*

OKHOTSK, the country of the Amoor, is divided into two provinces, the first of which preserves its actual name of maritime province of Eastern Siberia, and the other takes the name of the province of the Amoor. The Okhotsk district is detached from the province of Yakoutsk and united to the maritime province, which comprises six districts.

OKI-DON-TAKO. The Japanese have numerous festivals and holidays, held in commemoration of ancestors, deities, warriors and sages, or from some untraced ancient custom. That at the winter solstice, the Oki-don-tako, or great holiday, lasts 14 days. It is a period of great rejoicing, all mercantile accounts, are, if possible, settled and much friendly intercourse takes place. The Gokats Seku festival at the summer solstice about the middle of June, is in commemoration of Gongen Sama, a great general to whom the present dynasty owes its origin, and the Japanese date their births from it. Banners with koi or carp are hoisted aloft with scarlet streamers.

OKKODAI was the son and successor of Chingiz Khan. As the result of Chingiz Khan's successes against the nations of Tartary, that leader was saluted in 1206 by the diet of his nation, as Chinghiz khan. According to Quatremere, however, Chinghiz did not use the higher appellation of Kaan (or Quaan), which was adopted by his son Okkodai and his successors as their distinctive title, identical with Khaqan, the Xaganos of the Byzantine historians, therefore properly, a distinction should be preserved between Khan, the ordinary title of Tartar chiefs, and which has since spread to Persian gentlemen and become a common affix to the Pat'han or Affghan of all classes, and Quaan, as the peculiar title of the supreme chief of the Mongols. The Mongol princes of the subordinate empires of Chagatai, Persia, and Kipchak, were entitled only to the former affix, though the other is sometimes applied to them in adulation. The conquest of China was commenced by Chinghiz, although it was not completed for several generations. Already, in 1205 he had invaded Tangut, a kingdom occupying the extreme north-west of China, and extending beyond Chinese limits in the same direction, held by a dynasty of Tibetan race, which was or had been vassal to the Kin. This invasion was repeated in succeeding years, and in 1211 his attacks extended to the empire of the Kin itself. In 1214 he ravaged their provinces to the Yellow River, and in the following year took Chingtu or Peking. In 1219 he turned his arms against Western Asia, and conquered all the countries between the Bolor and the Caspian and southward to the Indus, whilst his generals penetrated to Russia, Armenia, and Georgia, but a lieutenant, whom he had left behind him in the East, continued to prosecute the subjection of Northern China. Chinghiz himself, on his return from his western conquests renewed his attack on Tangut; and died in the enterprise on the 18th August 1227. Okkodai, his son and successor followed up the subjugation of China, extinguished the Kin, finally, in 1234, and consolidated with his empire all the provinces north of the Great Kiang. After establishing his power over that part of China, Okkodai raised a vast army and set it in motion towards the west. One portion was directed against Armenia, Georgia, and Asia Minor, whilst another great host, under Batu, the nephew of the great khan, conquered the countries north of Caucasus, over-ran Russia, making it tributary, and still continued to carry fire and slaughter westward. One great detachment, under a lieutenant of Batu entered Poland, burned Cracow, found Breslaw in ashes and abandoned by its people, and defeated with great slaughter at Wahlstadt near Lignitz (April 12th, 1241) the troops of Poland, Moravia, and Silesia, who had gathered under Duke Henry of the latter province to make head against this astounding flood of heathen. Batu himself, with the main body of his army, was ravaging Hungary. The king had been very slack in his preparations, and when eventually he made a stand against the enemy, his army was defeated with great loss, and he escaped with difficulty. Pesth was now taken and burnt, and all its people put to the sword. The rumours of the Tartars and their frightful devastations had scattered fear through Europe, which the defeat at Lignitz raised to a climax. Indeed, weak and disunited christendom seemed to lie at the foot of the barbarians. The Pope, to be sure, proclaimed a crusade, and wrote circular letters, but the enmity between him and the emperor Frederick, II. was allowed to prevent any co-operation, and neither of them responded by anything better than words to the earnest calls for help which came from the king of Hungary. No human aid merited thanks when Europe was relieved by hearing that the Tartar host had suddenly retreated eastward. The great khan Okkodai was dead, in the depths of Asia, and a courier had come to recall the army from Europe. In 1255 a new wave of conquest rolled westward from Mongolia, this time directed against the Ismaeli or "Assassins" on the south of the Caspian, and then successively against the Khalif of Baghdad and Syria. The conclusion of this expedition under Hulagu may be considered to mark the climax of the Mongol power. Mangu Khan, the emperor then reigning, and who died on a campaign in China in 1259, was the last who exercised a sovereignty so nearly universal. His successor, Kablai, extended indeed largely the frontiers of the Mongol power in China, which he brought entirely under the yoke, besides gaining conquests rather nominal than real on its southern and south-eastern borders, but he ruled effectively only in the eastern regions of the great empire, which had now broken up into four parts—(1) The immediate empire of the Great Khan, seated eventually at Keanbalik or Peking, embraced China, Corea, Mongolia, and Manchuria, Tibet, and claims at least over Tunking and countries on the Ava frontier; (2) the Chagatai Khanate, or Middle Empire of the Tartars, with its capital at Almalik included the modern Dzungaria, part of Chinese-Turkistan, Transoxiana, and Affghanistan; (3) the empire of Kipchak, or the Northern Tartars, founded on the conquests of Batu, and with its chief seat at Sarai on the Wolga, covered a large part of Russia, the country north of Caucasus, Khwarazm, and a part of the modern Siberia; (4) Persia, with its capital eventually at Tabriz, embraced Georgia, Armenia, Azerbaijan and part of Asia Minor, all Persia, Arabian Irak, and Khorasan. Their conquests brought into China a vast influx of Ouigoor and Toongani emigrants. It was Ali Khan, or Hoolakoo Khan, the grandson of Changhiz Khan, who completed the conquest of Persia, and afterwards subdued and took Baghdad, putting to death the last of the once powerful khalifa. He also employed his force in extirpating the Assassins, well-known in the annals of the Crusades.—*Yule's Cathay, Vol.* i, *p.* 118. See Luristan.

OKOROKU, RUS. Hams.

OKOTSK, see India, Japan.

OKRA, ENG. Abelmoschus esculentus, *W. & A.*

OKTHABA, a Burmese long measure of 70 feet.—*Simmonds' Dict.*

OL, in Guzerat, black mail.

OL, SANS., HIND. Arum campanulatum, Amorphophallus campanulatus.

OLA, HIND. Acacia stipulata, also Solanum verbascifolium.

OLAX SCANDENS, *Roxb.; Corr.; W. & A.*

Koteke bapana mushte,	TEL.	Marike malle,	TEL.

A plant of the Coromandel forests: Olax scandens and O. zeylanica do not extend, the former beyond Rajmahal, and the latter the Peninsula. O. nana, allied in structure to them, was first found by Dr. Hamilton at Gorakpore. He has seen it in large quantities on the banks of the Tonse and Jumna, within the mountains, and beyond 31° of northern latitude.—*Royle's Ill. Him. Bot., p.* 128.

OLAX ZEYLANICA.

Melle,	SINGH.	Maelle,	SINGH.

Under these names, Mr. Mendis describes a tree of the Eastern province of Ceylon, the wood of which is used for common purposes of house-building. A cubic foot weighs lbs. 64, and it is said to last 40 years.—*Mr. Mendis.*

OLAY, also Ola, TAM.

Puttay,	HIND.	Neriku,	TAM.
Tar-ka-patta,	„	Tat-aku,	TEL.

The palm leaf prepared for writing on these are made smooth by being drawn for about 20 minutes, between two blocks of wood. The dried raw leaves are called Karak ola, and the finest prepared leaves, Pusk ola, but Ola or Olay is the Tamil vernacular name by which the people designate the leaves, when prepared for being written upon. These are prepared from the leaves of the palmyra (Borassus flabelliformis), the cocoanut tree, and the Taliput palm (Corypha umbraculifera). The oldest hindoo author who alludes to writing on the olay is Panini, a rishi, who lived about 4,160 years ago and resided at Arittuwarum, near the source of the Ganges. Pliny says expressly (lib. xiii, cap. 2) that the most ancient way of writing was upon leaves of palms, from which, it is believed that the leaf (folium) of a book came to be synonymous with that of a plant. The Olay are written upon with a style, which is pointed with steel and its handle sometimes highly ornamented. During the operation of writing, the leaf is supported by the left hand, and the letters are cut or scratched upon its surface with the style, which is kept always in the same position and the leaf is moved to the left hand side by means of the thumb. To render the characters more legible, the engraved lines are occasionally filled by smearing the leaves with fresh cow-dung, which is tinged black by rubbing the lines over with cocoanut oil, or a mixture of oil and charcoal powder, and for the same object, in Ceylon, an oil, called Doomale is sometimes rubbed on the letters with a burned rag. All the sacred books of the Hindoos, Burmese, Singhalese, &c., are still made of these olay, some of them being highly ornamented. All accounts in the village revenue department, all grants of land, leases, and all the accounts in shops are still kept on these leaves, and they are likewise sent as letters. Palm-leaf books are never much beyond two feet in length and two inches in breadth, they are said to last from one to four or five hundred years. In the peninsula of India, the Olay are prepared from the leaves of the palmyra palm, the panam olay which are taken while tender, and the flat portions being cut into strips and freed from the ribs and woody tendons, are boiled and afterwards dried, first in the shade and afterwards in the sun. In Ceylon, ola are also made from the dried strips of the young leaves of the Talipat palm tree. The palmyra palm ola are called by the Singhalese Karak-ola, and applied to the more ordinary purposes. But a still finer description called Pusk olay, is prepared in the temples by the Samanero priests and novices, who, after damping the Karak-ola, draw it tightly over the sharp edge of a board so as to remove all inequalities and render it polished and smooth.—*Seeman.*

OLCHI, HIND. Prunus domestica.

OLDENLANDIA BILFORA, *Lam.*

Hedyotis burmanniana, *R. Br.*
Gerontegea biflora, *Cham. and Schle.*

Khet-papra, BENG.
2-flowered Indian madder, ENG.
Purputi,Papra, HIND.

A plant of Ceylon, both peninsulas of India and Bengal. Appears in moist ground in the rainy season, is very common and is extensively cultivated in Bengal. The whole plant is used in infusion as an excellent tonic and febrifuge in chronic fever. Dose 1 to 2 drachms Price 8 annas per lb.; other species also occur and are called Gunda badalee and Poonkha.—*Genl. Med. Top.*, p. 180;, *O'Shaughnessy*, p. 400; *Cat. Ex.* 1862.

OLDENLANDIA UMBELLATA, *Linn.*, *Roxb. Corr.*, *W & A.*

Hedyotis umbellata, *Lam.*, *Choisy.*

Chay root plant, ENG.
Emburel, Ramiseram verei, TAM.
Chiri veru, TEL.

A native of Java, Coromandel, and Mexico; root long and orange-coloured, employed in S. India to dye an excellent red on cotton cloth. The small, white, numerous leaves of this low-growing plant, are slightly bitter, and unpleasant to the taste; the native medical men of the peninsula of India consider them as expectorant and prescribe them, accordingly, in complaints of the chest. When dried and pounded, they are also mixed with flour, and made into cakes, which are eaten by such as suffer from consumption or asthmatic affections. Is largely used by the Indian dyer in the south of India. It furnishes a red dye similar to Munjeet. Experiments in Great Britain with the chay root have hitherto failed in consequence, it is supposed, of deterioration during the voyage. In the case of this and of some other Indian dye stuffs, the colouring matter could be extracted similarly to indigo before it is exported.—*O'Shaughnessy*, p. 400; *Ains. Mat. Med.*, p. 79. See Chay root.

OLEACEÆ, *Lindley.* The olive tribe of plants, comprising 8 Indian genera, 72 sp. viz:—

20 Olea,
40 Linociera,
3 Ligustrum,
1 Syringa,
1 Pachyderma,
1 Myxopyrum,
2 Chondrospermum,
4 Ornus.

They are trees or shrubs, and about 18 species have been discovered in Nepaul, the Himalaya and the Khassya mountains, the rest are natives of the two peninsulas of Ceylon, Java and the Moluccas. In most oil plants the oil is yielded by the seed, but in this tribe, the oil is contained in the pericarp, from which alone oil is entirely expressed. The genera and species are as under:

Olea sativa, *Hoff.*, Aleppo, Lebanon.
„ gardneri, *Thw.*, Ceylon.
„ lancea, *Lnm.*, Mauritius, Bourbon.
„ capensis, *Linn.*
„ fragrans, *Thunb.*, Cochin-China, China, Japan.
„ grandiflora, *Wall.*, Nepal.
„ attenuata, *Wall.*, Martaban.
„ clavata, *G. Don.*, China.
„ robusta, *Wall.*, Sylhet.
„ glandulifera, *Wall.*, Dehra, Kamaon, Ceylon.
„ roxburghiana, *Rom. & Sch.*, Circar mountains.
„ dioica, *Roxb.*, Chittagong.
„ acuminata, *Wall.*, Nepal.
„ verricosa, *Lam.*—?
„ myrtifolia, *Wall.*, N. E. Bengal.
Linociera dichotoma, *Wall.*, Coromandel.
„ ramiflora, *Wall.*, Moluccas.
„ macrophylla, *Wall.*, Sylhet.
„ purpurea, *Vahl.*, Ceylon.
Ligustrum japonicum, *Thunb.*, Nepal, Japan.
„ bracteolatum, *D. Don.*, Nepal.
„ lucidum, *Ait.*, China.
Noronhia cernua, *D. Don.*, Mauritius.
„ emarginata, *Poir*, Mauritius.
Chondrospermum laurifolum, Chittagong.
Fraxinus chinensis, *Roxb.*, China.
Ornus floribunda, *G. Don*, Nepal.
„ urophylla, *G. Don*, Khassya.
Syringa chinensis, *Willd.*, China.
„ persica, *Linn.*, Persia.
Pachyderma javanica, *Bl*, Java.
Mysopyrum nervosum, *Bl.*, Java.

Of the olive tree, or Olea, genus of plants, 20 species have been discovered in India. The olive tree of Europe grows easily in India. O. glandulifera, *Wall.*, of the central province of Ceylon, grows from 2,000 to 4,000 feet high, and on the mountains near Dehra Dhoon and Kamaon. Olive-wood is imported from the Mediterranean countries into Britain. It is veined with dark grey, and resembles box-wood in texture, but is softer. The knotted and curled roots are made into embossed boxes. This is done by means of pressure in engraved moulds of metal. Dr. Wight also names Olea linocieroides, polygama, and robusta. The genus Olea, seems opposed to great extremes of heat or cold, as Dr. Royle had only seen species in sheltered valleys and at moderate elevations in the Himalaya, Olea glandulifera, at Suhansudhara and the valley leading to Kuerkoolee, as well as near Jurreepanee ; and Olea ferruginea in the valleys of the Jumna and Sutlej : Olea acuminata probably also occurs in such situations as it extends from Kemaon to Sylhet and Penang. Olea compacta and O. robusta (Phyllrea, *Roxb.*)—*Eng. Cyc.*, *Voigt.*, *Thwaites ; Royle, Ill. Him. Bot.*, *p.* 266.

OLEA CUSPIDATA.

Olive tree,	Eng.	Kahu,	Hind.

Grows in the valley of Parbati ; varies much in the shape of its leaves, and Dr. Cleghorn says, appears to be O. europea. Dr. Thomson says that near the Chenab, passing some farmhouses surrounded by fields he entered a scattered wood of wild olive trees (Olea cuspidata), mixed with zizyphus and wild pomegranate. On the summit of a pass in the outer Himalayas which was not more than 6,000 feet, he found a beautiful gentian (G. kurroo of Royle), and a yellow spinous astragalus.—*Dr. Thomson's Travels in Western Himalaya and Thibet*, *pp.* 306-10 ; *Cleghorn's Punjab Report, Kullu and Kangra*, *p.* 80.

OLEA DIOICA, *Roxb.*

Burra nuge,	Can.	Par jamb,	Mahr.
Indian olive,	Eng.	Koli maram,	Tam.
Karambu,	Mahr.		

This tree grows in Chittagong, Sylhet and in Coimbatore, and is common in the forests of Canara and Sunda, on the ghauts, but seldom below or inland above. The wood is white, strong, compact and useful, and might be creosoted with effect. According to Roxburgh, the timber of this tree is reckoned excellent and is put to many uses by the inhabitants of Sylhet. —*Wight, Gibson, Voigt, Roxb.*

OLEA EUROPEA, *Linn.*

O. ferruginea, *Royle.*	O. cuspidata, *Wall.*

Kau ; kahu ; ko,	Panjab.	Wi,	Sutlej.
Wili,	Kanawar.	Khwau,	Trans-Indus.
Zaitun,	Pers.	Ban kau,	„

This tree is a native of the south of Europe, of Persia and the N. W. Himalaya. It is a smallish tree, abundant in Trans-Indus from the plains level, and in the Salt Range, common in the western part of the Siwalik tract, and over a considerable part of Hazara (where it is remarkably fine below Tret), and found on the Chenab, Ravi and Sutlej, reaching 6,000 feet on that river. It is found in the hills of the east Punjab, but is more common in the Salt Range, Hazara and the valley of the Indus, from 3,000 to 5,000 feet along with Quercus ilex. It is also found in the Jumna basin to the eastward. Its foliage looks more dense than it really is and gives a rather chequered shade. The wood is hard, heavy, compact, strong and close-grained, and is the best for cogs of wheels. It is also used for agricultural implements, cotton-wheels, walking-sticks, in turning, and for combs. The crooked timbers are largely used for the knees of boats on the Indus near Attock. On the Chenab at one place, Dr. J. L. Stewart found the twigs used for the short suspending rope of the jhula, (see Parotia) for which purpose, however, the people said it did not answer well. Elphinstone says that the Sherawani tribe eat the fruit, both fresh and dry, but there is little fleshy pericarp to eat, even were it pleasant to the taste, which it is not. European olive trees were imported into the Punjab, in order to test the effect of grafting on the Punjab variety. Several varieties of this plant are known in the south of Europe, two of which have been long distinguished—the wild and the cultivated. The former is an evergreen shrub or low tree, with spiny branches and round twigs ; the latter is a taller tree, without spines, and with four-angled twigs. The fruit is a drupe about the size and colour of a damson. Its fleshy pericarp yields by expression the olive oil of commerce, of which the finest comes from Provence and Florence. Spanish or Castile soap is made by mixing olive oil and soda, while soft soap is made by mixing the oil with potash. The wild olive is indigenous to Syria, Greece, and Africa, on the lower slopes of Mount Atlas. The cultivated species grows spontaneously in Syria, and is easily reared in Spain, Italy and the south of France, various parts of Australia and the Ionian islands. Wherever it has been tried on the sea-coasts of Australia, the success has been most complete, and Australia ought to supply herself with olive oil. The olive tree is also grown in Hong-Kong. The five or six varieties of O. europæa, or O. sativa, grown in the south of Europe, are for the most part natives of that region. The entire exports of olive oil from the kingdom of Naples have been estimated at 36,333 tons a year, which, taken at its mean value, when exported at £62 per ton, is equivalent to the annual sum of £2,252,646. This genus of plants are also much admired for the fragrance of their white flowers. Formerly, on account of its slow growth, the olive was not considered very useful ; but the new variety which was introduced into France, and into some parts of Spain and Portugal, which yields an abundant crop of fruit the second year after planting. They are small trees or rather shrubs, about four or five feet high. The fruit is larger than the common olive, is of a fine green colour when ripe, and contains a great deal of oil. The advantages accruing from this new mode of cultivating the oil tree, are beyond all calculation. By the old method an olive tree does not attain its full growth, and consequently does not yield any considerable crop under thirty years; whereas by the new system of cultivating dwarf trees, especially from cuttings, the olive trees afford very abundant crops in two or three years. An acre of land can easily grow 2,500 trees of the new variety, and the gathering of the fruit can be done by small children. The olive is of slow growth; trees 80 years of age measure only from 27 to 30 inches in circumference at the lower part of their trunks. An olive tree is mentioned by M. DeCandolle as measuring above 23 feet in circumference, which, judging from the above inferences, may be safely estimated at 700 years old. Two other colossal olives are recorded, one at Hieres, measuring in circumference 36 feet, and one near Genoa, measuring 38 feet 2 inches. The produce in fruit and oil is regulated by the age of the trees, which are frequently little fortunes to their owners. One at Villefranche produced on an average, in good seasons, from 200 to 230 pounds of oil. The tree at Hieres, abovementioned, produced about 25 imperial gallons. The olive is found everywhere along the coast of Morocco, but particularly to the south. The trees are planted in rows, which form alleys, the more agreeable because the trees are large, round, and high in proportion. They take care to water them, the better to preserve the fruit. The olive tree, is the ελαια of the Greeks, Zait of the Bible, and Zaitoon of the Arabs. The fruit of the olive is esteemed even in its unripe state, as an article of the dessert, having been first steeped in an alkaline ley, and then preserved in salt and water. But it is chiefly valued on account of the bland-fixed oil which is stored up in its outer fleshy part. This is obtained by at once bruising the nearly ripe fruit with moderate pressure in a mill (Virgin oil), or by the aid of boiling water and greater pressure, or when fermentation has taken place in the olives collected in heaps; ordinary and inferior oils are thus obtained, the worst being employed only as lamp-oils or in the manufacture of soap. The finest oils are produced near Aix, Montpellier, Nice, Genoa, Lucca, and Florence. The oil is also largely produced in the kingdom of Naples, and exported from Gallipoli, on the east coast of the Gulf of Taronta, whence it is commonly called Gallipoli oil.—*Powell's Hand-book to the Panjab ; Dr. J. L. Stewart, Panjab plants ; Dr. H. Cleghorn, Panjab Report ; Simmond's Commercial Products ; Royle, Ill. Him. Botany ; Royle's Mat. Medica.*

OLEA FRAGRANS. The olive tree of China, the Lanhoa or Kwei Hwa of the Chinese, is a yellow-blossomed variety, used to perfume the teas. It is largely cultivated in China, planted in different parts of their gardens. The Kwei-wha is one of their most favourite flowers. It forms a good-sized bush, about as large as a lilac, and flowers in the autumn. There are three or four varieties, the main difference between them consisting in the colour of their blossoms. Those kinds which produce brownish-yellow flowers are the finest and are most highly esteemed by the natives. The bushes are seen growing near all the villages in the north-eastern provinces of the empire, and are plentiful in gardens and nurseries. When they are in flower in the autumnal months, the air in their vicinity is literally loaded with the most delicious perfume. One tree is enough to scent a whole garden. The flowers of the kwei-wha are a source of great profit to the Chinese cottages, as well as to the nurserymen, who produce them in large quantities for the market. There is a great demand for them in all the large towns. Ladies are fond of wearing wreaths of them in their hair ; they are also dried and placed in ornamental jars, in the same way as rose-leaves are used in Europe, and they are used largely for mixing with the finer kind of tea, in order to give it an agreeable perfume.— *Williams' Middle Kingdom, p.* 288 ; *Fortune's Tea Districts, pp.* 17, 79; *Royle's Ill. Him. Bot., p.* 266.

OLEA GARDNERI, *Thw.* A tree of the central province of Ceylon, growing at an elevation of 5,000 to 8,000 feet.—*Thw. Enum. Pl. Zeyl., p.* 188.

OLEA GLANDULIFERA, *Wall.* A tree of the central province of Ceylon, growing at an elevation of 2,000 to 4,000 feet.—*Thw. Enum. Pl. Zeyl., p.* 188.

OLEANDER, Eng. Nerium odorum, *Ait.*, is the Kiah-chuh-t'au of the Chinese.

OLEANDER-LEAVED CACALIA, the Cacalia kleinia, *Wight*, Hart's ear.

OLEANDER-LEAVED EUPHORBIA, the Euphorbia neriifolia.

OLEANDER-LEAVED SPURGE, the Euphorbia netilifolia, *Linn.*

OLEARIUS, see Kizzel ozan.

OLEASTER PLUM, fruit of the Elœagnus conferta, which abounds in some parts of the Tenasserim jungle. Its sour red plum makes very good tarts and jellies.—*Mason.* See Elœagnaceæ.

OLENE, Gr. Ell. Eng.

OLEOCINCLA MICROPUS, see Ornithology.

OLEO-DAS-AZEITONAS, Port. Olive oil.

OLEO DE GARAFANO, It. Clove oil.

OLEO DE GARAFANO, It. Clove oil.

OLEUM, Lat. Oil.

OLEUM CERÆ, Oil of wax, Wax oil. See Oil, Wax oil.

OLEUM NIGRUM, Lat. Oil of Celastrus paniculata. Malkungunee.

OLIBANUM.

Kandur, Luban,	Ar., Malay, Maleal, Pers.	λιβανος, λιβανωτος,	Gr.
Ganda barosa,	Beng.	Lebona,	Heb.
Ju-hiang, Tau-ju,	Chin.	Sall-gond,	Hind.
Hiun-luh-hiang,	„	Kundur zachir,	Hind.
Avul kundur,	Duk.	Incenso, Olibano,	It.
Incense,	Eng.	Gandah ferozeh,	Pers.
Encens,	Fr.	Labuniya,	Syriac.
Weirauch,	Ger.	Paranghi sambrani,	Tam.

Dr. Royle tells us that two kinds of olibanum are met with in commerce, one Indian, and the other African, the gum resins of Boswellia serrata and B. thurifera. This was the frankincense used by the ancients in their religious ceremonies. Moses speaks of it in Exodus xxx, 34, and it long formed a constituent in the preparation of incense. It is produced in the Eastern parts of the peninsula of India from the tree known as the Boswellia thurifera, but there are also African and Arabian varieties. Olibanum, in the time of Pliny, was obtained only as a product of Arabia, but there are now three kinds known in commerce, the African, Arabian, and the East Indian. The tree producing those of Africa and Arabia is even not yet known, though the emperor Augustus sent an army of 10,000 Romans under Elius Gallus into Arabia expressly in search of it. The Arabian olibanum was supposed by Linnæus to be obtained by a species of juniper, Juniperus lyciæ, one of the Çonifiræ. But Bruce, and after him Neibuhr, searched in Africa and Arabia and could not learn anything about the tree. The three products, known as olibanum, however, seem to be obtained from species of Boswellia, and, probably, from B. papyrifera and B. thurifera. There is no doubt that the East Indian olibanum is obtained from the latter plant, which grows in Northern and Central India, and the existence of this kind as well as of the Arabian was known to Dioscorides. In ancient times, olibanum was sold at very high prices, caused partly by its trade being monopolised, and in part by the great demand for it in the temples. In commerce, the Arabian is also known as male or tear olibanum, to distinguish it from the East Indian or Stalactitic olibanum. The Arabian, as also the African, olibanum reach the European market through Aden and through the ports of the Hadramaut. Mr. Vaughan mentions that, from Bandar-Mait, the Luban maitee is imported into the Aden market for sale; from Bandar-Angure, the Luban nănkar, or angure; and from the ports of Ras Rurree, Khor Bandar, Alholu, Murya, and Bandar Khasooin in the country of the Wursangali and Mijerthen Somali about Cape Gardafui. The drug is collected in March, April and May, and chiefly finds its way to Bombay through the entrepots of Maccula and Shehr. Luban berbera or Mulika, is collected by the Aial Yunus and the Aial Hamed Somali. The Arabian olibanum, grows in two localities, viz., on the sides of the mountains in the Nedji or highlands and near the Sahila, or sea coast, between lat. 17° 30′, N., and long. 55° 47′ E., where the desert ends and the wooded mountain region begins, and is exported from all the ports in the coast line S. W. to the town of Damkote in the bay Alkammar in 52° 47′ E. L. Good olibanum, as met with in Bombay, is in semi-transparent tears, of a light yellow colour, sometimes inclining to white; brittle, and adhesive when warm; when burnt the odour is very agreeable; its taste is bitterish, and somewhat pungent and aromatic. Olibanum has been celebrated from the earliest ages, and used in nearly all the religious ceremonies of antiquity. It is chiefly employed in fumigations, and in the ceremonies of the Greek and Catholic churches. It is imported into Bombay from the Persian Gulf; the superior or garbled qualities are re-exported to England and France, and the inferior or refuse kinds to China. The gums from the following trees are believed to be mixed with the commercial olibanum.

Boswellia glabra.

Salaee,	Hind.	Moræda,	Tam.

A small tree; leaves pinnate, deciduous, flowers terminal, small, white with a red nectary, anthers yellow; yields the gum salai.

Boswellia serrata, Stach. (B. thurifera, Colebr.)—*Roxb. Fl. Ind.*, ii, *p.* 383.

Boswellia thurifera, Colebrooke, *As. Res.* xi, 317; xi, 158; *Roxb. Fl. Ind.*, 383. Pereira, *Medical Gazette*, xx, 676.

Koonder, Zuchir,	Arab.	Gunda barosa,	Hind.
Looban,	Duk.	Avul Kundoor,	„
Dup-salaee,	Hind.		

A tree with pinnate leaves grows on the hills of the Deccan, is a native of the mountainous tracts of Central India, and very common in the Shahābad country. Dr. Hooker remarks when ascending from Belcuppee in Behar to the height of 1,360 feet, came upon a small forest of the Indian Olibanum (Boswellia thurifera,) conspicuous from its pale bark, and spreading curved branches, leafy at their tips; with its general appearance a good deal like that of the mountain ash. The gum, celebrated throughout the east, was flowing abundantly from the trunk, very fragrant and transparent. The Salai or salaee tree, Boswellia thurifera, remarks Dr. Irvine, is plentiful in the Ajmeer hills: the gunda birosa is the prepared gum resin of this tree, and is similar in appearance and qualities to Venice turpentine. It is brought from Mewar, Harautee and the Shekhawatee hills: and is considered stimulating: an oil is distilled from it, said to cure gonorrhœa, and is used also in ointments and much used in painting and by the lakheries: one maund costs twelve rupees. From the Shahabad country, Dr. O'Shaughnessy obtained fine specimens of the resinous products there called Sale gond or Sale lassa. At Chandalgur it is termed Gunda biroza, and in the dry state Sukha biroza. Dr. Hamilton, however, thought the English Olibanum to be the produce of an Amyris, partly because he could not find that the Sale resin was used as incense by the hindoos. The B. glabra and B. thurifera both furnish the Male Frankincense of Dioscorides. The resin olibanum occurs in reddish or pale yellow tears, oval, oblong and obtuse, sometimes in dense, opaque, brittle masses. The gunda barosa of the bazars is soft, ductile, opaque, greenish and white. The odour is balsamic and resinous, especially while the resin is burning; the flavour balsamic, and rather bitter. The powder, citron-yellow. It is frequently adulterated by dammer, sandarach, and other cheaper resins; when chewed, the hard variety softens, and dissolves partially in the saliva, which it renders white and emulsive. The ointment from this is Mr. Muston's boil ointment, a very useful application, and is an excellent substitute for the Elemi ointment of the London Pharmacopœia. According to Dr. Royle, the Indian Olibanum is imported in chests chiefly from Bombay, also from Calcutta. Mr. Turnbull, of the Bengal Medical Service, many years since sent some resin of the Salai tree collected in the hills near Mirzapore, which in the London market was recognized as Olibanum. Mr. Colebrooke determined that luban or olibanum is produced by a tree called salai. Dr. Royle also collected a very fragrant resin from the saleh tree of North-West India, which bears a very close resemblance to common olibanum. This tree is Boswellia glabra, *Roxb.*, the former is B. thurifera of Colebrooke, called B. serrata in many works; but as Messrs. Wight and Arnott say, "we dare not quote here B. serrata, Stach. extr. Bruc., p. 19, t. 3, the leaves being usually described as ovate, oblong, and acuminate." Both species were collected by Col. Sykes in the Deccan as the olibanum-tree Boswellia thurifera grows to a large size in hilly situations, from the Coromandel coast to Central India. It is much branched but bare of leaves in its lower parts, but these are crowded and alternate towards the ends of the branches, unequally pinnate. Leaflets oblong, obtuse, serrated, pubescent. Stipules none. Inflorescence in single axillary racemes near the ends of the branches, shorter than the leaves. Flowers on short pedicels, of a pinkish white colour. Flowers bisexual. Calyx small, 5-toothed. Petals 5, obovate, tapering to the base, inserted under the margin of the disk; æstivation slightly imbricate. Disk surrounding the base of the ovary, cup-shaped, fleshy, crenulated. Stamens 10, inserted under the disk. Ovary sessile, 3-celled, with 2 ovules in each, attached to the axis. Style terminated by a capitate 3-loped stigma. Fruit capsular, 3-angled, 3-celled, 3-valved, septicidal (splitting at the angles into valves). Seeds solitary in each cell, girded by a membranous wing. Cotyledons intricately folded, multifid.

Indian olibanum, now the most esteemed, is in roundish or oblong tears, of a reddish or a light yellow colour, usually covered with whitish powder, from attrition of the pieces against each other, translucent within of a warm bitterish taste, and having a balsamic odour, especially when warmed or burnt. Sp. Gr. 1-22. Analysed by Dr. O'Shaughnessy, a fine specimen gave, of resin 37 parts, volatile oil 28 parts, gum 4, gluten 11, in 100 parts. But the quantity of volatile oil is necessarily much less when it has been exposed and become dry, as seen in commerce. Bracannot obtained only 8 per cent. of oil, of resin 56, gum 30, matter like gum, 5·2, loss 0·8 = 100. This balsamic gum resin is a considerable article of export from Bombay and other ports of India. The best is found in pieces as large as a walnut, of a bright yellowish colour, sometimes inclining to reddish or brown, covered on the outside with a whitish bloom. It burns with a clear and steady light, diffusing a grateful fragrance. In taste it is slightly bitter, and not perfectly soluble in water or alcohol. African Olibanum is imported into Vienna and Marseilles from Suez, and is obtained from Arabia and the east coast of Africa. It is mentioned by Dr. Pereira as African or Arabian olibanum, and as occurring in smaller tears than the Indian variety, yellowish or reddish and intermixed with crystals of Carbonate of lime. One kind of African olibanum is no doubt produced on the hills of the Somali coast westward from Cape Gardafui, and carried to the Arabian coast chiefly by native boats from Maculla. This tree partially described by Capt. Kempthorne of the Indian navy, has been identified by Mr. Bennett of the British Museum with Ploslea floribunda of Endlicher, but appears to Dr. Royle to be nothing but a species of Boswellia, which he therefore calls B. floribunda. The specimens are covered with little resinous exudations, as are the leaves of a plant collected in the island of Socotra by Lt. Wellsted, which also appear to be those of a Boswellia. Olibanum is sometimes used medicinally in chronic affections of mucous membranes, but chiefly in plasters, and as a fumigation.—*Royle, p.* 338; *Hooker's Him. Jour., p.* 29; *Med. Top. of Ajmeer; O'Shaughnessy*; *Beng. Phar., p.* 383; *Faulkner*; *Birdwood*; *Roxb. Fl. Ind.* ii, 383.

OLIE, It. Oil.

OLIGODONTIDÆ, a family of reptiles, comprising;

Oligodon subpunctatus, *D. & B.*, Malabar, Bengal, Assam, Penang.
" subquirens, *D. & B.*, Annamullay hills.
" spilonotus, *Gunth.*, Madras.
" elliotti, *Gunth.*, Madras.
" spinipunctatus, *Jan.*, Calcutta.
" fasciatus, *Gunth.*, Dekhan.
" sublineatus, *D. & B.*, Ceylon.
" affinis, *Gunth.*, Annamullay hills.
" templetonii, *Gunth.*, Ceylon.
" modestus, *Gunth.*, Ceylon.
" dorsalis, *Gray*, Affghanistan.
" brevicaudata, *Gunth.*, Annamullay.
Simotes bicatenatus, *Gunth.*, Pegu.
" albocinctus, *Cantor.*, Assam.
" russellii, *Daud.*, Central India, Ceylon.
" venustus, *Jerdon*, West Coast.
" binotatus, *D. & B.*, Neilgherry.
" albiventer, *Gunth.*
" punctulatus, *Gunth.*, Nepal.
" purpurascens, India.
" cruentatus, *Theob.*, India, Rangoon.
" obscurus, *Theob.*
" crassus, *Theob.*

OLIN, Hind. A fibre of Kangra, from a kind of palm. Chamærops?

OLINDA, Singh. Abrus precatorius, *Linn.*

OLIO, It. Oil, hence,

Olio de palma, Palm oil.

Olio-di-pesce, Fish-oil. Blubber.

Olio di ricino, Castor oil.

Olio d'uliva, Olive oil.

OLIOS TAPROBANUS, a Ceylon spider, very common and conspicuous from the fiery hue of the under surface.—*Tennant's Ceylon.*

OLIVA, a genus of molluscs. See Mollusca.

OLIVE.

Zeitun,	Ar., Hind., Pers.	Zet,	Malay.
Olives,	Fr.	Bua,	Maleal.
Oliven,	Ger.	Azeitonas,	Port.
Ulive, Olive,	It.	Aceitunis,	Sp.
Olivæ,	Lat.		

The olive tree will be found described under Olea. The olive and the Kakkar, a species of Rhus, are observed where the Kuarsi stream joins the Ravi: The olive varies a good deal in the shape of its leaves and in the amount of ferruginescence, hence the synonyms O. cuspidata and ferruginea; but it does not appear to differ specifically from the Olea europea. This plant of the Mount of Olives is the emblem of peace and plenty. The finest specimens seen are in the Kaghan and Peshawar valleys, where the fruit resembles that of rocky sites in Palestine or Gibraltar. The wood is much used for combs and beads, and is found to answer for the teeth of wheels. This tree is found abundantly on the bare rocks about Tuni, on the Tonse river in the Panjab, and is much valued in the district, where it is often naturally conserved by the inexcessible position of the trees. The unbranched trunk is rarely more than ten to fifteen feet high. The wood is seldom sound throughout; it is prized for making the "tangili" used by the men who prepare the rope bridges.—*Powell's Hand-book; Econ. Prod., Punjab, p.* 571. *Cleghorn's Panjab Report, p.* 9. See Olea.

OLIVE, Chinese, the Chinese olive tree is a species of Canarium, and the fruit gets this name from the resemblance it bears to the olive of Europe; it grows along with the Chinese date, a species of Zizyphus, which produces a fruit not unlike the date imported into England.—*Fortune's Wanderings, p.* 382.

OLIVE OIL.

Huile de olives,	Fr.	Minyak zit,	Malay.
Baumol,	Ger.	Oleo-das-azeitonas,	Port.
Zaitun ka tel,	Hind.	Aceite de aceitunas,	Sp.
Olio d'uliva,	It.		

Olive oil is of a pale yellow colour, it is often adulterated with the oil of poppies. Olive oil is used largely as an aliment; also extensively in soaps, cerates, liniments, plasters, &c. Virgin oil, the product of the perfectly recent fruit, is of a greenish colour, and highly esteemed; common olive oil results from the expression of the fruits after they have undergone a slight fermentation; it is yellow, sweet, and well suited for culinary purposes. The oils inferior to this are consumed almost exclusively in the fabrication of soap, and are obtained by subjecting to the press a second time the crushed fruits which have already yielded the first and second qualities of oil. The finest olives and the worst oil are produced in Spain. Olive oil now forms an article of export from Chili, being grown in most parts of that republic, particularly in the vicinity of St. Jago, where trees of three feet in diameter, and of a proportionate height, are common. The olive was first carried from Andalusia to Peru in 1560, by Antonio de Ribera, of Lima. Frezier speaks of the olive being used for oil in Chili, a century and a half ago. The culture of the olive has been recommended for Florida and most of the Southern States of America. Olive oil may be taken as the type of the fatty or fixed, called also, expressed oils. It is of a pale yellow or of a light yellowish-green colour, without smell when fresh, having a bland, somewhat sweetish, fatty taste. It is very limpid. Sp. Gr. 0·910 at 77°, insoluble in water, is readily dissolved by volatile oils, and by twice its bulk of ether, but requires much more alcohol. Olive oil is apt to be adulterated with poppy and other oils; these are distinguished by not congealing at the same temperature as olive oil, also by retaining air when shaken up, more readily than pure olive oil. The oil of the Sesamum orientale of the arachis and of the poppy, are perfect substitutes for the olive oil for medicinal and pharmaceutical uses. The adulteration may be detected by 8 parts of liquid nitrate of mercury which when mixed with 92 parts of pure olive oil solidify completely in a few hours; should the oil contain even one-twentieth of the oil of poppies, a soft mass only is obtainable. These experiments are however only available in India during the nights of the cold season.—*O'Shaughnessy, pp.* 432-433.

OLLI, Tam. Bars of steely iron, drawn out from the vuttom obtained in clay crucibles.—*Simmonds' Dictionary.*

OLLUCK, Tam. A dry-measure, the eighth part of a puddy, and the 20th part of a gallon. —*Simmonds' Dictionary.*

OLOS, see Kibitka.

OLOW, Pol. Lead.

OLOWO, Rus. Pewter.

OLTRA-MARINO, It. Ultra-marine.

OLUKCH—? Hirudo.

OLUS JUDAICUM, Corchorus olitorius.

OLUS CALAPPOIDES, *Rum.* Syn. of Cycas circinalis, *Linn.*

OLUS VAGUM, *Rumph., Rheede.* Syn. of Convolvulus reptans.

OLYMPIAD, amongst the Greeks, a period of 4 years, the first of the Olympiads began, it is supposed, with the nearest new moon to the summer solstice, A.A.C. 776, being the 3,938th year of the Julian period and 24 years before the foundation of Rome.

OLYMPUS, see Lakshmi, Meru, Osiris.

OLYPHANT, Dut. Elephant.

OLYREA, a section of the Graminaceæ.

O'M! a mystic syllable, signifying the supreme god of gods, which hindoos, from its awful and sacred meaning, hesitate to pronounce aloud; and, in doing so, place one of their hands before their mouths. A brahman beginning or ending a lecture of the Veda (or the recital of any holy strain), must always pronounce, to himself, the syllable O'm; for unless that syllable precede, his learning will slip away from him; and unless it follow, nothing will be long retained. It is prefixed to the several names of worlds, denoting that the seven worlds are manifestations of the power signified by that syllable. All rites ordained in the Veda, oblations to fire, and solemn sacrifices pass away; but that which passeth not away, says Menu, is declared to be the syllable O'm, thus called Aschara, since it is the symbol of god, the lord of created beings. From various passages in the Asiatic Researches, principally by Mr. Colebrooke, as well as other authorities, it may be collected that this sacred monosyllable, spelt O'm, and pronounced A, O, M, or A, U, M, is interpreted to signify Brahm, the supreme being, under his three great attributes of the creator, the preserver and the destroyer, the letters standing in succession for the attributes as they are described. The gayatri, called by Sir William Jones, the mother of the Vedas, and in another place the holiest text of the Vedas, is expressed by the triliteral monosyllable Aum. O'm! Bhurbhuvă ssuvăhā, O'm! Tatsa vit'hru varennyăm. B'hargo devăsyă dhimahi dhiyo yonaha pracho dayāth, is the revered prayer beseeching the divine light of the sun, to illumine the mind of the worshipper. Sir William Jones thus interpretates it. Let us adore the supremacy of that divine sun, the godhead who illumines all, delights all, from whom all proceeds, to whom all must return, whom we invoke to direct our understandings aright in our progress towards his holy seat. And in another place he defines that divine sun as "not the visible material sun, but that divine and incomparably greater light which illumines all, delights all, from whom all proceeds, to which all must return, and which can alone irradiate not our visual organs merely, but our souls and our intellects." Mr. Colebrooke again thus explains it: "On that effulgent power which is Brahm himself, and is called the light of the radiant sun, do I meditate, governed by the mysterious light which resides within me for the purpose of thought. I myself am an irradiated manifestation of the supreme Brahm." These are however mere scholastic or theologic interpretations, to suit the theological doctrines of the various hindoo sects, for there is no doubt that the Vedic doctrine was a nature-worship, and the quoted Sanscrit words are an invocation to the sun, O'm! Earth, Air, Heaven, O'm! let us meditate on the supreme splendour of the divine sun; may he illuminate our minds. Gayatri is a form of metre and thence applied to this verse in the Vedas, which is held to be of peculiar sanctity, and is repeated inaudibly in the daily morning worship of the brahmans. The true sense is, "let us meditate on that excellent light of the divine sun: may he enlighten our minds." Professor Wilson's literal translation of it is, "We meditate on that desirable light of the divine Savitri (the sun) who influences our holy rites." Bunsen thus interpretates it:

We remember with longing, the bright beams of Savitar,
May he prosper the handi-work of our piety!
For sustenance we supplicate the divine Producer;
That he may deign to bestow on us our portion, do we beseech him;
All who are wise of heart, adore God the Begetter,
Bringing him offerings of a devout heart with hymns of praise.

The extreme importance that the hindoos attach to the supposed profundity of the Gayatri, renders it a text of more curiosity, than, perhaps, indifferent readers will be able to discover in the words themselves, in either their ordinary or recondite allusions. Sir W. Jones says that the Gayatri is called the "Mother of the Vedas;" and in the conclusion of the preface to the Institutes of Menu, he intends a translation in the following passage, the words in italics being those immediately of the text:—"The many panegyrics on the Gayatri, the mother, as it is called, of the Vedas, prove the author to have adored, not the visible material sun, but that *divine and incomparable greater light, which illumines all, delights all, from which all proceed, to which all must return, and which alone can irradiate* (not our visual organs merely, but our souls, and) our intellects. These may be considered as the words of the most venerated text in the Hindoo scripture. Another translation of the Gayatri, or holiest verse of the Vedas, occurs in the thirteenth volume of his work. It is, "Let us adore the supremacy of that divine Sun, the Godhead, who illuminates all, who recreates all, from whom all proceed, to whom all must return: whom we invoke to direct our understandings aright in our progress toward his holy seat." The Gayatri is not spoken, but meditated on, while suppressing the breath. A brahman will write it for a European: he will not, or but rarely, pronounce it. The suppression of the breath is thus performed by the worshippers:—Closing the left nostril with the two longest fingers of the right hand he draws his breath through the right nostril; then closing that nostril likewise with his thumb, holds his breath, while he meditates the text: he then raises both fingers off the left nostril, and emits the suppressed breath, having during its suppression, repeated to himself the Gayatri, with the mysterious names of the worlds, the triliteral monosyllable, and the sacred text of Brahm. A suppression of breath is thus expounded by an ancient legislator to imply the following meditations: "Om! sky! heaven! middle region! place of birth? mansion of the blessed! abode of truth!—we meditate on the adorable light of the resplendent generator which governs our intellects; which is water, lustre, savour, immortal, faculty of thought, Brahm, earth, sky, heaven, (Chap. ii, 5.) A commentator on this verse says: as the leaf of the palasa is supported by a single pedicle, so is this universe upheld by the syllable OM, a symbol of the supreme Brahm." The first birth is from a natural mother; the second, from the ligation of the zone; the third, from the due performance of the sacrifice: such are the births of him who is usually called twice-born, according to a text in the Veda. "Among them, his divine birth is that which is distinguished by the ligation of the zone and sacrificial cord; and in that, the Gayatri is his mother, and the Acharya his father." (Acharya, or Guru, means spiritual preceptor.) On another occasion, the Gayatri, properly so called, has been thus expounded:—'On that effulgent power, which is Brahm himself, and is called the light of the radiant sun, do I meditate, governed by the mysterious light which resides within me, for the purpose of thought, that very light is the earth, the subtle ether, and all that exists within the created sphere; it is a threefold world, containing all which is fixed or moveable; it exists internally in my heart, externally in the orb of the sun, being one and the same with that effulgent power. I myself am an irradiated manifestation of the Supreme Brahm. "With such reflections," says the commentator, "should the text be inaudibly recited—(Vol. v, p. 359.) He in another place, thus renders the important text: "Earth! Sky! Heaven! Let us meditate on (thee, and on) the most excellent light and power of that generous, sportive, and resplendent sun; (praying that) it may guide our intellects."—(Vol. vii, p. 259.) Another exposition is: "Let us meditate on the adorable light of the divine Savitri. May it guide our intellects. Desirous of food, we solicit the gift of the splendid sun (Savitri), who should be studiously worshipped. Venerable men guided by the understanding, salute the divine sun (Savitri) with oblations and praise. The passage in italics appears to contain the whole of the Gayatri; and, with its context, is sufficient to prove that the hindoos, esoterically, should not be polytheists. In the article Surya it is noticed, that the sun is called Savitri in the Gayatri; and under the name of Surya, Savitri is personified as a female married to Soma, the moon. Pushan is also among the appellations of Surya. The sacred monosyllable is generally spelled OM; but being triliteral seems better expressed by AUM, or AOM, or AWM, it being formed of the three Sanskrit letters that are best so represented. This mystic emblem of the deity was first introduced to the European world by the translation of the Gita; where (p. 142) we are told it is forbidden to be pronounced but in silence. "The first letter stands for the Creator, the second for the Preserver, and the third for the Destroyer." Again "OM, Tat and Sat, are the three mystic characters used to denote the deity. The word Sat is used for qualities which are true, and for qualities which are holy: it is applied also to deeds which are praiseworthy. Attention in worship, zeal, and deeds of charity are likewise called Sat." Aschara is a Sanscrit word, which, according to Menu, means the syllable O'M. All rites ordained in the Veda, oblations to fire, solemn sacrifices, &c., pass away; but that which passeth not away, is the syllable O'M, hence called Aschara since it is the symbol of God, the lord of created beings.—*As. Res., Vol. Art.* xxii; *Bunsen, God in Hist., Vol.* i, *p.* 304. See Gayatri, Hindu, O'M, Veda.

OM MANE PADMI HUM: Tibetan words, meaning Oh! the jewel in the lotus, an invocation of Padmapani, who delivered it to the Tibetans. It is the most common of the Tibetan forms of prayer. The lotus is the symbol of highest perfection, and in this prayer is used to illustrate the genesis of Padmapani in the lotus. It is an invocation of Sakkya, who is usually represented holding a lotus flower with a jewel in it. Everywhere, at Tumlong, in an oratory, the lotus, the mani, and the chirki (or wheel) with three rays, emblematic of the buddhist Trinity, were introduced "Om mani padmi om" in gilt letters, adorned the projecting end of every beam, and the Chinese "cloud messenger," or winged dragon, floated in azure and gold along the capitals and beams, amongst scrolls and groups of flowers. At one end was a sitting figure of Gorucknath in Lama robes, surrounded by a glory, with mitre and beads. A mythical animal with a dog's head and blood-red spot over the forehead was not uncommon in this chapel, and is also seen in the Sikkim temples and throughout Tibet. Ermann, in his Siberian Travels, mentions it as occurring in the Khampa Lama's temple at Maimaochin; he conjectures it to have been the Cyclops of the Greeks, which according to the Homeric myth had a mark on the forehead, instead of an eye. The glory surrounding the heads of Tibetan deities is also alluded to by Ermann, who recognises in it the Nimbus of the ancients, used to protect the heads of statues from the weather, and from being soiled by birds; and adds that the glory of the ancient masters in painting was no doubt introduced into the Byzantine school from the buddhist. Captain Knight, in the monastery of Hemis found specimens of the praying wheels—little wooden drums, covered with leather, fitting into niches in the wall, and moved at the slightest push by a spindle running through the centre. There were about a hundred of these machines at Hemis, and as the scrolls inside them are covered with the mystic sentence, "Om mani padmi-hum," and contain nothing else, it was calculated that the charm must occur not less than 1,700,000 times. These sacred words are not only found in the praying wheels, but long mounds of votive stones similarly inscribed are scattered far and wide over the face of the country. M. Klaproth writes the formula thus, "Om mani padmi hum"—the last syllable being probably amalgamated with the first during rapid and constant repetition, and thus perhaps having escaped Captain Knight's notice, who distinctly claims, however, to give the actually existing pronunciation. The meaning given by M. Klaproth is, "Oh the jewel in the lotus, Amen!" and he translates from Mongolian into French a most curious explanatory legend too long to narrate, but of which the kernel is this:—That the savage Empire of Snow (Tibet) had for ages been lying beyond the pale of law and religion—rempli d'une foule d'etres malfaisans—when, by an intellectual creative act of the great Sakya-Muni (Buddha) a certain divinity named Padma-pani was called into being from the flower of the lotus, who successfully undertook the work of conversion. The notion is therefore, that the mystic words, "Oh, the jewel in the lotus!" are commemorative of this great act of Sakya-Muni, and of the incarnation of the divine Tibetan apostle. Their constant repetition is also, as M. Huc has explained, extremely meritorious, and capable of securing immediate absorption after death into the universal soul of Buddha. Besides their Lamas, the Tibetan Buddhists have large numbers of nuns among them—who are not, however, subjected to restraint, but work actively in the fields, and one of them took service for a short distance as a coolie with Captain Knight's party. James Prinsep explains aum as meaning *a*, the generative power, *u*, the type of the productive power, and *m*, the union of the essences of both, Buddha signifies intelligence; Mani Padma, is one of the forms of Buddha, and signifies the Mani or holy person who has the padma or lotus for his jewel. Om Ma-ne Pad-mi Hom is styled a six-lettered mantra, Shaduk shari mantra. —*Hooker's Him. Jour.*, *Vols.* i, 229; ii, *pp.* 194, 195.

AUM SVASTI, see Inscriptions.

OMADUR, a river of Bancorah, running near Bahmunea.

OMAMU, or Vamamu, TEL. Ptychotis ajowan, *DC.*, *W. and A.*, *W. Ic.*, Ligusticum ajowan, *R.* ii, 91, Bishop's weed.

OMAN. The province of Oman is bounded on the east by the ocean; on the north, by the Persian gulf; on the west and on the south by extensive deserts. When Niebuhr travelled, it was possessed by a number of petty sovereigns, the most considerable of whom was the Imam of Oman or Maskat. The princes of Dsjau, Gabria, Gafar, Rank, Gabhi, Dahhara, Makaniat, and Seer, had the title of shaik. The Persian gulf divides Persia from Arabia, is about eight degrees in length, from the Straits of Ormuz to the mouth of the Shatt-ul-Arab: in breadth, at the narrowest part, between Cape Musseldom and Gombroon, it is fifty-five miles; and at the widest part, between Bushire and Khodema, three degrees and twenty miles. The Arabian shore has many sand-banks and shoals, and is navigated with danger and difficulty. The Persian gulf is called also the Sea of Oman, or Erythrean Sea. There are no vehicles of any description either carried or drawn in Oman, nor in any other part of Arabia. In Oman, are the Beni Hasan, Beni Abu-Ali, Beni Geneba, bedouins, also the Beni Gafari; the Yemani and El-Arabi, the most illustrious of the tribes of Oman. Robinson, writing of the bedouin Arabs of the northern part of Arabia describes the dress of the women as a wide cotton gown of a dark colour—blue, brown or black, fastened by a leathern girdle. Over their heads they wear a kerchief, called shauber or mekroune, the young females having it of a red colour, the old, black. All the women puncture their lips and dye them blue; this kind of tattooing they call bestoum. Round their wrists they wear glass bracelets of various colours; and silver rings both in the ears and nose. Both in summer and winter they go barefooted. The Bedouin men and women are very tawny; their children, however, at their birth and for some time afterwards, are fair, but of a livid whiteness. But Wellsted, writing in Oman, mentions that in their persons the females are tall and well-made, with a roundness and fulness of form. The Ghafari are among the noblest of the tribes of Oman, and with the Y'harabi, have at different periods respectively furnished an Imam. Southern Oman is but thinly peopled, for the whole number, including women and children, does not exceed fifty thousand; but the northern districts are far more populous. Biadiah is a name adopted for themselves, by the people of Oman, taken from the white (abiad) colour of their turbans, in contradistinction to the green of the Fatimites, and black of the Abassides. Arabia has the topaz, the onyx, and the yemani or akik. The agate is found near Mosha, emeralds in the Hejaz, beryls and cornelian, near San'a and Aden, malachite in the cavern of Beni Salem, also jasper, amethyst, and turquoise, in the environs of the village of Safwa, about three days' journey from Medina. Diamond, the sardonyx, and the topaz, were obtained from this country in former times. Of metals, silver, iron, lead, and copper are met with in different parts of Arabia, and the last, recently in Oman. Gold is mentioned by the ancient writers, but at present is not known to exist in Arabia. Bitumen is obtained in Arabia Petræa; and in Arabia Deserta, lignite and coal. The sea of Oman, called also the Persian gulf, Persian sea, and Erythrean sea, also the sea of Fars, has several islands, the Jazirah-i-Lafet called also Jazirah-i-Daraz or Long-Island, known on maps as Kishm. Also Khareg island, on maps Karrack, a small island but well watered; not very far from Busheer, it once belonged to the Dutch, and was held in 1838 to 1846 by the British.—*Niebuhr's Travels, Vol.* ii, *p.* 113; *Kinneir's Geographical Memoir, pp.* 10, 11 *&* 54; *Wellsted's Travels, Vol.* i, *pp.* 116, 240, 307, 383; *Robinson's Travels, Vol.* ii, *p.* 184; *Col. Chesney's Euphrates, p.* 210; *Porter's Travels, Vol.* i, *p.* 458. See Arabia, Khorfaken, Keiflet.

OMANDER, Singh. A variety of Coromandel or Calamander wood, obtained in Ceylon from Diospyros ebenaster.—*Simmonds' Dictionary.*

OMAR. The second khalif after Mahomed. Bassorah is built on a creek, or rather canal, about one mile and a half distant from the Euphrates. The banks of the creek are fringed with foliage, among which are the walnut, apple, mulberry, apricot. It is called by the Arabs Al-Sura from Be-al-Sura, signifying the stony soil on which it is built. Never having been the seat of sovereign power, it is not adorned with those structures which decorate the cities of the east. The khalif Omar, in the fifteenth year of the Hijrah, wishing to combine the commerce of India, Persia, and Arabia and secure that of Sind and Guzerat, laid the foundation of this place near to the confluence of the Euphrates and Tigris. The united stream, called the Shatt-ul-Arab, empties itself at the distance of eighty miles into the Persian gulf, and commands the navigation of the surrounding countries, with the coast of India. On the death of Mahomed, his son-in-law Ali was not recognized as his successor, but Abu Bakr was so elected and after a reign of two years was succeeded by Omar who was assassinated in the twelfth year of his reign. Abdullah, son of the khalif Omar, in A. D. 650 defeated Yezdejird. Yezdejird was then on his return from Khorasan and for the last time put himself at the head of his subjects, and was defeated. He again was succeeded by Othman, and then, in A. D. 656, by Ali. With Ali's rule severe political convulsions ensued. The earliest arose from the intrigues of Ayesha, and after such were settled, the governor of Syria, Moawiyah Ibn Abi Sofian, threw off his allegiance to Ali and had himself proclaimed khalif of the western provinces. An appeal to arms resulted in the defeat of Ali, after a desultory war of 102 days, and Ali then retired to Kuffa in Chaldea, on the banks of the Euphrates. The people of Karund in the south of Persia believe Ali to be a god, and they are styled the Ali Illahi. The shiah sect of mahomedans consider that Ali ought to have been the first khalif. In Khorasan, Ali is usually styled Shah-i-mardan "King of men." The Khajah sect, and the entire Ismaili sects all worship Ali as an incarnate deity and the incarnation in 1860 was Aga Mahomed, a pensioner of the British Government at Bombay.—*Ferrier's Journey, p.* 210. See Ali, Arabia, Istakhr, Kajar, Khiraj, Zobeida.

OMARKOTE. This stronghold, or kote, of the Omur tribe, was the capital of the Soda Raj, which extended, in the 17th century, into the valley of Sind, and east to the Looni; but the Rahtore of Marwar and the Talpur family reduced the sovereignty of the Soda to a very confined spot, and, thrust out of Omarkote (the last of the nine castles of Maroo) the descendant of Sehris, who, from Arore, held dominions extending from Cashmere to the ocean. Omarkote during the opulence of the Soda princes, contained 5,000 houses, but in the beginning of the 19th century it hardly reckoned two hundred and fifty houses, or rather huts. The old castle is to the north-west of the town. It is built of brick, and the bastions said to be eighteen in number, are of stone. The fort of Omarkote is celebrated in the east as the birthplace of the emperor Akbar. It is a place of some strength and considered so inaccessible, from the desert that surrounds it, that the ameers of Sind allotted it as a place of security to deposit a part of their treasures. The family of Omarkote in Sind, is stated by Tod (Rajasthan, i, 92, 93) to be Pramar or Powar.—*Tod's Rajasthan, Vol.* ii, *p.* 313; *Pottinger's Travels in Beloochistan and Sind, pp.* 401-2.

OMAT-SURI. About the middle of July the mercantile festival of Omat-suri is held. It is a procession of trades and an exhibition of their wares, amongst which the wax-workers are very prominent.

OMBAY or Allor, in the Straits of Timor, is a high island about 47 miles long, and covered with beautiful trees to the summit of its highest mountain.

OMEN, Hind. Amongst the hindoos, throbbing of the right eye, is an unlucky omen in a female—a lucky one in men. One very common mode of divination in Eastern countries is called the ilm-i-shoona or "science of the shoulder-blade," and practised by cutting out the bladebone of a sheep newly killed and examining the lines and marks upon it. This was common in Britian in old times, and in Scotland in the 18th century. Pennant mentions it in the latter country, where it was termed "reading the spaul-bane," and gives an account of a Highlander in the Isle of Skye fortelling the event of the battle of Culloden by its means.—*Hind. Theat., Vol.* ii, *p.* 89.

OMERZYE, see Khyber.

OMICHUND, a Sikh merchant, who was conspicuous in the revolution which was crowned by the battle of Plassey.

OMMASTREPHES, a genus of Cuttle-fishes, belonging to the family Teuthidæ. The cuttle-fishes of this genus closely resemble those belonging to Loligo. Besides other characters they may generally be distinguished by the short rhomboidal termination of the body formed by the fins, combined with the hinder extremity.

OMMIAH, see Khalif.

OM-NAMO-NARAYANAYA, the principal mantra of the Vaishnava hindoo sect.

OMPHIS, according to Arrian, son of Taxiles, his father dying at the time of the Greek invasion, Omphis did homage to Alexander, who invested him with the title and estates of his father Taxiles.

OMRA, Ar., Pers. Nobles: the third title amongst Indian mahomedans as Shams ul Umra, Shurf ul Umra.

OMRAR, a river near Bahadurpoor in Gwalior.

OMULLY, a fish of the Baikal lake that annually ascends the Selingue river to spawn, after which they return to the lake. In their ascent the nomade Mongols catch great numbers of them for their winter provisions.

OMUL MARADAM or Mulmurradan island, in lat. 28° 40′, long. 48° 35′ E., an island on the west side of the Persian gulf.

OMUM, also Womum, Tam. Ptychotis ajuan? *DC.*, Bishop's weed. Omum water, is the distilled water from Bishop's weed seed. It is a useful carminative and largely used in Madras for children. At the Madras Exhibition of 1855, Mr. Gay exhibited specimens of omum water, crystalized sugar of omum, &c.—*Madras E. J. R.*

OMUSSUNG, a river near Cherapunjie.

ONAGRACEÆ, see Clarkia, Eucharidium, Fuchsia, Haloragaceæ, Lopezia.

ONAM, a four days' festival amongst the Nairs of Cochin, held about the middle of August, in which the Nair women go from street to street singing songs, and the men join in athletic sports.

ONDATRA AMERICANA, Tiedemann. The musk-rat or mus-quash, the tail is imported from America into India.

ON DO, Malay. Dioscorea pentaphylla.

ONEA—? see Columbidæ.

ONE-HUMPED CAMEL, Camelus dromedarius, *Linn.*

ONESICRITUS, a companion of Megasthenes, who gave the first account we have of Ceylon or Taprobane. He was an officer of Alexander's army, and died B. C. 328. See Megasthenes.

ONESICULUS, see Ceylon.

ONGDES, Angdes or Ondes adjoins Tibet. The inhabitants call themselves Hoongia, and appear to be the Hong-niu of the Chinese authors, the Hun (Hoon) of Europe and India. —*Tod's Rajasthan, Vol.* , *p.* 136.

ONGLAU, Thibet. Cortinarius emodensis.

ONGWA, Hind. Cæsalpinia sepiaria.

ONION.

Busl,	Ar.	Piaz,	Hind.
Bawung,	Bali.	Cipolla,	It.
Kembally,	Can.	Brangbang,	Jav.
T'sung,	Chin.	Allium cepa,	Lat.
Oignon,	Fr.	Bawang : Bambrang,	
Zwiebel,	Ger.	Bav'angmira,	Malay.
κρομμυον	Gr.	Piaz,	Pers.
Khanda,	Guz.	Cebola,	Port.

Luk,	Rus.	Cebolla,	Sp.
Palandu, Latarka, Sukundaka,	Sans.	Venggayum,	Tam.
Luno,	Singh.	Wulligudda,	Tel.

The onion is the Betzulim of Numbers, xi, 12, it is a common vegetable all over India, and is sown broadcast, at almost all seasons of the year. When about six inches high it is pricked out into beds six fingers' breadth apart; and the plants go to seed without difficulty. This is a favourite pot vegetable of the natives of India, and is a constant ingredient in all their curries, pullaos, &c., &c., &c. With the brahman, however, and the sects of hindoos generally who abstain from animal food, the onion is not eaten, from a fancy that its structure resembles that of flesh. Onion-juice is reluctantly taken when prescribed medicinally, as a powerful stimulant, by those who would reject spirituous liquors. With the Chinese, every part of the onion plant is reckoned to have some special therapeutic property, the bulb is one of their favourite articles of diet; it is rich in nitrogenous compounds.—*Faulkner*; *Riddell*; *Ainslie*, *p.* 246; *Mason*; *Smith.*

ONITIS, a genus of the Coleoptera.

ONIQUE, Sp. Onyx.

ONIX, Onice, Fr. Onyx.

ONKAR, Hind., of Kashmir, a bird, a species of ploteus which supplies feathers for the helmet plume or kalgi.

ONONIS ROTUNDIFOLIA, little shrubby plants, natives of Britain, and of easy culture from seed.

ONONIS SPINOSA, *Hasselq.* Syn. of Alhagi maurorum, *Tourne*; *W. & A.*

ONORE, captured 5th January 1783, S. Honore. Hanaw-ar.

ONOSERIS LANUGINOSA.

Kafi (Kangra)	**Kat katulla (Hazara, &c.)**
Kasbal (Sutlej, &c.)	

—*Powell's Hand-book*, *Vol.* i, *p.* 503.

ONOSMA ECHIOIDES.

Ratanjot, Hind.

A plant of Kaghan, used principally for its colouring matter as a substitute for the alkanet, Anchusa tinctoria. It is plentiful in Kangra, and is used to colour liquids, particularly Rowland's Macassar oil.—*Powell's Hand-book*, *Vol.* i, *p.* 366: *Hogg*, *Veg. Kingd.*, *p.* 542.

ONOSMA EMODI.

Maha-ranga, Hind.

Has lanceolate triple-nerved leaves, less hairy beneath, terminal solitary racemes, linear bracts, not half so long as the flowers; the calyx is 5-cornered with ovate segments a ventricose 5-keeled corolla contracted towards the mouth, and the anthers longer than the filaments. The root is branched, of a dark-purple colour, and is used in dyeing. It is a native of Nepaul, in Gosaingthan, where it is called by the natives Maharanga, grows plentifully on the Himalaya; namely, on the Hindokoosh—near the Punjab road, viâ Peembur to Cashmere. It is officinal in Cashmere where its flower-stem and root, are both of them deemed useful in medicine.—*Eng. Cyc.*; *Honigberger*, *p.* 316.

ONOSMA MACROCEPHALA.

O. bracteatum, *Royle.*

Gao-zaban,	Hind.	Lisan-ul-asar,	Ar.

Its rough leaves resemble a cow's tongue, hence the name, but the term Gao-zaban or cow's tongue is often attributed to a species of Cacalia (C. kleinii) a composite plant. At the Lahore Exhibition, the flowers which accompanied two specimens clearly belonged to a plant of the natural order Boraginaceæ.—*Powell's Hand-book*, *Vol.* i, *p.* 367.

ONTHOPHAGI, see Coleoptera.

ONYCHOGALE MACCARTHIÆ, *Gray.* Syn. of Herpestes fulvescens, *Kel.*

ONYCHOPRION FULIGINOSUS, syn. of Sterna fuliginosa; 'Sooty Tern' is very generally distributed in the Bay of Bengal.

ONYCHO-TEUTHIS, a genus of recent and fossil molluscs of the sub-family Oigopsidæ. There are about six species of this genus in the Atlantic, the Indian and Pacific Oceans. Their position may be thus shown:

SECTION B.—Decapoda.

Family III. Teuthidæ. Calamaries, or Squids.

Sub-Family A. Myopsidæ. Eyes covered by the skin.

GENERA. Loligo. Calamary, rec. 21 sp. syn. teuthis.

Sub-genus, Teudopsis, fossil, 5 sp.

Gonatus, rec. 1 species; G. amæna.

Sepioteuthis, rec. 13 sp.

Beloteuthis, fossil, 6 sp.

Geoteuthis, fossil, 9 sp. Syn. belemnosepia.

Leptoteuthis, fossil.

Cranchia, rec. 2 sp.

Sepiola, rec. 6 sp.

Sub-genus. Rossia. rec. 6 sp.

Sub-Family B. Oigopsidæ. Eyes naked.

Loligopsis, rec. 8 sp.

Cheiroteuthis, rec. 2 sp.

Histioteuthis, rec. 2 sp.

Onychoteuthis, Uncinated calamary, rec. 6 sp. syn. Ancistroteuthis onychia.

Enoploteuthis. Armed calamary, rec. 10 sp. syn. Ancistrochirus and Abralia, octopodoteuthis.

Ommastrephes, Sagittated calamary, rec. 14 sp. See Mollusca.

ONYX, Eng., Ger., Lat.

Stone of Solomon,	Eng.	Pa'rmata unam,	Malay.
Onix, onice,	Fr.	Onique,	Sp.
Sulimani Pat'har,	Hind.		

The onxy stone is mentioned in Gen. ii and 11, but the term is said to have been applied also to a shell. This stone is a succession of plates of chalcedony, it is found in great abundance in the great greenstone tract of the Dekhan and at Rajpipli in Guzerat and along with all the other chalcedonic and quartzose minerals, is one of the inferior gems, the silicious particles are arranged in alternating horizontal layers of opaque white and translucent blue, grey, or brown, and because these have a resemblance to the marks on the human nail, the stone was called from the Greek word for nail, *ονυξ*. It was known to the ancients, and was employed by them, as it is now, for those beautiful gems called Cameos, the figure being cut out of the opaque white, the dark part forming the ground, or the contrary. It is most valuable, when the contrast of colours is strong, and when the layer is thick enough to give a high-relief to the object to be engraved. In the royal library at Paris there is an antique cameo cut out of an onyx with four layers, representing the apotheosis of Augustus, eleven inches by nine, which is supposed to be the finest in existence. Agates with an onyx structure are not uncommon, particularly among calcedonies, but the finest are obtained in India. Cameos sold at Rome, are made from a thick shell, having different coloured layers like an onyx. The onyx stone is stained black by being boiled in honey, oil or sugared water and then in sulphuric acid. For red, protosulphate of iron is added: and for blue, yellow prussiate of potash is added to the protosulphate of iron. The onyx has a peculiar and almost superstitious value in the east, and is especially chosen for amulets. Chaplets of this stone are much esteemed. Colonel Tod had a vase, purchased in Scindia's camp, evidently of Grecian workmanship, and the numerous cameos of the onyx found in the Punjab, and other relics of Alexander's conquests, attest their abundance at that time. In such numbers were these cameos found in 1803-4, when Lord Lake dictated peace to Holkar from the altars of Alexander, that the native artists of Muttra and Agra carried on a successful imitation of them for some time, which encouragement might have raised to celebrity.—*Eng. Cyc.; Emmanuel; Tod's Travels, p.* 217.

OOBALA CHAWAL, Hind., lit. boiled rice, is rice which has been boiled in the husk and then husked. All mahomedans and many hindoos in British India use Oobala chawal.

OOCALAGA. The Wokul or Oocalaga, among the Canarese, are hindoo cultivators, whom the Abbé Dubois considered to be identical with the Tamil Vellalar. They eat flesh freely, and are not strict hindoos. They are indifferent soldiers but serve locally. One of their subdivisions are called Gangacara.—*Campbell, p.* 130.

OOCHELLOO, Tam. Guizotia oleifera.

OOCHHYA, Beng. Spiked bitter gourd, Momordica muricata.

OOCHI USEREKEE, Tel. Phyllanthus simplex.

OOCHOISHRAVA, Sans. From oochchois, great, and shroo, to hear. See Kurma.

OOCHUNUTI, Beng. Ageratum conyzoides.

OOD, in India is the name applied to benjamin; and in Persia, to wood aloes.

Ood buttee, are pastiles made of wood aloes, sandal wood, benjamin: Lichen rotundatus, the Patchouli, foliated gypsum; Talisputree (Flacourtia cataphracta) gum mastich, sugar-candy and gum, pounded fine and formed into pastiles. They are made in every large town and burnt for the fragrance they give out.

Ood buttee, frankincense pastiles. Ugger kee buttee, is the pastile of the wood aloes, q. v.

Ood buttee ka ekka, a metallic receptacle for pastiles.

Ood buttee ka jhar, a tree formed of benjamin pastiles.

Ood dan, a box for holding the frankincense.

OODA CHIRETTA, Hind. Exacum tetragonum.

OODAHARANA, Sans., from oot, a preposition indicating that the action has an upward direction, and aharana, a collecting.

OODANG, Malay. Prawn.

OODASI, Sans. Oot, prep. and asa, to sit.

OODATAL GEDDA, Tel. Aquila pennata, *Gmel.*

OODBEG, Beng. Areca catechu.

OODDESHA, Sans., from oot, prep. and desha, to seek.

OODES, a genus of the Callistidæ; the genera Epomis and Chelænius abound in the tropics: the maculated set appear common to Asia and Africa, each country possessing species almost exact representatives of each other. Chelænius nepalensis approaches in form to Licinus; Oodes is widely dispersed over India, Callistus occurs in Mysore.—*Hope, M. L. J., July* 1840, *p.* 116.

OODEYPUR or Udepur, in L. 24° 37′ N., L. 73° 46′ E., in Rajwara, 70 miles W. of Nimach, according to Scott is 2,064 ft. above the sea, the level of the railway is 1,336 feet. Oodeypur is the capital of the principality of Mewar, and its name is often taken to designate the entire territory. The area of Mewar is 11,614 square miles and the population 1,161,400 souls. The gross revenue is about Rs. 40,00,000, of which about Rs. 12,00,000 are enjoyed by the subordinate chiefs, subject to the payment of chuttoond. Deducting this and the religious endowments, British tribute, &c., there remain to the state about Rs. 14,00,000. The Maharana receives a salute of seventeen guns. Mewar is ruled by a Rajput prince, but his subjects are of several races. The Rajput premier, is the military minister, with the political government of the fiefs; the civil minister is never of this caste. Local customs have given various appellations to this officer. At Oodipoor he is called bhanjgurh; at Jodpoor, purdhan; at Jeipoor (where they have engrafted a term used at the court of Delhi) moosahib; at Kotah, killadar, and dewan or regent. He becomes a most important personage, as dispenser of the favours of the sovereign. In the Mewar state the beneficial effect of British interposition has been very great, in the more immediate neighbourhood of British officers. The state is too large and, from the hilly and jungly character of a considerable part of it, too difficult of excess, for the influence of English officials to radiate very far or fast. The Rajput rulers control over the Bhoomia chiefs who hold the larger part of the country was barely nominal; while in some districts the authority of those chiefs over the Bheels constituting often the chief part of the population was less still. Peace and legal order may be said to have rested on the presence of a Bheel corps, and to be co-extensive with its distribution. Where the Bhil corps was constantly or often seen, there raids and robberies were as infrequent as in the most settled part of India, while in the hilly tracts of dense forest, where Bheel soldiers seldom penetrate, the native savages complacently followed all their ancestral usages, witch-swinging among the number. The Mewar Bheel corps was formed in 1841, its commandant and second in command having ex-officio political control, as 1st and 2nd Assistant Political Agents in Mewar respectively. Gradually, however, for the convenience of the Durbar, and to the great advantage of the country, these officers had in addition to their political influence, acquired a direct criminal jurisdiction in cases of dacoity, affrays, suttee, witch-swinging, &c. Far from any jealousy being excited in the Durbar by this British interference, there has been the utmost cordiality and the most loyal concurrence on its part. All petty criminal cases are left to its adjudication, while on the more serious, such as raids or a border affray between two Bhoomiah chiefs, the Durbar when solicited is only too glad to give its assistance to the officers of the Bheel corps, considering shrewdly enough that such an application on the part of the British authorities is tantamount to a recognition of the suzerainty of the Durbar over the always jealous and often insubordinate Bhoomiah chieftains. The great obstacle to the more complete repression of lawlessness in the district is the want of roads. Even so late as 1866 the Agent of the Governor-General in Rajpootana, reported that the only road traversing the country which was at all passable for carriages was a very rough one from Oodeypore through Kherwarra to Ahmedabad; and in this respect the state of the country is not very much better now. The head-quarters of the Bheel corps are at Kherwarra. From thence it has tolerably easy access to all the surrounding country within a certain radius and within that circle, accordingly, perfect order prevails, and even the Bheels have taken to steady and successful agriculture, raising fine crops of maize, wheat, barley, gram, sugar-cane, &c. But at Kotrah, where there are no roads worthy of the name, although a detachment of the Bheel corps with a British officer is always stationed there, the people are much more intractable and much harder to coerce. In such an inaccessible region the Durbar is more reluctant to exert its authority in support of English influence, lest it should impair its prestige by ill success. The moral, therefore, of the later history of Mewar is the same as that of the Cachar and Sylhet frontier—that roads are the true civilizers, since it is only by their aid that the force can be promptly exerted upon which law and order rest. The physical features of Central India, including Mewar, Malwah, Bhopal, Bundelcund, and Shahabad, may be thus epitomized. It extends by the Aravalli, Dongupoor, Vindhya, Bindyachal, Panna and Bandait ranges, 73° to 84°, about 700 miles long; breadth very various, greatest from Amjherra to Ajmeer, 250 miles; from Mhow to Mokundurra, 150 miles; at Saugor and Dumoh, 75 miles; afterwards very narrow. It is highest towards S. and W.; average of Mewar, 2,000 ft. Malwah, 1,500 ft. to 2,000 ft. Bhopal, 2,000 ft. Bundelcund, about 1,000 ft. Shahabad, 700 ft. Plain of Ajmere, 2,000 ft. Oodeypore town, 24° 37′; 73° 49′; 2,064 ft. It has a slope to N. E., the Banas river flowing in that direction; gradual fall also to the valley of the Chumbul river, where it rises to Malwah; Mhow, 2,019 ft. Dectaun, 1,881 ft. Dhar, 1,908 ft. Indore, 1,998 ft. Crest of Jaum ghaut, 2,328 ft. Oojein, 1,698 ft. Adjygurh, 1,340 ft. Amjherra, 1,890 ft. Saugor, 1,940 ft. Rhotosgurh, 700 ft. Sonar river, at source, 1,900 ft. From the Vindhya range, the surface has a generally gradual, but in some places abrupt descent; as at Mokundurra, and the Bindyachal hills, where the rivers occasionally fall over the brow in cascades. Shahabad district is very rocky and uneven. Tin and copper are found in Oodeypur. In Bhopal the prevailing geological formation appears to be trap overlying sandstone. Minerals are few and unimportant. Water is very plentiful. The mineral resources of Bundelcund appear to be considerable.—*Treaties, Engagements and Sunnuds, Vol.* iv, *pp.* 10, 195-97; *Tod's Rajasthan, Vol.* i, *p.* 186; *Pioneer; Ann. Ind. Adm., Vol.* xi, *pp.* 312, 353.

OODGATA, Sans., from oot, prep. and goi, to sing.

OODGIR, or Udgir, 18° 23′; 77° 8′, in the Dekhan S. E. of Rajuri. The mean height of the village is 2,221 feet.—*Cull.*

OODIAL, also Udhal, Hind. Sterculia villosa.

OOD-I-BALESSAN, Hind., is supposed to be the wood of Balsamodendron kafal, a tree of Arabia, an article of considerable traffic. See Ud.

OODI-SAGUR, a lake of Rajputanah. There are in reality three lakes, one at the villa of Suhailea ki-bari, then the Peshola or inner lake, which is 80 feet above the Oodi-sagur lake, the outlet of which is the Bairis river. The Peshola is fed from the little lake at Suhailea ki-bari and the Peshola is the feeder of the Oodi-sagur. Both the Peshola and Oodi-sagur are from 12 to 14 miles in circumference, and some places 35 feet deep, and being fed from the perennial streams of the Aravalli they contain a constant supply of water. It would be easy and unexpensive to lead a channel from the Oodi-sagur to Chettore as the fall is slight and few locks would be required. The Bairis river issues from the Oodi-sagur lake of Rajputanah and passes within a mile of Chettore. There are thus two grand reservoirs within six miles of each other, the Peshola, or internal lake, having an elevation of eighty feet above the external one, and the Oodi-sagur, whose outlet forms the Bairis. The Peshola may be called the parent of the other, although it is partly fed by the minor lake at the villa of Suhailea-ki-bari.—*Tod's Rajasthan, Vol.* ii, *p.* 627.

OODOMBOO, TAM. Oodoomoo, TEL. Iguana.

OODOOGA MARAM of Wynaad, Bassia longifolia, *Willde.*

OODOOGOO, TAM. A large tree of Palghat, wood of a red colour; used for ploughs and building.—*Col. Frith.*

OODOO-JATI, BENG. Justicia dentata.

OODOOMBUR, BENG. Wild fig, Ficus glomerata.

OOD-SAZ, HIND. A censer in which to burn ood.

OODUMBARRA, SANS. Ficus racemosa.

OODAYA, SANS., to arise, from oot, prep. and aya, to go.

OODY NAR, TAM. Acacia leucophlœa, a common tree in Southern India. The fibres from the bark are used by the fishermen in making nets: a coarse kind of cordage is also made from it.

OOFT, DUT. Fruit.

OOGAL, that which is spit out after chewing betel-leaf. Oogal dan, a spittoon.

OOGHAI, HIND. Oogha maram, TAM. Salvadora persica.

OOGOORASSA, SINGH. Flacourtia sapida, *Roxb., W. & A.*

OOGRA CHANDA, SANS., from oogra, fear-exciting, and chanda, wrathful.

OOJAL, a river in Kattywar, rises in lat. 21° 31', long. 70° 50.' It has a circuitous, but generally westerly course and disembogues into a back water, behind Poorbunder, length 75 miles.

OOJAR, a river near Kujooree in Kotah.

OOJEIN, also Ujein or the new city of Ujjaini, called also Avanti, boasts of very high antiquity, and is considered as the first meridian by hindoo geographers and astronomers. Mr. Hunter, in the sixth volume of the Asiatic Researches, ("Journey from Agra to Ougein,") gives a description of the modern city, which, by repeated observations, he determined to be in long. 25° 51' 11" N. The ancient city was about a mile farther south, and now lies buried in the earth to the depth of from fifteen to eighteen feet. On digging its walls, are said to be found entire pillars unbroken, &c. Tradition imputes its destruction to a shower of earth, an idea likely to have originated in superficial observation, for although Mr. Hunter observed no traces of volcanic hills, nor scoria, in the neighbourhood, and thinks the style of the walls militates against the supposition of an earthquake having effected the submersion of the city, it is still difficult to impute it to any other than a volcanic cause, operating, perhaps, locally, and with less violence and convulsion than usually attend such a phenomenon. It may be remarked, that the neighbourhood of Oojein is particularly subject to inundation from the alluvion of the river Sippara, near which the city is situated: and the soil is of a soft sinking nature. Whatever may have been the real cause of the catastrophe that befel this metropolis, it cannot be supposed that the wild fancies of hindoo historians would suffer the fact, in itself highly poetical and romantic, to be simply told; they have dressed it up in a mythological allegory, with the intervention of the gods. The following story of the occurrence is accordingly related. On one occasion Indra assumed the form of a shepherd's boy, that he might the easier steal from a garden some pomegranate blossom to deck the dark tresses of his charming consort Indrani. The story is borrowed from the popular mythology of Nepal and Tibet, and is thus told by Sir W. Jones in a hymn,

"The reckless peasant, who these glowing flowers,
Hopeful of rubied fruit, had foster'd long,
Seiz'd, and with cordage strong,
Shackl'd, the god who gave him showers.
Straight from seven winds immortal genii flew—
Varuna green, whom foamy waves obey;
Bright Vahni, flaming like the lamp of day;
Kuvera, sought by all, enjoy'd by few;
Marut, who bids the winged breezes play;
Stern Yama, ruthless judge! and Isa cold;
With Nairrit, mildly bold.
They, with the ruddy flash that points his thunder
Rend his vain bands asunder.
Th' exulting god resumes his thousand eyes.
Four arms divine, and robes of changing dyes."

His "robes of changing dyes" are the evanescent and variable clouds, with which he (the firmament personified) is clad as with a garment bespangled with a thousand eyes, or stars. Oojein or Ujen in lat. 23° 11′; 75° 50′, is in Malwa, on the right bank of the Sipra. It is said to be 1,698 feet above the sea.—*Moor, p.* 263.

OOJJALA NEEL-MANEE, Sans., from oojjala, splendour, nila, blue, and mani, a jewel.

OOJLA, a river near the Mirzapoor cantonment.

OOJLA JAMOON, Duk. Calyptranthes caryophyllifolia, *Willd., Swartz.*

OOJONG BATTOO TOOTUNG, see Rigas Islands.

OOK, Beng. Saccharum officinarum, *Linn.*

OOKTA, Sans., spoken, from vach, to speak.

OOLA, Hind. Saccharum cylindricum.

OOLAK, the Baggage boat of Bengal. See Boat.

OOLASSA, a river near Bhewndy in northern Concan.

OOLI, bars of steel, fabricated from the vuttoms from the crucible.

OOLITE, in geology a rock, also a geological formation. It has been a question whether the fern-bearing coal shales and laminated sandstones of Nagpur are the same as the fish-producing bituminous shales of Kota. The Kota fishes that rewarded the researches of Drs. Walker and Bell, were pronounced by Sir P. Egerton to be true Oolitic forms, and probably of the age of the Lias; between Nagpur and Chanda, the Upper Sandstone has the usual iron bands, and the lower laminated beds the common vegetable remains, there is a district with Mangali as the centre (sixty miles S. of Nagpur) where the superior sandstone is less ferruginous, and the inferior or laminated beds are coloured by iron of a deep brick-red. In the latter strata the remains of reptiles, fishes and entomostraca predominate, while the few vegetables that are found, are generally very different from those occurring in other parts of the Nagpore territory. The skull of a Labyrinthodont, named Brachyops laticeps by Owen might suggest for it a Triassic or even Carboniferous age, but the plentifulness of scales of lepidotoid fishes forbids us to assign a more ancient epoch than the Jurassic; and the conclusion is unavoidable, not that the Nagpore laminated sandstone is older than the age we have attributed to it, but that, in India, the Labyrinthodont family has come down to a more recent period than in Europe. The vegetable remains are Tæniopteris, Equisetum laterale, Tæniopteris magnifolia, Phylothecas, Knorria, Lepidodendron, Aphyllum, Aspidiaria, Entomostraca belonging to the genus Estheria.

OOLKI-PANA, Beng. Salvinia verticillata.

OOLOGY. Mr. Theobalds, during the years 1852–53, made observations on this subject, chiefly in the neighbourhood of Pind Dadan Khan and Katas, in the Salt Range. Layard and Kelaart, have also given brief notices on the same subject from which it is known that a curious fact may be deduced, viz., that the same bird's nest varies at times in different parts of the country, when the great extent and varied physical, seasonal and climatic features of our Indian empire are taken into consideration.

What varied and touching instances of craft and devotion does not the maternal στοργε̄ prompt for the concealment and preservation of the callow brood either from natural enemies or from unforeseen perils, and nowhere can we look for more pleasing instances of self-denial than among birds engaged in tending their eggs or young. This has ever been a favourite and admired subject with poets and lovers of nature, who will not fail to accept in a far wider sense, than originally attached to them, the lines of Flaccus:

> "Non ferox
> Hector vel acer Deiphobus graves
> Excepit ictus pro pudicis
> Conjugibus puerisque primus."

At no time too, are more conclusive proofs displayed by the brute creation of intellectual power, than by birds engaged in the duties of incubation. If reason be defined in terms, their actions in a greater or less degree will be found to fulfil those terms. Milton making Eve address the serpent, says:—

> " What may this mean? language of man pronounced?
> By tongue of brute, and *human sense* expressed:
> The first at last of these I thought denied
> To beasts, whom God on their creation day.
> Created mute to all articulate sound
> The latter I demur, for in their looks
> Much *reason*, and in their actions, oft appears."

There are three ways which may be adopted for emptying an egg according to its size and the amount of incubation it has received. All eggs when fresh or only slightly incubated may be blown after a manner, now to be described, but some care and careful handling are required to succeed with such eggs as of the English wren or Indian palm-swift. The ordinary mode is to make a hole at both ends, but after deciding on the proper spot which is best an oval hole must be made in the side varying with the size of the egg, and on holding the hole downwards the contents are easily evacuated by blowing into the egg through a fine pointed blow pipe, the tip of which is just introduced within the shell. The operation is neat and effectual but a violent blast must not be attempted, as in that case the yolk, may cause a momentary obstruction and the egg explode from the pressure of the confined air with. Neither should the hole be made too large, as the air will then find too ready an exit and fail to expel the last portion of the contents. The empty shell should then be immersed in water and filled, by first exhausting the air with the blow-pipe, this will effectually clean the interior, and the last remains of moisture may be absorbed on blotting paper. The interior should then be washed with a solution of corrosive sublimate in spirits. A common six-penny brass blow-pipe answers perfectly for this. When, however, the incubation has lasted a long time, a good plan is to extract the contents, by means of a pin bent into a hook. This is a tedious operation which is merely mentioned in case of any rare egg requiring to be so treated. A third plan answers well for all eggs of a large or medium size, when well incubated. A moderately-sized hole must be made in the eggs and the more liquid portion of the contents got rid of. They should then be wiped clean and placed in a shallow pan, when in a few days the maggots of the flesh-fly will consume the contents. They will then only require to be washed. The best mode of packing moderate-sized eggs in store is in wooden boxes with saw dust, after closing the holes in the shells with their paper. Tin boxes are not generally to be trusted, at least when travelling, as with such tender charges committed to their care a little smash goes a great way, as he has ruefully learned from experience. Small eggs travel well-packed in some soft nests as those of "Lanius" with a little wool and placed in wooden boxes. Small tin boxes fitted into trays in a wooden box are also very handy, but are not readily got well-made in India. The following are the commoner forms in the abbreviations used:

O. oval,
B. O. blunt oval,
P. O. pointed ditto,
L. O. long ditto,
R. O. round ditto,
P. pyriform,
O. P. ovato pyriform,
B. O. P. blunt ditto ditto,
L. O. P. long ditto ditto,
R. O. P. round ditto,
R. round with some minor combinations.

Gyps bengalensis, Gid Girij. March 1st, 2nd. 1. O. P. 3·36—2·62. Dull white. Nest of sticks and twigs; in large trees.

Neophron percnopterus, Safed doda. March 3rd. 2. L. O. 2·53—1·90; 2·75—1·84. Pale brownish red, thickly blotched with dark brownish red. Nest, a few twigs placed in holes of cliffs and difficult to approach.

Haliætus gallicus? Burra ludi. March 2nd, 4th, April 2nd. 1. B. O.=L. B. O. 2·78—2·13; 2·67—2·30; 3·18—2·30. Pure white, with sometimes a few spots of brown. Nest of sticks in large trees.

Circaetus gallicus, Chota ludi. March 2nd. 1. O. 2·49—1·90. White with a few minute brown specks. Nest of twigs and sticks in large trees.

Polionis teesa, Trumti. April 2nd. 4. O. P.=B. O. P. 1·80—1·50; 1·93—1·50. Pure grayish or plumbeous white. Nest small, of twigs, in trees, near cultivation.

Buteo canescens, *Hodgson*, *Hil.* March 1st, 4th. 2-3. O. P. 2·00—1·66; 2·19—1·66. Greenish white, or white, blotched with red claret brown, vary greatly. Nest large in trees, sticks lined with cotton, rags, &c., and daubed with mud.

Lanius lahtora, Lahtor (generic). March 4th, April 4th. 5. O. P. 1·06—0·80. Pale greenish white, blotched and ringed with yellowish gray and neutral markings, vary much in intensity and colour. Nest of twigs, lined with cotton or wool and usually placed in stiff thorny bushes.

Lanius erythronotus, May 1st, 4th. 5-.6 B. O. P. 0·88—0·81; 0·93—0·68. White or pale greenish white slightly ringed and spotted with yellowish gray and neutral. Nest of roots, coarse grass, rags, cotton, &c., lined with fine grass and placed in forks of trees.

Lanius hardwickii, May 1st, 4th, June 2nd. 3-4. O. P.=B. O. P. 0·80—0·64; 0·87—0·65; 0·73—0·55. Colour same as L. erythronotus, also creamy or yellowish white, spotted with darker. Nest compact in forks of thorny trees; outside fibrous stalks, bound with silk or spider web and covered with lichens or cocoons imitating a weathered structure; inside lined with fine grass and vegetable down.

Corvus corax, Dom kak, Doda, January, February. 4. O. P. 1·70—1·30. Dirty sap green, blotched with blackish brown; also pale green spotted with greenish brown and neutral. Nest of sticks, difficult to get at, placed in well selected trees or holes in cliffs.

Corvus splendens, Kowa. June 4th. 5. O. P. 1·42—1·05; 1·40—0·95; 1·56—1·18; 1·70—0·97. Clear bluish green, spotted with blackish brown, size and colour variable. Nest, a neat but slight cup of twigs and roots, placed in medium-sized trees. Columba intermedia, Kabuter. March, April, May, June, July. 2. P. O.=B. O. 1·03—1·04; 1·43—1·17. Pure white. Nest none, or only a few twigs in holes, in walls, buildings, cliffs, &c.

Turtur risorius, Panduk. April 3rd, May 1st, September 1st. 2. P. O.=B. O. 1·21—0·96. Pure white. Nest, a few twigs in low trees and bushes.

Turtur senegalensis, Ghughu (generic). March, April, May, June, August, September. 2. P. O.=B. O. 1·11—0·92; 1·20—0·90. Pure white. Nest, a few twigs in low trees and bushes.

Turtur humilis, April, May, June, August. 2. P. O.=B. O. 0·93—0·74; 1·02—0·76. Pure white. Nest, a few twigs in low bushes or trees.

Pavo cristatus, Mohr manjur. June, July. O. P.=B. O. P. Clear brownish cream colour. Nest, a mere hole in the ground in difficult stony places in the hills.

Perdix ponteceriana, Jita. April 1st, May, September. 9. P.=O. P. 1·29—1·03. Clear cream colour. A little grass in a hole in the ground, usually sheltered by a bush: or in clumps of grass.

Ammoperdix bonhami, Susi. April, May, June. 12. P.=O. P. 1·40—1·00. Clear cream colour. A slight hollow among stones in the hills.

Caccabis chakor, Chakor. April, May. 12. O. P.=B. O. P. Yellowish white or brownish cream colour, faintly ringed and spotted with tan colour. A few leaves on ground under bushes.

Turnix sykesii ? Bailer (Taigoor,) August 3rd. 5. R. P. Pale gray closely freckled with dirty yellowish ochre, with a few dots of neutral, and blotched with deep reddish brown or blackish amber. Nest, a little grass hemp yarn; and a few hairs on ground in field of Bajra.

Palæornis torquatus, Tota (generic.) May, 3rd. 4. R. O. P. 1·25—1·05. Pure white. Nest none, eggs laid in holes, in wall, trees and steep banks in company with columba intermedia.

Palæornis cærulocephala, March 3rd. 4. 5. B. P. 1·13—0·95; 1·17—0·93. Pure white. Eggs laid in holes in trees.

Pycnonotus leucotis, Bulbul (generic.) May, June, July. 4. O. P. 0·91—0·64. White much dotted with claret red. Nest, a neat cup of vegetable fibres in bushes.

Pycnonotus bengalensis, May, June, July. 4. B. O. P. 0·87—0·62. Deep pink, blotched with deep claret red. Nest similar to No. 23.

Acridotheres tristis, Maina, June. 5. O. P. 1·20—0·85. Pale bluish green. Nests, roots and other rubbish, in trees or holes in house verandas, &c.

Acridotheres gingianus, Gang-maina. May 3rd. 7. 8. O. P. 1·08—0·81. Clear greenish blue. Nest, a hole in the sand at the end of a gallery run into a steep bank, many nests in company.

Cypselus affinis; Ababil (generic.) April, May, June, August, September. O. P. 0·90—0·56. Pure white. Nest, light straw and feathers strongly agglutinated to rafters of houses nests in colonies and often united together, size varies much, some have long necks, others are mere saucers without any. Second nests are less carefully built. The inside is not lined and feels like coarse card board.

Hirundo sinensis, February 3rd. 4. O. P. 0·62—0·48. Pure white. Nest of grass lined with feathers placed at the end of a gallery in a steep river bank.

Oriolus kundoo, May 2nd. 4. O. P. 1·17—0·81; 1·23—0·75. Pure white with a few black spots. Nest a neat cup of woven grass, attached by the side to a bough of some fruit tree.

Dicrurus macrocercus, Japul Kalchit, May, June. 4. O. P. 1·08—0·73. Dirty reddish white spotted with red; colours vary, in some the spots seem to have run, as ink does on damp paper. Nest a neat shallow cup of roots and stalks in bushes.

Passer domesticus, Chureia, February, March, April, May, June, July. 5–6. O. P. 0·85—0·65; 0·82—0·61. White spotted and blotched with brownish black or brownish white blotched with deep brown, colour varies much. Nest a loose structure of grass and feathers, in trees or houses.

Malacocercus caudatus, Sor. March, April, May, June, August. 4–5. O. P. L. O. P. 0·84—0·66; 1·04—0·60; 0·75—0·55. Clear greenish blue. Nest a loose but deep cup of grass and twigs in bushes in jungle or garden. The first size is common, the second and third measurements were from eggs of one nest.

Oxylophus melanoleucus. (Identified by Mr. Blyth) August. 1. B. O. 0·61—0·81. Deep greenish blue. This evidently parasitical egg was taken from the nest of Malacocercus caudatus containing four ordinary eggs which it closely resembles in colour, though its form indicates its parasitical character.

Galerida cristata, Chandul. March 4th, May 3rd. 4. O. P. 0·88—0·66; 0·82—0·64. Yellowish white uniformly freckled, with grayish yellow and neutral. Nest, a little grass in a hole in the ground.

Thamnolia cambaensis, Jimma (generic.) April 2nd. 4. P. O. P. 0·79—0·60. Greenish white ringed and spotted with pale reddish and a little neutral. Nest, loose grass and bits of snake's skin in holes in the sides of nullas.

Nectarinia asiatica, May 4th. O. P. 0·66—0·47. Grayish white, freckled and ringed with cineritious gray. Nest, a neat purse of vegetable fibre and down suspended from some small bough and masked in front by a few dead leaves loosely attached by silk threads.

Munia malabarica, May, August, September, October, December. 12·13=(25) O. P. 0·59—0·46; 0·64—0·44; 0·60—0·50. Pure white. Two pairs of birds frequently if not usually are employed in the construction of one nest in which the two hens consecutively lay—so the same nest has sometimes 25 eggs in it in different stages of incubation—nest often clumsy and hastily made—but usually a neat domed structure of fine grass with one opening, sometimes prolonged into a short deflected neck partially closed by the elasticity of the long spikes of grass forming it; sometimes the nest is a simple platform of grass, open at each end, but the grass ends curved over to meet at the top, usually placed in thorny bushes, often very conspicuously and close to roads. It is much to be doubted if the eggs found occasionally in October and December are hatched.

Podiceps philippensis, Pandubi. August, September. 5. P. O. L. P. O. 1·50—1·04; 1·42—1·00. Pure white; when recently laid, green: is soon soiled brown in the nest. Nest, a few weeds heaped on the rank vegetation of jheels, but floating and usually several nests together.

Gallinula chloropus, August 4th. O. P. 1·62—1·15. Pinkish cream or gray spotted and slightly ringed with deep red-brown.

Sarciophorus bilobus. Jithiri. May 2nd. 3. P.=O. P. 1·63—1·19. Nest as Podiceps philippensis eggs also stained by nest; creamy yellow or stone colour, thickly spotted and blotched with blackish brown.

Ardeola leucoptera. Bogla (generic.) June 4th. 5. 6. P. O. 1·54—1·16. Pale green. Nest of loose sticks in trees.

Kashmir Notes.

Tinunculus alaudanus, Shikra. April 3rd. 6. B. O. P. 1·68—1·22; 1·51—1·27. Pale reddish brown, freckled and blotched with brownish red. Nest, hole in sarai wall of Thanna, S. of Baranegala, Shahabad and valley generally.

Milvus? Buteo, April 4th. 2. O. P. 2·10—1·80; 2·40—1·77. Nest and eggs as in plains (Buteo canescens ante.)

Corvus, small black hill crow. April 3rd. 4. O. P. 1·70—1·20; 1·60—1·25. Green spotted with brown, valley generally. Nest placed in "Chinar" and difficult trees.

Corvus monedula, May 1st. 4, 5. 6. O, P. L. O. P. 1·26—0·99; 1·45—1·00; 1·60—1·00. Pale clear bluish green; dotted and spotted with brownish black. Valley generally; in holes of rocks, beneath roofs, and in tall trees.

Sturnus vulgaris, Jilgiri. May 2nd, 3rd. O. P. 1·15—0·85. Pale clear bluish green. Valley generally; in holes of bridges, tall trees, &c., in company with Corvus monedula.

Acridotheres tristis, April 3rd. Nest and eggs as in plains, Rajaori and lower hills generally.

Cacabis chukor, May 3rd. Nasmana on the Chandra-baga: eggs as ante.

Pycnonotus leucotis, April 4th at Bhimba. May 2nd at Islamabad. Nest and eggs as in plains ante No. 23.

Hirundo rustica, May 2nd. 4. L. O. P. 0·83—0·53. Pure white, spotted with bright reddish brown; valley generally. Nest under eaves, outside coarse straw cemented with mud, inside fine straw lined with feathers.

Budytes citreola, May 3rd. 4. O. P. 0·95—0·70. Pale gray thickly dotted and ringed with grayish brown and grayish neutral mingled together. A depression in soft earth beneath a rock near B'aragari, valley generally.

Anas boschas, May 1st. L. O. P. 2·27—1·55. Dirty white with a tinge of yellowish green near Supeia, valley of Cashmir.

Podiceps cristatus? May 2nd. 5. O. P. 2·53—1·51. Pure white; when recently laid pale green. Wala lake. Nest, a heap of weeds floating on the surface of the water, but connected to reeds, &c.

Podiceps philippensis, May 2nd. 5. P. O. 1·40—1·00. Pure white. Wala lake. Nest as Podiceps cristatus.

Fulica atra, May 2nd. 8. L. O. P. 2·10—1·40. Pale brownish gray, dotted with reddish black. Wala lake. Nest, pieces of dried reeds about 6 inches long, piled together among reed and floating on the water.

Gallinula chloropus, May 2nd. O. P. 1·70—1·26; 1·57—1·11. Pale gray or reddish gray dotted and spotted with deep reddish brown. Nest, a few weeds heaped on the water among reeds.

Centropus rufipennis, Monghyr, June, August. 4. O. 1·30—1·09; 1·47—1·21. Pure white: nest placed in dense trees, a neat but loose structure of twigs domed, and with aperture in the side lined with dried leaves.

Cypselus affinis, Monghyr, May, June. 4. O. P. 0·90—0·56. Pure white; nest described in a former paper. Mr. Layard, however, describes it as building a mud nest in Ceylon (vide annals for 1853, age 311).

Milvus ater, Calcutta, October 4th. 3. O. P. 2·21—1·68. Greenish-white, spotted and blotched with pale reddish brown: nest of sticks, bulky, placed in tall trees.

Gyps bengalensis, near Deoghur, November 4th. 1. O. P. 3·20—2·52. Pure white. Nest of sticks, usually small for the size of the bird, and placed at the top of cotton trees or others, very difficult to ascend.

Buceros cavatus, Tenasserim, February 3rd. 1. O. P. 2·68—1·88. Pure white. For the measurement of an egg, indebted to Capt. Tickell, who was fortunate enough to observe the female on the nest. In holes of trees, in which the female is built in with mud by the male, as observed by Capt. Tickell (p. 279, ante.)

Buceros subruficollis, Tenasserim, February 3rd. 3. O. P. 2·20—1·55. Pure white. Mode of incubation said to be similar to the last.

Halcyon smyrnensis, Mergui, March 4th. 5. B. O. 1·20—1·03. Pure white. Gallery 1½ feet in a stiff bank, near a road.

Halcyon gurial, Monghyr, June 4th. 4. R. 1·09—1·02. Pure white. Gallery 1 foot in a stiff bank, in jungle.

Merops erythrocephalus, Mergui, March 3rd. 5. 6. P. O. 0·84—0·79. Pure white. Gallery from 1 to 7 feet in length, in soft sandy soil near water. It enters the ground at a small angle and then runs horizontally.

Eudynamys orientalis, Monghyr, June 3rd. 1. O. P. 1·20—0·90. Pale dirty green much blotched with reddish brown. Had but one egg brought, and the man reported four crow's eggs in the same nest.

Centropus rufipennis, Monghyr, "Mahoka," "Karmowa," June, August. 4. O. 1·30—1·09; 1·47—1·21. Pure white: nest placed in dense trees, a neat but loose structure of twigs domed, and with aperture in the side: lined with dried leaves.

Cypselus balasiensis, Monghyr, June 3rd, Prome, July. 3. L. P. 0·80—0·45. Pure white. Nest of vegetable down, with a few feathers agglutinated with mucus to the frond of the Borassus.

Corvus culminatus, Tenasserim, Feb. 3rd. Near Deoghur, March 4th. O. P. 1·66—1·15. Dull sap green, much blotched with brown. Nest carefully placed in tall trees.

Acridotheres tristis, Monghyr, June 1st. Prome, July 3rd (2nd brood.) 5. O. P. 1·20—0·85. Pale green. Nest in trees or holes in houses of grass and rubbish.

Sturnus contra, Monghyr, May 3rd, June 3rd, Tavoy, April 1st. 5. O. P. 1·10—0·82. Clear pale green. Nest of grass and twigs in trees.

Malacocercus bengalensis, Monghyr, June 2nd. "Fat-gobria," "Gogoi." 5. B. O. P. 1·00—0·79 Deep bluish green. Nest of twigs and fibres in bushes.

Malacocercus caudatus, Monghyr, June, July. 4. 5. O. P. Nest and eggs previously described.

Neornis flavolivacea, Darjiling, July 2nd. 3. B. O. P. 0·9—0·55. Deep dull claret red, with a darker band at broad end. Nest, a deep cup, outside of bamboo leaves, inside fine vegetable fibres, lined with feathers.

Orthotomus longicauda, Darjiling, August 4th, Tavoy, May 1st. 4. O. P. 0·61—0·45. Greenish white, dotted with pale reddish. Nest, a neat cup of fibre and vegetable down enclosed in a single leaf, which is secured by stitches of fibre; so as to envelop its entrance at the top and beneath the stalk, the leaf serving as an admirable pentroof to the nest.

Thamnobia cambaiensis, Monghyr, April 2nd, June 3rd. 3. 4. O. P. 0·64. Greenish white, ringed and spotted with pale reddish, with some spots of neutral. Nest rude in holes, in trees and banks, of grass and nearly always snake skin.

Hirundo domicola, Tenasserim, April 2nd. 3. L. O. P. 3·77—0·52. White, spotted and ringed with umber. Nest a saucer of mud, inner part coarse roots, profusely lined with feathers, and vegetable down, attached to the under part of "Snags" projecting some 4 feet above the water.

Hirundo sinensis; Salween R., January 2nd. 4. O. P. 0·62—0·48. Pure white. Nest of grass and lined with feathers.

Pycnonotus hæmorrhous; Monghyr, June 4th. 3. O. P. 0·90—0·68. Nest and eggs like P. bengalensis, previously described; eggs not so quite so highly coloured.

Nectarinia flammaxillaris; Tavoy, February 1st. 2. O. P. 0·56—0·43. Pale greenish, speckled with grayish ash. Nest, a neat purse, in a lime tree (Citrus), like N. asiatica.

Macrophygia leptogrammica; Darjiling, July 2nd. O.—(1 ?) 1·40—0·98. Dirty white; nest, a few sticks.

Francolinus sinensis; var. Phayrei; Burmah, June 4th (Miateh). 4. R. P. 1·40—1·15. Uniform greenish cream; on the ground.

Turnix ocellatus, Monghyr, June 1st. 4. R. P. 0·88—0·74. Yellowish gray, closely freckled with dark yellowish gray, blotched with deep reddish umber with a few dots of neutral: on ground.

Glareola lactea, Tenasserim, March 3rd. B. P. (3 ?) 1·01—0·81. Dusky buff, ringed and spotted with obscure neutral and irregularly lined with yellowish brown. On churs and river sand-banks.

Œdicnemus crepitans, Deoghur, April 1st. 2. O. P. 1·80—1·35. Pale stone-colour or yellowish cream, blotched with deep red brown. On ground in Sal jungle.

Hoplopterus ventralis, Tenasserm, March 3rd. 3. P. 1·60—1·17. Yellowish stone-colour or creamy nankeen, regularly spotted with deep red brown and sparingly blotched with neutral. On sandbanks in the river.

Metopodius indicus, Monghyr, August. L. O. P. 1·50—0·97. Clear brownish ochre, strongly lined and streaked with black. Nest of weeds in jheels.

Hydrophasianus chirurgus, Monghyr, August 2nd. 4. P. 1·33—1·10. Clear brownish or greenish bronze: nest, weeds in jheels.

Ciconia leucocephala, Deoghur, June 4th. 3. P. O. 2·50—1·90. Dull white: nest of sticks placed in tall trees, usually "simul," most difficult to ascend.

Herodias intermedia, Monghyr, July 1st, 2nd. 6. O. P. 1·76—1·26; 1·94—1·30. Dull green. Nest small, of sticks; in company with "Mainas" and Herodias bubulcus and H. garzetta.

Herodias garzetta, Monghyr, July 1st. 6. O. P. 1·45—1·14; 1·58—1·11. Dull green. Nest as H. intermedia.

Herodias bubulcus, Monghyr, June 1st. 6. 8. P. O 1·80—1·39. Very pale green or greenish white. Nest, as H. intermedia.

Porzana phænicura, Monghyr, August 1st. 7. L. O. P. 1·70—1·10. Dark brownish cream, much spotted and blotched with brownish red. Nest of weeds in jheels.

Gallinula burnessii, Salt Range, August 4th. 1·62—1·15. Pinkish cream or gray, spotted and ringed with deep red brown. Nest of weeds in jheels.

Dendrocygna awsuree, Monghyr, August 1st. 8. O. P. 1·81—1·50. Creamy white, nest of weeds in jheels.

Nettapus coromandelianus, Monghyr, August. O. 1·47—1·10. Pure white, shell very thin. The nomenclature used above is derived from the valuable catalogue of birds in the Museum of the Asiatic Society, by Mr. Blyth ; a work of great labour, which reflects the utmost credit on its author. For scientific purposes, a collection of birds' eggs is only valuable if the birds which have laid them be accurately known, and before the eggs are disturbed in the nests, the parent bird should be secured or shut. The eggs of the Sarus or Grus antigone, those of the bustard or Eupodotus Edwardsii, and those of the water pheasant the Hydrophasianus sinensis, have well marked distinctive characters as compared with any other Indian eggs.—*Notes on the Nidification of some of the commoner birds of the Salt Range, with a few additional from Kashmir, by W. Theobalds, Junr., Esq.," in Beng. As. Soc. Jour., Jan., Oct.* 1855.

OOLOO, Beng. Imperata cylindrica.

OOLOOLOO-GAS, Singh. Machilus macrantha.

OOLOWA, Singh. Fenugreek seed.

OOLUT KUMBUL, Beng., Hind. Abroma augusta.

OOMAR, a caliph who succeeded Mahomed, and Abu-bakr. He sent an army into Sind. He built Bassorah in the 15th year of the Hijra to secure the trade of Sind, Guzerat and India, Persia and Arabia. See Khalif, Omar, Abdullah, Umar.

OOMAR, a river near Cheinwarra in Gurrawa.

OOMARI-KEERAY, Tam. Salsola indica.

OOMBUR, Duk. Ficus glomerata, *Roxb.*

OOME TEAK, Tam., of Palghat, wood of a dark-brown colour : third-rate teak.—*Col. Frith*

OOMGONG, a river near Mophlung in Cherrapunji.

OOM-GON-YONG, a river near the Cossyah hills.

OOMIAH, a goddess of the hindoos. Freya is the Scandinavian goddess of love, and Freyr the god of beauty. Freya is supposed to be the analogue of Oomiah, the creative power of the hindoo mythology. The grand festival to Freya was in spring, then boars were offered up to her by the Scandinavians, and boars of paste were made and eaten by the peasantry. At the present day, " Vasanti," or spring personified, is worshipped by the rajputs, who open the season with a grand hunt, led by the prince and his vassal chiefs when they chase, slay and eat the boar.—*Tod.* See Basant.

OOMRAOTI, a name given to several towns in the peninsula of India usually, also written, Omrooti or Umraoti, a name identical with Amravati. The Oomrawatte of Berar is one of the largest cotton marts, another Oomraoti near Masulipatam is famed for its buddhist ruins.

OOMR-KOT, a fortress in a small oasis on the edge of the desert near the Indus. It was the retreat of the emperor Hamayun and the birth-place of Akbar. See Omarkote.

OOMUR, a river near Nursingpoor.

OOMUR or Oomra and Soomra, are races of Sindh from the Pramar or Puar races of rajpoots, and found now chiefly as mahomedans though a few still called Oomra and Somra are to be found in Jessulmer and in the t'hul.

OOMUS, Singh. Vitis vinifera, *Linn., W. & A.*

OOMUTWARA, in a hilly and jungly tract, comprising Oomutwarra, Seronge and Keechiwarra, with a scanty population.

OOMY TAKOO MARAM, Tam. A species of the teak or Tectona grandis.

OONAMAKOO also Unali, Singh. Tabasheer.

OONARA MARA, Can. Tamarindus indica.

OONDAH, a town in the Burdwan district of Bengal.

OOLOO-NANTHREE MARA, Can. Stereospermum suaveolens.

OONDEY OIL. Its source is not known at Madras, but supposed to be a fish oil manufactured at Malabar. The name in Bombay is, however, applied to an oil obtained from the nut of the Calophyllum inophyllum, is imported from the Somali coast, and used as a stimulant externally and internally.—*Simmonds' Dict.*

OONDIE, Mahr. Calophyllum, *Species.*

OONG-LAGNIYU, Leph. Crossopus himalaicus, *Gray.*

OONMRAR, a river near Gwalior.

OONN, Guz., Hind. Wool.

OONNAY, Tam. A wood of Tinnevelly, of a red colour ; specific gravity 0·928. A strong wood used for wheelwright's work, handspikes. —*Col. Frith.*

OONS, Guz. Sugar.

OONT, Hind. Camel. Oont-ka-bal, Camel's hair. Oont shah, a mohurrum faqueer.

OONTA DHOORA, a pass in Jooalur.

OONUM, Hind? Abies webbiana, *Hooker.*

OOPADIKEE, or Oopodaki, Sans. Basella cordifolia.

OOPANA, Sans. Asarabacca.

OOPA, Sans. Above, importing resemblance, hence.

Oopachara chala, from oopa, chara, to move, and chala, a pretence.

Oopanaya, from oopa, and nee, to take.

Oopanayana, from oopa and nayana, an obtaining.

Oopa pataka, from oopa, prep., and pat, to throw down.

Oopapatee, from oopa, and patee, lord.

Ooparatee, from oopa and rum, to play.

Oopasanghara, from oopa and sanghara, destruction.

Oopavasa, or fasting, an act of merit among the hindoos.

Oopanga, from oopa, importing resemblance in an inferior degree, and anga, a part.

Oopasana, Sans., from oopa and as, to throw, preceded by the prep. a.—*Ward's View of the Hindus, Vol.* ii, *p.* 76.

OOPAZEN, Burm. The regular monks of a Burmese monastery, who are ruled by the Phoon-gyi or superior.—*Yule, p.* 182.

OOPLATE, Guz., Hind. Aucklandia costus, *Falconar*.

OOPOO, Tam., Tel. Salt, hence,

Oopoo-poma, Beng. Rhizophora mangli.

Ooppoocaree-neer-mullee, Dilivaria ilicifolia.

Ooppoo travagum, Tam. Muriatic acid.

Oopp-lee-coddy, Tam. Pentatropis microphylla.

OOPREE, a Bombay or Mahratta revenue term to designate a tenant at will.

OOPSUNG, see Kunawar.

OOR, also written 'ur, also pura, Hind.; a town, as Bangalore, Narsingapur.

OORALAY-GUDDA, Tel. Potatoes.

OOR BOYA WANLOO, a Tiling race, who become mercenary soldiery very devoted in their duties. They generally serve native rajahs, &c., and very rarely enter the British army.

OORDOO, Hind. The language called Hindustani, derived from the Turkish word Oordoo or Urdu, a camp or army or tribe, from which the European nations have formed the word horde.—*Elphinstone's King. of Cabul, p.* 481.

OORDHA-DES, a name of Orissa. See Ooria, Orissa, India.

OORDHA-VAHOO, Sans., from oordha, high, and vahoo, arm.

OORELA-TAMARAY, Tam. Ionidium suffruticosum.

OORGA KOOREN, see Kouren.

OORIA, a language which prevails in the northern part of the Ganjam district, as far south as Itchapore. In the southern division, the Telugu prevails.

OORLEE, see Kunawer.

OORMUL, a river near Mulhara in Chutterpore.

OOROOD, Duk., Hind. Phaseolus mungo.

OOROOPA, Maleal. A tree which the natives prefer to teak for building ships, being more durable and close-grained.—*Ainslie, Rohde's MSS.*

OOROOPA, Malay. Ooroopa wood, Anglo-Malay. Hopea decandra.

OOROOS, Arab. The festival day of a mahomedan saint, on which oblations are offered at the tomb, also oblations or offerings to a saint, also called Churaghan (lit. lamps or illuminations).

Ooroos-i-baba boodun, alias Hyat qalandar.

Ooroos-i-bawa, Fuqqur ood deen.

Ooroos-i-tubber-i-ullum, are mahomedan ceremonies.

OORU or Oorvasu. Turvasu is a great arm of the line of Yayat. Ooru was the father of a line of kings who founded several empires. Viroota, the eighth prince from Ooru, had eight sons, two of whom are particularly mentioned as sending forth two grand shoots, Druhya and Babru. From Druhya a dynasty was established in the north. Ar, with his son Khandar, is stated to have founded a state. Pritchita is said to have become king of Mhlecha-des, or the barbarous regions. This line terminated with Dushkhanta, the father of the celebrated Sacoontala, married to Bharat, and who, labouring under the displeasure of some offended deity is said by the hindoos to have been the cause of all the woes which subsequently befel the race. The four grandsons of Dushkhanta, Kalinjra, Keril, Pand, and Chowal, gave their names to countries. Kalinjra is the celebrated fortress in Bundelkhund, so well known for its antiquities. Of Keril it is only known that in the list of the thirty-six royal races in the twelfth century, the Keril, makes one, but the capital is unknown. The kingdom founded by Pand may be that on the coast of Malabar, the Pandu Mandel of the hindoos, the Regia Pandiona of the geographers of the west, and of which, probably, Tanjore is the modern capital. Chowal is in the Saurashtra peninsula, and on the coast, towards Jugut Koont, 'the world's end,' and still retains its appellation. The other shoot from Babra became celebrated. The thirty-fourth prince Anga, founded the kingdom of Anga-desa, of which Champa Malini was the capital, established about the same time with Canouj, probably fifteen hundred years before Christ. With him the patronymic was changed, and the Anga race became famous in ancient hindoo history; and to this day, An-des, still designates the Alpine regions of Tibet bordering on Chinese Tartary.—*Tod's Rajasthan, Vol.* i, *p.* 43.

OORUCK ZYE, an Affghan tribe bordering the Kohat district.

OOR-VASSEE, Tel. Dancing girls, Bogum wanloo, devotees of the Vaisya caste. They belong to the Rhumba and Oor Vussee sections.

OOSARA-REWAND, Hind., from Stalagmitis gambogioides, is real gamboge, imported into Ajmir viâ Pali; considered and used as a violent cathartic, the punsari or druggists suppose it to be the extract of the Mirabilis jalapa root, the dose given is sixteen grains; one seer costs four rupees.—*Gen. Med. Top.*, *p.* 148.

OOSARICA, Tel. Phyllanthus emblica.

OOSEE-MOOLAY-KAI, Tam. Capsicum minimum.

OOSHA-HARANA, Sans. Hurunu means stealing.

OO-SHEET, Burm. Ægle marmelos, *Corr.*

OOSHMUPA, Sans., from ooshmun, heat, and pa, to drink.

OOSHTERANNEE, an Affghan tribe considered one of the most warlike of the tribes in the Suliman range. About the year A.D. 1840 they colonized in the skirt of the hills, where they hold perhaps 20,000 acres of arable land. They had been constantly engaged in feuds with the Kusranee, a tribe less warlike than themselves, but still by no means contemptible in spirit and enterprise.—*Records of Govt. of India*, *No.* 11.

OOSI-MULAGHAI, Tam. Capsicum minimum.

OOSINGIA, Hind.? Sapindus laurifolius.

OOSTAJALOO, see Kajar.

OOSULAY, Tam.? A wood of Tinnevelly, of a light brown colour; specific gravity 0·832; used in building in general.—*Col. Frith.*

OOSUR, Hind., properly soil free from the saline efflorescence called "reh," but underlaid at a depth of six to twelve inches by a stratum, more or less continuous, sometimes of considerable thickness, of kunkur, sometimes in the form of a block (known as silia) and at other times in strings and nodules. "Reh" is a general term for all saline efflorescences. Sometimes it is an impure sulphate or carbonate of soda, sometimes chloride of sodium, and sometimes carbonate or nitrate of potass, but generally more or less a mixture of all. It rises to the surface by capillary attraction. It has occurred to a large extent, on the lands along the banks of the Ganges canal, and has greatly injured the soil. See Reh.

OOTACAMUND, in lat. 11° 23′ 7″, long. 76° 43′ 2″, a sanitarium in the Neilgherries, Dawson's Hotel is 7,490 feet above the sea. Ootacamund is nearly in the centre of the table-land of the Neilgherries at the foot of the western face of the peak of Dodabetta, and except to the N. W. the station is completely surrounded by grass-covered hills. Houses are scattered about under the shelter of the hills, with gardens and plantations of Eucalyptus and Acacia heterophylla, and the broad excellent roads are bordered by Cassia glauca bushes, honeysuckles, foxgloves, geraniums, roses and masses of the tall Lobelia excelsa. The population consists of about Europeans, 2,500; East Indians, 500, but the European and E. Indian populations are migratory. Every European house has three or four fires daily. Ice is to be had in December and January mornings in the hollows and valleys of Ootacamund. The crust is scarcely half an inch thick, but sufficiently consistent for all freezing purposes.

Land on the Neilgherries, Wynaad, and Goodaloor, the latter lying immediately at the foot of the Neilgherry hills, is very much in demand, and scarcely to be had. The great land-holder at Goodaloor is the Nellemboor rajah. Coffee is not growable on the Neilgherries; the frost would kill the plants. It is on the slopes that land is sought for this description of culture, but on the Neilgherries themselves tea and chinchona can be grown to any extent.—*Bombay Gazette, Jan.* 2; *Mr. E. B. Thomas, Collector; Cleghorn's Forests and Gardens of South India, p.* 158; *The Neilgherry Star, December; Adolphe Schlagentweit.*

OOTATOOR and Verdachellum, near Trichinopoly, have limestone rocks containing numerous fossils, the limits of which are supposed to be near Trichinopoly on the south, and near Pondicherry on the north. From the examination of a very beautifully preserved and numerous suite of fossils collected from these sites by Messrs. Kaye and Cunliffe, of the Madras civil service, Professor Forbes arrived at the conclusion, that all the beds from which the fossils had been obtained were parts or members of one and the same series, and equivalent to the cretaceous series of Europe; the deposits at Trichinopoly and Verdachellum, being probably equivalent to the upper green sand and gault divisions of that series; the deposit near Pondicherry, being equivalent to the Neocomien, or lower greensand. But of the well marked section of the great genus Ammonites, among the large addition to the known catalogue of species, which Mr. Cunliffe's collection has given, we have none of the Fimbriati, an oolitic and cretaceous section; none of the Flexuosi, also a lower cretaceous section; none of the Dentati, also lower cretaceous; none of the Armati, an upper oolitic section; and none of the Lœvigati; while on the other hand, of the Cristati, a section essentially cretaceous, we find one; of the Clypeiformi also a cretaceous section, one: of the Heterophylli five, and all of the cretaceous subdivision of this section; of the Ligati, a group essentially cretaceous, not less than ten. O. Nautilus, a genus having a larger development in the upper than in the lower beds of the cretaceous, we have three allied to other cretaceous forms; of Belemnitella, confined to the upper portion of the cretaceous group, one. These will suffice to show, that a vast addition to the cretaceous Fauna of India still remains to be worked out. The following fossils from

Ootatoor near Trichinopoly, were furnished by Mr. Brooke Cunliffe:

Zoophyta,	
Turbinolia,	
Echinodermata,	
Brissus, - - - -	5
Nucleolites, - - -	1
Holaster, - - - -	1
Crustacea.	
Cancer (?) - - -	1
Mollusca (Acephala.)	
Inoceramus, - - -	3
Pecten, - - - -	2
Ostrea, - - - -	4
Gryphœa, - - -	3
Pinna, - - - -	2
Arca, - - - - -	4
Pectunculus, - - -	1
Modiola, - - - -	2
Trigonia, - - - -	2
Solecurtus, - - -	1
Cardium, - - - -	2
Gasteropoda.	
Natica, - - - -	1
Trochus, - - - -	1
Pleurotomaria, - -	1
Voluta, - - - -	2
Phasianella, - - -	1
Strombus, - - -	1
Tornatella, - - -	1
Cephalopoda.	
Baculites, - - -	2
Ptycoceras, - - -	1
Hamites, - - - -	9
Turrilites, - - -	2
Ammonites.	
Cristati, - - - -	1
Lævigati, - - -	1
Clypeiformi, - -	1
Heterophylli, - -	6
Ligati, - - - -	13
Nautilus, - - -	4
Belemnites, - - -	2
Belemnitella, - -	1
Annelida.	
Serpula, - - - -	2
Pisces.	
Odontaspis, - - -	1
Otodus, - - - -	2
Lamna, - - - -	1

The fossil Cephalopoda of the cretaceous rocks of southern India are thus enumerated by Professor Oldham.

Belemnites fibula, *Forbes*, at Ootatoor, Trichinopoly.
„ stilus, *Blanford*.
„ seclusus.

Nautilus bouchardianus, Shutanure, Olapandy, Pondicherry, Arrialoor, Trichinopoly, Shillagoody.
„ clementinus, Karapandy, Olapandy.
„ huxleyanus, Moonglepandy, Serdamungalum, Andoor, Shutanure, Moonglepandy Coonum.
„ danicus, Sainthorary, Ninnyoor.
„ justus, Odium.
„ elegans, Thuwnanore, Andoor, Shutanure.
„ splendens, Odium, Appapandy.
„ formosus, Karapandy, Andoor.
„ kayeanus, Ootatoor.
„ augustus, Odium, Trichinopoly, Purawoy.
„ clementinus, Coothoor, Trichin., Otacoil.
„ pseudo-elegans, Odium.
„ serpentinus, Rayapootha pakkan.
„ Forbesianus, Moraviatoor, Odium.
„ Nagama, Sirgumpore.
„ crebricostatus, Ootatoor.
„ Trichinopolitensis, Arrialoor.
„ rota, Mulloor.

OOTALIPANNA, Tam. Caryota urens, *Linn.*

OO-TA-LUNG, Burm. Ceropegia arnottiana, *Wight*.

OOTERAYNI, Tel. Achyranthes aspera.

OOTHAEE GIRIA, a term applied to professional thieves of the Tehrie, Dutteah, Shahgurgh, Chundeyree or Baupoor States.

OOTHAMUNNI, Tam. Dæmia extensa.

OOTRADI KE MUNKE, also Ootraj ke munke, Duk. Seeds of Elæocarpus lanceolatus, used as beads by hindoos.

OOTRAR, probably the Ottaracura of ancient hindoo geography: the ootroo (northern) cooru (race), a branch of hindoo stock.—*Tod's Rajasthan, Vol.* i, *p.* 61.

OOTRAYANAM: the "Tarapanum," is performed in Ootrayanam and Dutchanayenum by all the hindoos.

OOTRUM FIBRE, Anglo-Tam. A fibre from the Dæmia extensa, a promising substitute for flax.

OOTUNGUN, Hind. A seed used in medicine procurable in all Indian bazaars, obtained, according to Dr. Royle, from a species of Urtica. —*Honigberger*.

OOTUL HYU, Sans., from oot, prep., and tuthyu, just.

OOVAH HILLS, see Veddha.

OPAL, Eng., Ger.

Opale,	Fr.	Biduri,	Malay.
Opallion,	Gr.	Opala,	Port.
Opalo,	It.	Opalo; Piedra iris,	Sp.
Opalus,	Lat.		

This delicate iridescent gem has been known by the name it now bears from the time of Pliny. There is in it the gentler fire of the ruby; the brilliant purple of the amethyst: and the sea green of the emerald all shining together. This is produced by the reflection and the refraction of light, in certain openings of the mass. Mother of opal is a compact serpentine of a dark-brown colour filled with minute opals of extraordinary lustre. It is cut into thin slabs and was formerly much in use for the tops of snuff boxes. In Hungary there is a mine of opals. This mineral is a hydrate of silica, and has several varieties.

Precious Opal or Noble Opal, is white, bluish, or yellowish-white, and exhibits a beautiful variety or play of colours, as blue, green, yellow, and red, several of which appear together. Fracture conchoidal, with a vitreous or resinous lustre; it is easily broken, but scratches glass. Specific gravity 2·06 to 2·09. Infusible by the blow-pipe, but becomes opaque and loses water. The most beautiful specimens occur in Hungary, but it has also been found in Saxony, South America, &c. The analysis of the Hungarian opal by Klaproth showed in 100 parts, Silica, 90; Water, 10.

In Fire Opal, also called Girasol, the internal reflection is bright red. It occurs with the Precious Opal in Hungary, and has also been found in Cornwall.

Hydrophane or Mexican opal is usually opaque, but is rendered transparent, and exhibits the iridescent colours of the Precious Opal by immersion in water. It contains a little alumina in addition to silica and water.

Common Opal or semi-opal, is white, green, yellow and red; it has sometimes a milky opalescence but is entirely destitute of the play of colours exhibited by the Noble Opal. In other properties they greatly resemble each other. It is stated to contain a little oxide of iron mixed with the silica and water. It is found chiefly in Hungary and Saxony, but specimens have also been produced in Cornwall and in the Dekhan, is very abundant along the banks of the Seena river, between Sholapore and Ahmednuggur.

Semi-Opal is more opaque than the Common Opal, and is dull. It occurs either white, gray, yellow, brown, or green. It is found in the same places as the foregoing.

Wood-Opal is wood petrified with a hydrated silica so called from its showing the woody structure. It occurs of several tints of white, gray, brown, and black. It is generally harder than the Semi-Opal, but does not materially differ from it in other properties. It occurs in Hungary, in Transylvania, and in Madura, in the peninsula of India.

Cacholong, is white opaque opal; harder than the Common Opal; dull, brittle, fracture flat conchoidal. Specific gravity 2·2. Infusible before the blow-pipe. It contains water and a little alumina. It is found on the banks of the river Cach in Bucharia, in loose masses. It occurs also in the Faroe Islands, Greenland, and Iceland.

Opal Jasper, *Ferruginous Opal.*—Opaque, or but feebly transparent on the edges. Colour generally deep shades of red, yellow, and gray. Fracture flat conchoidal. It appears to be a silicate of iron with water. Silica, 43·5; Oxide of Iron, 47·0; Water, 7·5. It occurs in Hungary, Siberia, and Madura. Klaproth gave an analysis of a variety from Telkebanya. The opal is the most beautiful of all gems. Its price depends on the play of colours displayed. The hydrophane loses its beauty when exposed to water. Opal generally contains a little oxide of iron, and a small quantity of the alkaline earths. Precious opal scratches glass, but is easily broken on account of the numerous fissures by which it is traversed, and which probably give rise to the splendid play of colours. Opals are cut with rounded faces. Common opal, or semi-opal, has the hardness of opal, and is easily scratched by glass, which distinguishes it from siliceous stones often called semi-opal. Hyalite, Muller's glass florite, a glassy transparent variety, resembling transparent gum arabic, occurs in small concretions, stalactitic, and stalagmitic; Menilite, found in kidney-shaped masses at Mount Menil, near Paris, is a brown opaque variety, not unfrequently slaty; Opal jasper resembles jasper, but contains iron, and is not so hard; Tabasheer, a siliceous aggregation found in the joints of the bamboo; Siliceous sinter, deposited from hot springs, and near volcanoes, has sometimes an opaline character. From its structure of pure silica and water, the latter imbibed from the atmosphere, opal is extremely tender, sometimes bending if exposed to extremes of heat or cold, or if the openings on which the play of colours depends become choked up with dust and grease by wear, its play of colours may be lost. The Hungarian opals are the more valuable and harder, they present a uniform milkiness of surface more or less iridescent. The Mexican opals when recent, present an unmixed globule of green fire, but they become colourless or of an opaque brown if wetted. The opal is only cut in cabuchon. The opal of Nonius, whom Mark Antony prescribed, was valued at £20,000 of British money. According to Pliny, India was the source of opal, but if so, the locality is not unknown. The Hungarian opal is found embedded in porphyry in the mines of Czervenitza. It was very successfully imitated by the Roman king.—*King, p.* 292*; Tavernier's Travels, p.* 144; *Eng. Cyc.; Chamber's Journal, June* 1868; *Tomlinson.*

OPALESCENT SAPPHIRE, see Corundum, Sapphire.

OPERCULUM is the plate which protects the apertures or exposed parts of certain molluscs. In many of the Testaceous gastropods it fits the aperture of the shell more or less accurately when the animal has retired within it. Opercula are sometimes horny, as in Trochus and Murex; sometimes shelly, nay almost stony as in Turbo. In botany this term is used for the cap which forms the upper extremity of the theca, or sporangium, of a moss, covering over the peristome, and usually falling off when the spores are ready for dispersion. It has also been applied to the lid which covers in the Pitcher of Nepenthes, where it is the lobe of a modified leaf.—*Eng. Cyc.*

OPH, HEB. A serpent, was pronounced Ope; Oupis; Opis; Ops; and, by Cicero, Upis, and in the Egyptain Ob, or Aub. The Oph was an emblem of the Sun, also of time and eternity. The basilisk or royal serpent was named Oubaios. The idolatry of the serpent is alluded to in Lev. xx, 27; Deut. xviii, 11. See Ophis; Serpent.

OPHELIA, a genus of plants, belonging to the order Gentianaceæ. Dr. Wight gives Ophelia corymbosa, O. alata, O. angustifolia, and O. chirata, elatior, elegans, Grisebachiana, and minor. They are slender plants which grow at moderate heights in the Punjab Himalaya, several of them being exported to the plains for use in medicine under the name of Chirata which has undoubtedly tonic and febrifuge properties, is largely used by natives, and occasionally by Europeans. Honigberger supposes harun-tutiya to be from one of these.—*Wight's Icones; Dr. J. L. Stewart's Panjab Plants.*

OPHELIA ALATA, *Griseb.*

O. angustifolia,	*Don.*	Swertia, *sp.*	
O. chirata,	*Griseb.*		

Bui,	of Kangra.	Hatmul,	HIND.
Chiretta,	HIND.	Harun-tutiya,	„
Kasb-ul-zarita,	AR., PERS.		

—*Dr. J. L. Stewart*, M. D. See Colchicum, *sp.*

OPHELIA ANGUSTIFOLIA, *Don.*

Swertia angustifolia, *Wall.*

Kasb-ul-zaarita,	AR.	Hatmul,	HIND.
Pahari Chiretta,	HIND.	Harun-tutia,	„
Chiretta,	„	Hui,	of Kangra.

This species has long been used as a bitter tonic. It is called Pahari chiretta in the hills, and is substituted for the true kind. Exacum tetragonum is similarly named Ooda chiretta, or purple chiretta.—*Ind. An., No.* 6; *O'Shaughnessy, p.* 460.

OPHELIA CHIRATA, *Griesb.*

Agathotes chirata, *D. Don.*

Hab-ul-mul,	AR.	Chirataka,	SANS.
Kabs-ul-zarireh,	„	Kirata-tieta,	„
Chiretta,	HIND.	Shayraat-koochie,	TAM.
Dowa-i-pechish,	PERS.	Shilassuttoo coiello,	TEL.

Chiraeta is as universally employed throughout Southern Asia as Gentian is in Europe. It has long been known to the hindoos. Dr. Fleming (in Asiat. Res., xi, p. 167), referred it to the genus Gentiana, others to Swertia, and the late Prof. Don to Agathotes; Grisebach now refers it to Ophelia. Several plants closely allied to the Chiretta, are used for the same purposes. Ophelia (Swertia, *Wall.*) angustifolia, *Don.*, is so in Northern India, and called puharee, (*i. e.*, hill) chiretta, to distinguish it from the true or dukhunee (southern) chiretta. Justicia paniculata is also one of the chiretta plants. Exacum tetragonum is called ooda (that is, purple) chiretta. Ophelia chirata is an annual of from 2—3 feet high, with a single, straight, round, smooth stem. Seeds numerous, affixed to two receptacles adhering to the sides of the valves. Grows in the Himalaya mountains. Chiretta is met with in a dried state, tied up in bundles, with its long slender stems of a brownish colour, having the roots attached, and which have been taken up when the plant was in flower. The whole plant is bitter. They yielded a resin, a yellow bitter substance, a yellow colouring matter, gum, malic acid, salts of potash; and of lime, and traces of oxide of iron. Mr. Brattley states that it contains a free acid; a very bitter extractive and resinous matter, and much gum. Muriate and sulphate of lime and of potash; also, that the spirituous extract is more aromatic than that of Gentiana lutea, but that the extractive and the gum are in larger proportion in the latter. Water and spirit take up its active properties. It is a bitter tonic; stomachic in dyspepsia or as a tonic in convalescence; either cold or hot infusion; the former is lighter, and well suited to dyspeptics, and not so apt to create nausea in a hot climate. Sometimes a little orange-peel or cardamom is added. A tincture is made like that of gentian with two ounces to sixteen ounces of proof spirit like other bitters, is best taken half an hour before meals. It acts as a simple bitter tonic, not aromatic nor astringent, and is the best substitute for gentian and quassia. It is principally used by Europeans in fever, debility, and dyspepsia. The root is the bitterest part of the plant, and the bitter principle is easily imparted to water or alcohol. It is found to be a very efficacious remedy in India against intermittents, particularly when associated with Guilandina bonduc or Caranga nuts.—*Royle's Ill. Him. Bot., p.* 277; *Wall, Pl. As. Rar.*, iii, *pp.* 33 *to* 252; *Powell's Hand-book, Vol.* i, *p.* 362; *Indian Annals of Medical Science, No.* 6.

OPHELIA ELEGANS, *Roxb., W. Ic.*

Salaras: Silajitu, TEL.

Ophelia elegans grows plentifully in several parts of the Madras Presidency. Ophelia elegans is erect, ramous, above obsoletely 4-sided, leaves sessile, narrow, ovate lanceolate, tapering to a slender point, 3-nerved, lateral nerves close to the margin, branches ascending, slender, bearing at each joint lateral few flowered cymes, forming together a large many flowered leafy panicle, calyx lobes narrow, lanceolate, acute about two-thirds the length of the corolla: lobes of the corolla; obovate, cuspidate, fovæ bound with longish coarse hairs, flowers pale blue. Pulney Hills, flowering August and September. A very handsome species when in full flower, forming as it does a rich panicle of light blue flowers streaked with deeper coloured veins. It seems very distinct from all the other species (Wight.) This plant grows plentifully in the Jeypoor zemindary of Vizagapatam, and is largely exported as Selaras or Selajit, the amount being valued at about 2,500 rupees a year. It is preferred by the hukeems or native practitioners to the genuine Himalayan chiretta and is considered febrifuge. The samples of the drug seen as exported are about 16 inches long and 4 inches deep, and are always tied up with the tough bark and large leaves of Bauhinia vahlii (*W. & A.*) which abounds in the Northern Circars. Ophelia elegans is closely allied to, and greatly resembles chiretta—the native name is Salaras or Salajit: the stalks are sold bound together in bundles about one foot long, and a little thicker than a man's arm. The drug is exceedingly cheap, and the amount exported is considerable: to what extent it is employed, is difficult to ascertain, as it is confounded in the bazaar with chiretta. This species of Ophelia is common on the Pulney Hills in Southern India, also in Vizagapatam, and the plant has long been used as a bitter tonic. Equal quantities of the Exacum bicolor, Ophelia elegans and of the chiretta of the medical stores (which on examination was found to contain some stalks of the Ophelia elegans) having been infused, in the usual manner, (2 oz. to 1 pint,) four competent parties were requested to give their opinion on the respective qualities of the infusions. The result was the unanimous opinion that the cold infusions of Exacum bicolor, although a pure bitter, was much milder than that of Ophelia elegans, which possesses a powerful bitterness, remaining for several minutes in the mouth. Frequent trials confirm the belief that it exercises a tonic influence on the digestive organs, thereby improving the general health, while it appears also to have a febrifuge property. Ophelia alata and Ophelia chiretta seem to be used similarly; they grow in the Himalaya.—*Indian Annals of Medical Science, Nos. 5 & 6; Cleghorn in M. E. J. R.; Honorable W. Elliot in literis.*

OPHELIA PANICULATA, O. purpurascens and O. speciosa are all three known as Chiretta or Cherayta: they are found in the Sutlej valley between Rampur and Sungnam at an elevation of 7,000 to 9,000 feet. These annual plants supply the chief portion of the bitter root exported to the plains.—*Cleghorn's Punjab Report, p.* 68.

OPHIDIA, an order of reptiles without feet; as under:—

THE ORDER OF SNAKES—Ophidia.

First Sub-order—Innocuous Snakes.

I. Blind Snakes—Typhlopidæ.
II. Short-tails—Tortricidæ.
III. Xenopeltides—Xenopeltidæ.
IV. Rough-tails—Uropeltidæ.
V. Dwarf Snakes—Calamaridæ.
VI. Oligodontes—Oligodontidæ.
VII. Colubrides—Colubridæ.
VIII. Fresh water Snakes—Homalopsidæ.
IX. Desert Snakes—Psammophidæ.
X. Tree Snakes—Dendrophidæ
XI. Whip-Snakes—Dryiophidæ.
XII. Dipsades—Dipsadidæ.
XIII. Lycodontes—Lycodontidæ.
XIV. Blunt Heads—Amblycephalidæ.
XV. Rock Snakes—Pythonidæ.
XVI. Sand Snakes—Erycidæ.
XVII. Wart Snakes—Acrochorididæ.

Second Sub-order—Venomous Colubrine Snakes.

I. Terrestrial—Elapidæ.
II. Sea Snakes—Hydrophidæ.

Third Sub-order—Viperine Snakes.

I. Pit-vipers—Crotalidæ.
II. Vipers—Viperidæ.

First Sub-order.—Innocuous Snakes.

I. Blind Snakes—Typhlopidæ.

Typhlina lineata, *Boie*...	Penang, Hongkong.
Typhlops nigroalbus, *D. and B.* ...	Penang, Singapore.
„ horsfieldii, *Gray*...	Khasya, Assam, Tenasserim, Cochin-China.
„ bothriorhynchus, *Gthr.* ...	Penang.
„ striolatus, *Peters*..	Bengal.
„ siamensis, *Gthr.*...	Siam.
„ braminus, *Daud.*...	All over the Continent, Ceylon.
„ pammeces (tenuis) *Gthr.* ...	Madras.
„ mirus, *Jan.* ...	Ceylon.
Onychocephalus acutus, *D. & B.* ...	Peninsula of India.

II. Short-tails—Tortricidæ.

Cylindrophis rufus, *Laur.*	Gamboja, Singapore, Tranquebar.
„ maculatus, *L.* ...	Ceylon.

III. Xenopeltides—Xenopeltidæ.

Xenopeltis unicolor, *Reinw.* ...	Malayan Peninsula, Gamboja.

IV. Rough-tails—Uropeltidæ.

Rhinophis oxyrhynchus, *Schneid.*...	Ceylon.
„ punctatus, *Müll*...	Ceylon.
„ philippinus, *Cuv*...	Ceylon.
„ trevelyanus, *Kelaart* ..	Ceylon.
„ sanguineus, *Beddome*...	Wynaad.
„ blythii, *Kelaart*...	Ceylon.
„ pulneyensis, *Bedd.*	Pulney Hills.
Uropeltis grandis, *Kel.*	Ceylon.
Silybura macrolepis, *Pets.*	Peninsula of India.
„ beddomii, *Gthr* ...	Peninsula of India.
„ ocellata, *Beddome.*	Neilgherries.
„ ellioti, *Gray* ...	Madras, Deccan.
„ bicatenata, *Gthr*...	Deccan.
„ shorttii, *Beddome.*	Shevaroy Hills.
„ brevis, *Gthr.* ...	Anamallay Hills, Neilgherries.
Plectrurus perrotetii, *D. and B.* ...	Madras, Neilgherries.
„ guntheri, *Beddome.*	Neilgherries.
Melanophidium wynandense, *Beddome*...	Wynaad.

V. Dwarf snakes—Calamaridæ.

Calamaria siamensis, *Gthr.*	Siam, Cochin-China.
„ quadrimaculata, *D. and B.* ...	Java.
„ albiventer, *Gray*...	Penang.
„ nigro-alba, *Gthr*...	Penang.
„ leucocephala, *D. & B*,	
„ catenata, *Blyth*...	Assam.
„ reticulata, *Blyth*...	Assam.
Macrocalamus lateralis, *Gthr*...	
Oxycalamus longiceps, *Cantor*...	Penang.
Geophis microcephalus, *Gthr*...	Madras.
„ (Platypteryx, perroteti,) *D. and B.*	Neilgherries.
Aspidura brachyorrhos, *Boie*...	Ceylon.
„ copii, *Gthr.* ...	
„ trachyprocta, *Cope.*	Ceylon.
Haplocercus ceylonensis, *Gthr*...	Ceylon.

VI. Oligodontes—Oligodontidæ.

Oligodon subgriseus, ...	Peninsula of India.
„ spilonotus, *Gthr*...	Madras.
„ ellioti, *Gthr.* ...	Madras.
„ subpunctatus, *D. & B.*	Coast of Malabar.
„ spinipunctatus, *Jan.*	
„ fasciatus, *Gthr.* ...	Deccan.
„ sublineatus, ...	Ceylon.
„ affinis, *Gthr.* ...	Anamallay Hills.
„ templetonii, *Gthr.*	Ceylon.
„ modestus, *Gthr*...	
„ dorsalis, *Gray*...	Affghanistan.
„ brevicauda, *Gthr*...	Anamallay Hills.
Simotes venustus, *Jerdon.*	Peninsula of India.
„ russellii, *Daud*...	Ceylon, Peninsula of India, Himalayas.
„ binotatus, *D. and B.*	Peninsula of India.
„ albiventer, *Gthr*...	Ceylon.
„ signatus, *Gthr*...	Singapore.
„ cinereus, *Gthr*...	Gamboja.

Simotes swinhonis, *Gthr.*	Amoy.
„ tæniatus, *Gthr*...	Gamboja, Bangkok.
„ trilineatus, *D. & B.*	
„ punctulatus, *Gray.*	Himalayas.
„ labuanensis, *Gthr.*	Borneo.
„ bicatenatus, *Gthr.*	
„ albocinctus, *Cantor.*	Assam.
„ fasciolatus, *Gthr*...	Pachebone.
„ cochinchinensis, *Gthr.* ...	Lao Mountains.
„ trinotatus, *D and B.*	Penang, China.

VII. Colubrides—Colubridæ.

Ablabes baliodirus, *Boie.*	Penang.
„ tenuiceps, *Blyth*...	Nepal, Darjeeling.
„ fuscus, *Blyth*....	Himalayas.
„ rappii, *Gthr*...	Himalayas.
„ bicolor, *Byth*...	Khassya.
„ olivaceus, *Beddome* ...	Neilgherries.
„ sagittarius, *Cantor.*	Penang, Bengal, Himalayas.
„ humberti, *Jan*...	Madras, Ceylon.
„ collaris, *Gray*...	Khassya, Nepal.
„ melanocephalus, *Gray* ...	Malacca.
Cyclophis major, *Gthr*...	China.
„ frænatus, *Gthr*...	Affghanistan.
„ calamaria, *Gthr*...	Ceylon, Pen. of India.
„ nasalis, *Gthr*...	
„ monticola, *Cantor.*	Assam.
Odontomus nympha, *Daud.* ...	Vellore.
„ semifasciatus, *Gthr.*	
„ gracilis, *Gthr.* ...	Madras Presidency.
Nymphophidium maculatum, *Gthr*...	
Elachistodon westermanni, *Reinh*...	
Coronella orientalis, *Gthr.*	
Coluber rufodorsatus, *Cantor* ...	China,
„ mandarinus, *Cantor* ...	Chusan.
„ porphyraceus, *Cantor* ...	Khassya, Assam.
Elaphis dione, *Pall*...	Northern China.
„ sauromates, *Pall*...	Ningpo.
„ tæniurus, *Cope*...	China, Siam.
Compsosoma radiatum, *Reinw.* ...	Eastern India.
„ melanurum, *Schleg*	Bengal, China.
„ reticulare, *Cantor.*	Himalayas, Assam.
„ hodsonii, *Gthr*...	Himalayas.
Cynophis helena, *Daud*..	Ceylon, Madras.
„ malabaricus, *Jerd.*	Peninsula of India.
Ptyas mucosus, *L.* ...	All the Indian Continent, Ceylon.
„ korros, *Reinw.* ...	Eastern India.
Xenelaphis hexahonotus, *Cantor* ...	Arakan, Penang, Singapore.
Zamenis diadema, *Schleg.*	Affghanistan, Sindh.
„ ventrimaculatus, *Gray* ...	Western India.
„ gracilis, *Gthr*...	Deccan, Sindh.
„ fasciolatus, *Shaw*...	Peninsula of India, Bengal, Province Wellesley.
Zaoys fuscus, *Gthr*...	Borneo.
„ carinatus, *Gthr*...	Borneo.
„ dhumnades, *Cantor.*	Chusan, Ningpo.
„ nigromarginatus, *Blyth* ...	Himalayas.
Herpetoreas sieboldii, *Gthr.* ...	Sikkim.
Tropidonotus quincunciatus, *Schleg*...	All over India.
„ annularis, *Hollowell.*	China.
„ trianguligerus, *Reinw.* ...	Penang.
„ macrophthalmus, *Gthr.* ...	Himalayas.
„ dorsalis, *Gthr* ...	Chikiang.
„ macrops, *Blyth*...	Darjeeling.
„ platyceps, *Blyth*...	Himalayas.
„ subminiatus, *Reinw.*	Eastern India.
„ himalayanus, *Gthr.*	Himalaya.
„ angusticeps, *Blyth.*	Assam, Arakan.
„ stolatus, *L.* ...	All the Indian Continent.
„ monticola, *Jerdon.*	Anamallay Hills.
„ junceus, *Cantor*...	Penang, Chikiang.
„ ceylonensis, *Gthr*...	Ceylon.
„ beddomii, *Gthr*...	Neilgherries.
„ nigrocinctus, *Blyth.*	Pegu ? Tenasserim.
„ flavipunctatus, *Hallow*...	Honkong.
„ zebrinus, *Blyth*..	Mergui.
„ tigrinus, *Boie*...	Northern China.
„ leucomelas, *Gthr*...	Penang.
„ plumbicolor, *Cantor*	Madras Presidency.
Atetium schistosum, *Daud.*	From Ceylon to the Malayan Peninsula.
Xenochrophis cerasogaster, *Cantor*...	Malayan Peninsula, Bengal, Assam, Khasya.
Prymnomiodon chalceus, *Cope*...	Siam.

VIII—Fresh-water Snakes—Homalopsidæ.

Fordonia unicolor, *Gray*..	Penang.
Cantoria elongata, *Gthr.*	Singapore.
Cerberus rhynchops, *Schn.*	From Ceylon to Siam.
Hypsirhina plumbea, *Boie.*	Eastern India.
„ enhydris, *Schneid*...	Bengal, Eastern India.
„ jagorii, *Peters*...	Siam.
„ bennettii, *Gray*...	China.
„ chinensis, *Gray*...	China.
Ferania sieboldii, *Schleg.*	Bengal, Province Wellesley.
Homalopsis buccata, *L*...	Malay Pen., Gamboja.
Hipistes hydrinus, *Cant.*	Penang.
Herpeton tentaculatum, *Lacep* ...	Siam.

IX. Desert Snakes—Psammophidæ.

Psammophis condanarus, *Merr.* ...	Peninsula of India.
Psammodynastes pulverulentus, *Boie* ...	Eastern India.

X. Tree Snakes—Dendrophidæ.

Gonyosoma oxycephalum, *Boie* ...	Penang, Tenasserim.
„ gramineum *Gthr* ...	Khassya.
„ frænatum, *Gray* ...	Khassya.
Phyllophis carinata, *Gthr.*	China.
Dendrophis picta, *Gm* ..	All over India.
„ caudolineata, *Gray.*	Penang, Singapore.
Crysopelea ornata, *Shaw.*	All over India.
„ rubescens, *Gray* ...	

XI. Whip-Snakes—Dryiophidæ.

Tropidococcyx perroteti, *D. & B* ...	North Canara.
Tragops prasinus, *Reinw.*	Eastern India.
„ dispar, *Gthr* ...	Anamallay Mountains.
„ fronticinctus, *Gthr*..	
Passerita mycterizans, *L.*	Ceylon, Pen. of India.
„ purpurascens, *Gthr.*	Ceylon.

XII. Dipsades—Dipsadidæ.

Dipsas cynodon, *Cuv* ...	Malayan Peninsula.
„ byforsteni *D. & B.*	Anamallay Mountains.
„ boops, *Gthr* ...	Bengal.
„ dendrophila, *Reinw.*	Malayan Peninsula.

Dipsas bubalina, *Klein* ...	Assam, China ?
„ multimaculata, *Schleg.*	Bengal, Eastern India.
„ trigonata, *Schneid.* .	Penin. of India, Bengal.
„ multifasciata, *Blyth.*	Subathoo.
„ gokool, *Gray* ...	Penang, Bengal.
„ ceylonensis, *Gthr*...	Ceylon.

XIII. Lycodontes—Lycodontidæ.

Lycodon aulicus, *L.* ..	Ceylon, Indian Continent.
„ laoensis, *Gthr* ...	Cochin-China.
„ striatus, *Shaw* ..	Peninsula of India.
„ anamallensis, *Gthr.*	Anamallay Mountains.
„ rufozonatus, *Cant*...	Chusan.
Tetragonosoma effrene, *Cant.*	Penang.
„ atropurpurem, *Cant.*	Mergui.
Leptorhytaon jara, *Shaw.*	Pen. of India, Bengal, Assam.
Ophites subcinctus, *Boie.*	Penang.
„ albofuscus, *D. & B.*...	Coast of Malabar.
Cercaspis carinata, *Kuhl.*	Ceylon.

XIV. Blunt heads—Amblycephalidæ.

Amblycephalus boa, *Kuhl.*	Penang.
Pareas carinata, *Reinw*...	Cochin-China.
„ monticola, *Cant.* ...	Asam.
„ lœvis, *Kuhl* ...	Cochin-China, Khassya.

XV. Rock-Snakes—Pythonidæ.

Python reticulatus, *Schneid.*	Malayan Peninsula.
„ molurus, *L.* ...	Peninsula of India, Bengal, Nepal.

XVI. Sand Snakes—Erycidæ.

Gongylophis conicus, *Schn.*	Pen. of India, Sikkim.
Cursoria elegans, *Gray.*	Affghanistan.
Eryx johnii, *Russell.* ...	Pen. of India, Punjab, Sikkim.

XVII. Wart Snakes.—Acrochordidæ.

Acrochordus javanicus, *Hornst.* ...	Penang, Singapore.
Chersydrus granulatus, *Schneid.* ...	Eastern coasts of South India, Malay Penin.

Second Sub-order.—Venomous Colubrine Snakes.

I. Terrestrial—Elapidæ.

Naja tripudians, *Merr*...	Over nearly entire India.
Ophiophagus elaps, *Schl.*	Over nearly entire India.
Bungarus cæruleus, *Schn.*	Peninsula of India, Bengal, Assam.
„ fasciatus, *Schneid..*	Continent of India.
„ ceylonicus, *Gthr*...	Ceylon.
„ semifasciatus, *Kül.*	China, Formosa.
Xenurelaps bungaroides, *Cantor*...	Assam.
Megærophis flaviceps, *Reinh.* ...	Penang.
Callophis bivirgatus, *Boie.*	Malayan Peninsula.
„ intestinalis, *Laur*...	Malayan Peninsula.
„ gracilis, *Gray*....	Penang and Singapore.
„ macclellandii, *Reinh.* .	Himlayas, Nepal, Assam.
„ annularis, *Gthr.*	
„ trimaculatus, *Daud.*	Tenasserim, Bengal.
„ maculiceps, *Gthr*...	Malayan Peninsula.
„ nigrescens, *Gthr*...	Neilgherries.

II. Sea Snakes—Hydrophidæ.

Platurus scutatus, *Laur.*	Indian Ocean, Pacific.
„ fischeri, *Jan*...	Indian Ocean.
Alipysurus anguilliformis, *Schmidt*...	Australia Seas.
„ lævis, *Lacep*...	Northern Australia.
„ fuscus, *Tschudi*...	Australia.
Disteria doliata, *Laceps..*	
Acalyptus superciliosus, *D. and B.* ...	South Western Pacific.
Hydrophis jerdonii, *Gray.*	Madras Penang.
„ stokesii, *Gray.* ...	Northern Australia.
„ major, *Shaw.* ...	Indian Ocean.
„ robusta, *Gthr.* ...	Indian Ocean.
Hydrophis belcheri, *Gray.*	New Guinea.
„ cærulescens, *Shaw*...	Indian Ocean.
„ aspera, *Gray.* ...	Singapore.
„ spiralis, *Shaw.* ...	Indian Ocean.
„ cyanocincta, *Daud.*	Bengal.
„ melanosoma, *Gthr*...	
„ subcincta, *Gray.* ...	Indian Ocean.
„ nigrocincta, *Daud*...	Bengal.
„ elegans, *Gray.* ...	Australia.
„ torquata, *Gthr.* ...	Penang.
„ chloris, *Daud.* ...	Madras, Bengal, Penang.
„ lindsayi, *Gray.* ...	China, Siam, Malabar.
„ atriceps, *Gthr.* ...	Siam.
„ latifasciata, *Gthr*...	Mergui.
„ coronata, *Gthr.* ..	Bengal.
„ diadema, *Gthr.* ...	
„ gracilis, *Shaw.* ...	Madras, Java.
„ fasciata, *Schneid.* ...	Vizagapatam.
„ cantoris, *Gthr.* ...	Penang.
„ lapemoides, *Gray*...	Ceylon, Madras.
„ longiceps, *Gthr.* ...	Indian Ocean.
„ stricticollis, *Gthr*...	„
„ ornata, *Gray.* ...	„
„ ellioti, *Gthr.* ...	Siam, Madras, Ceylon.
„ pachycercus, *Fisch..*	E. I. Archipelago.
„ viperina, *Schmidt*....	Madras, Java.
„ ocellata, *Gray.* ...	Australia.
„ anomala, *Schmidt*...	Samarang.
„ curta, *Shaw.* ...	Madras.
„ hardwickii, *Gray*...	Penang.
„ loreata, *Gray.* ...	Borneo, Philippines.
Enhydrina bengalensis, *Gray* ...	Indian Ocean.
Pelamis bicolor, *Schneid.*	Indian & Pacific Ocean.

Third Sub-order.—Viperine Snakes.

I. Pit-vipers—Crotalidæ.

Trimeresurus gramineus, *Shaw.*	Eastern parts of the continent.
„ erythrurus, *Cant*......	China, Beng, Siam, Java.
„ carinatus *Gray,* ...	Sikkim, Beng., Rangoon.
„ purpureus, *Gray..* ...	Penang, Singapore.
„ anamallensis, *Gthr*....	Anamallay Hills.
„ monticola, *Gthr* ..	Nepala, Sikkim.
„ wagleri, *Schleg.* ...	Malayan Peninsula.
„ strigatus, *Gray..* ...	Neilgherries, Deccan.
„ trigonocephalus, *Merr.*	Ceylon.
„ mucrosquamatus, *Cant.* ...	Assam.
Peltopelor macrolepis, *Beddome*	Anamallay Hills.
Calloselasma rhodostoma, *Reinw*	Siam.
Halys blomhoffii, *Boie* ...	Japan, Formosa.
„ pallasii, *Gthr.* ..	Tartary.
„ himalayanus, *Gthr.* ...	Tibet.
„ ellioti, *Jerd.* ...	Neilgherries.
Hypnale nepa, *Laur.* ...	Ceylon, Southern India.

II. Vipers—Viperidæ.

Daboia russellii, *Shaw.* ...	Ceylon, Southern India, Himalayas.
Echis carinata, *Schneid.* ...	Southern India.

OPHIDIIDÆ, a family of fishes which may be thus shown :

Fam. 4.—Ophidiidæ.

First Group.—Brotulina.

Gen. 4 Brotula, 2 Lucifuga, 2 Sirembo, 1 Xiphogadus, 2 Dinematichthys, 1 Bythites, 1 Pteridius, 1 Brotulophis.

Second Group.—Ophidiina.

Gen. 6 Ophidium, 3 Genypterus.

Third Group.—Fierasferina.

Gen. 9 Fierasfer, 1 Encheliophis.

Fourth Group.—Ammodytina.

Gen. 6 Ammodytes, 1 Bleekeria.

Fifth Group.—Congrogadina.

Gen. 2 Congrogadus, I Haliophis.

OPHIDION, a genus of fishes of the family Triglidæ which may be thus shown:

Fam. 10.—Triglidæ.

First Group.—Heterolepidina.

Gen. 8 Chirus, 2 Ophidion, 1 Agrammus, 1 Zaniolepis.

Second Group.—Scorpænina.

Gen. 25 Sebastes, 21 Scorpæna, 1 Glyptauchen, 8 Pterois, 1 Pteroipichthys, 1 Tænianotus, 4 Centropogon, 2 Apistus, 1 Enneapterygius, 1 Pentaroge, 10 Tetraroge, 7 Agriopus, 8 Prosopodasys, 9 Aploactis, 1 Trichopleura, 1 Hemitripterus, 1 Amphiprionichthys, 2 Synancidium, 2 Synanceia, 2 Micropus, 3 Minous, 6 Pelor, 1 Chorismodactylus.

Third Group.—Cottina.

Gen. 2 Podabrus, 2 Blepsias, 1 Nautichthys, 1 Scorpænichthys, 26 Cottus, 10 Centridermichthys, 1 Icelus, 1 Triglops, 2 Hemilepidotus, 2 Artedius, 1 Ptyonotus, 1 Polycaulus, 29 Platycephalus, 1 Hoplichthys, 2 Bembras, 8 Prionotus, 6 Lepidotrigal, 14 Trigla.

Fourth Group.—Cataphracti.

Gen. 10 Agonus, 2 Aspidophoroides, 6 Peristethus, 4 Dactylopterus, 1 Cephalacanthus.

OPHIEL, see Serpent.

OPHIOCEPHALIDÆ, a family of fishes comprising 25 *sp.* Ophiocephalus, and 1 *sp.* Chanua.

The amphibious snake-head fish, (Ophiocephalus amphibeus) occurs in the fresh waters of Burmah, but the natives regard them with superstitious awe and do not eat them. They have a legend that they were formerly men, changed into fish for their sins, and the Pwo Karen of Tavoy say that if people eat them they will be transformed into lions. Frogs do some mischief among the fry of Hylorana malabarica; Hylorana florescens; Rana cyanophlyctis (*Schn.*) an unnamed species of Polypedates, but they have themselves enough of enemies. In the water, the murrel (Ophiocephalus) feeds almost entirely upon them, generally lying close under the banks for this purpose, and on land mongooses, snakes, kites, crows, and paddy-birds assist in suppressing them, while water-snakes follow them in both elements. The most troublesome is the common brown one, Rana cyanophlyctis. The Ophiocephalus striatus occurs in the Peninsula of India, attains a length upwards of 3 feet. O. gachua, to one foot long, and Dr. Day believes that they breathe air direct from the atmosphere.

OPHIOCEPHALUS STRIATUS, *Bloch.*

Murrul,	Eng.	Karupu veraul,	Tam.

This, along with other species of murrul, is found on the Neilgherry hills. Fish travel; not eels alone, which in all countries can move rapidly over moist land. Theophrastus (De piscibus) the contemporary of Aristotle, mentions fishes found in the Euphrates, which, in the dry seasons, leave the vacant channels and crawl over the ground, in search of water, moving along by fins and tail. The Ophiocephalus amphibeus of Burmah travels over land. The Ophiocephalus striatus occurs in the Indian Peninsula, attains a length of upwards of 3 feet. G. gachua, to one foot long, and Dr. Day believes that they breathe air direct from the atmosphere. Hartwig mentions that in several fish the gills communicate with a cellular labyrinth containing water, which keeps the gills moist; by this means the hassar of Guiana, the frog-fish of Ceylon and the climbing perch of India are able to remain out of the water. The hassar throws itself forwards by the spring of its tail, and can move in that way nearly as fast as a man can leisurely walk. The pectoral fins of the frog-fish supported by the bones of its carpus perform the office of feet. The climbing perch moves itself up trees by means of its ventral fins *Hartwig.*

OPHIOGLOSSACEÆ, *Tindley*, a natural order of plants of little or no use. The name of the order is derived from two Greek words, ophis a snake, and glossa a tongue.

Ophioglossum reticulatum, *Linn.*, Bengal, Mauritius, Jamaica.
„ filiforum, *Roxb.*, Bengal, Peninsula of India.
„ pendulum, *Linn.*, Maurit., Khassya, Moluccas.
Helminthostachys flacinita, Bengal, Pen. of India, Moluccas.

They are of little or no use.

OPHIOPOGON JAPONICUS.

Meh-men-tung, Chin.

A liliaceous plant growing in Hankow, Yuhau-hien and Hang-chau-fu in the Cheh-kiang province. Its tubers, as seen in the market are shrivelled, pale, yellow, soft and flexible from one to one and a half inch long.—*Smith.*

OPHIORHIZA MUNGOS, *Linn.*

Kajo mar,	Jav.	Sarpakshi chettu,	Tel.
Mendi,	Singh.		

A native of Java, Ceylon, and Sumatra; all parts are intensely bitter; it has high reputation as a remedy for snake-bites. Roxburgh altogether discredits its supposed virtues. This plant is often confounded with the Ophioxylon serpentinum, of the family of Apocyneæ, (Chundra, Bengalee). The Singhalese use it in cases of snake-bites, the leaves and bark are made into decoction and given in doses of half an ounce. Dr. Wight, in Icones gives, Ophiorrhiza eriantha, grandiflora, harrisonii, roxburghiana. The Arabs appear to be ignorant of the virtues of the Ophiorrhiza, which is very common on their hills. But they value highly the Aristolochia sempervirens, which they consider not only as a remedy, but as a preservative too, against the bite of serpents.—*O'Shaughnessy*, *p.* 400; *Ains. Mat. Med.*, *p.* 89; *Niebuhr's Travels*, *Vol.* ii, *p.* 348; *Roxburgh's Fl. Ind.*, *Vol.* ii, *p* 530, *ed. Carey*; *Ainslie*, *Vol.* ii, *p.* 441.

OPHIOXYLON from ὄφις, a serpent, and ξύλον, wood, because it has a twisted root and stems, a genus of plants belonging to the natural order Apocynaceæ. It has a 5-cleft permanent calyx, a funnel-shaped corolla with a long tube, thickest in the middle, and a five-cleft oblique limb. The anthers are subsessile, inserted into the middle of the tube. The ovary is double, each lobe with one ovule, a filiform inclosed style and a capitate stigma. The drupes are baccate, black, about the size of a pea, twin, or solitary by abortion, each containing a 1–seeded wrinkled nut. Wight gives Ophioxylon belgaumense, ceylanicum, macrocarpum, neilgherrense, serpentinum.—*Eng. Cyc.*; *W. Ic.*

OPHIOXYLON DENSIFLORUM, *Thw.*

O. ceylanicum, *Wight, Ic. t.* 1291.
O. neilgherrense, *Wight, Ic. t.* 1292.
Tabernæmontana densiflora, *Wall., Edw. Bot., Reg. V*, 15 *t.* 1273; *A. Dc. I, c. p.* 373—*c. p.* 1836.

A native of the central province of Ceylon, up to an elevation of 6,000 feet.—*Thw. Enum. Pl. Zeyl., p.* 191.

OPHIOXYLON SERPENTINUM, *Linn., Wild., Roxb., W. Ic., Rheede.*

Chandra,	BENG.
Scarlet-flowered ophioxylon.	
Chota chand,	HIND.
Chandriki-ka-jhar,	„
Jovana amelpodi,	MALEAL.
Chivan amelpodi,	„
Soovaṇa-umel-podi,	MALEAL.
Chandraka,	SANS.
Aika-waireva,	SINGH.
Chivan melapodi,	TAM.
Patalagandhi,	TEL.
Patala garuda,	„

A plant of Ceylon and of British India. The Ophioxylon serpentinum, Ophiorhiza mungos, Aristolochia indica, and Mimosa octandra are popularly said to be the plants to which the mungoose resorts in its attacks with snakes. Serpentine snake-wood, is a native of the East Indies. In rich soil it becomes a climbing plant. The stems are woody, erect, climbing and twining, but in poor soil it is a small erect shrub. The leaves are in threes or fives; they are short-stalked, oblong, pointed, wavy, and smooth. The peduncles are long, smooth, round, sometimes nearly erect, sometimes drooping. The pedicles and calyxes are of a bright red colour, and the corollas white. The root of this plant is employed by the Telinga physicians as a remedy in many diseases. The root is used as a febrifuge, as an antidote to snake-poison, and to promote delivery in tedious cases. On the Malabar coast the root is supposed to have sovereign virtues in cases of snake-bites and scorpion stings: it is prescribed in decoction to the extent of a pint in the twenty-four hours and the powder is applied externally to the injured part. The root is said to be a bitter tonic and febrifuge and also purgative.—*Eng. Cyc.*; *qu. Lindley, p.* 532; *O'Shaughnessy, p.* 447; *Ains. Mat. Med., p.* 115; *Roxburgh's Fl. Ind., Vol.* i, *p.* 694; *Thw. En. Pl. Zeyl. p.* 191; *Powell's Hand-book, Vol.* i, *p.* 361. See Hort. Mal., Part VI, p. 82.

OPHIR. Gold is often mentioned as an article of commerce. In the Bible (I Kings, c. 9, v. 26) about 1,000 B.C., Solomon, king of all Israel, "made a navy of ships in Eziongeber, which is beside Eloth on the shore of the Red Sea, in the land of Edom." And these ships brought gold, silver and precious stones from Ophir and Tarshish in such quantities that king Solomon "exceeded all the kings of the earth for riches." Silver was so plentiful at his Court that it was "accounted nothing of." The king's drinking cups were made of pure gold, and his shields were covered with beaten gold. It has never, however, been settled where Ophir and Tarshish were situated, but we are distinctly told that the navy of Tarshish brought "gold and silver, ivory and apes and peacocks," and it has been surmised by some writers that Tarshish was either China, or some islands in the China seas. Ophir is supposed to have been some district or port in the Red Sea, on the east coast of Africa, the Malabar coast and the coast of Malacca. The "precious stones" which king Solomon procured from Ophir are specially referred to. Some Portuguese historians have supposed that it was Sofala, or some other place near the mouths of the Zambezi, on the east coast of Africa, whence the Tarshish fleet brought the rich merchandise which contributed so much to the splendour and magnificence of Solomon's kingdom. The Tarshish fleet is said to have arrived at Eziongeber only once every three years, from which we may fairly infer that the voyage was a considerable one, or the ships had to go with the S. W. monsoon and return with the N. E. winds, or that they made a trafficking voyage from one place to another until the cargo was sold and another shipped. Ships or boats coasting from the Red Sea to the mouths of the Zambezi would scarcely take three years for such a voyage. We are inclined to believe, therefore, that king Solomon's navigators crossed the open seas and traded with India and China. *Eziongeber*, on the shores of the Red Sea, (I Kings, ix and 26), is a little port at the head of the Elamitic, or eastern gulf of the Red Sea. This town more naturally belonged to the Midianites of Sinai, or rather to their friends the Egyptians. It was afterwards called Berenies by the Ptolemies; and its place is still pointed out by the Egyptian name of the valley in which it stood as Wady Tabe, the valley of the city, and is no doubt the town known seven centuries later under the name of the Golden Berenice, and not many miles from the modern Souakin, where gold was more common than in every other place of trade. Solomon's ships sent from Eziongeber, brought home chiefly gold from Ophir. From Ophir they also brought precious stones and ebony. There are however conflicting opinions amongst the learned as to the meaning of Ophir whether it was a country or it be the Arabic verb, Afr, to flow, to rush in, to pass on. If the latter etymology be the correct one, whatever place produced gold, would be styled Ophir by the Hebrews. There are, at present, in the Eastern Archipelago two places called Mt. Ophir—one of them a mountain in Sumatra, in the Palimbayang district, 9,770 feet above the sea, to which the name was given by the Portuguese, and they gave the same name to a mountain 40 miles N. of the town of Malacca, 4,000 feet high. In the vicinity of both of them gold has been obtained. Josephus expressly says that the Aurea chersonesus was the Ophir of Solomon's time. Malacca alone of the three Straits' Settlements has a name in history; it being not improbable, as is thought, that it is the eastern extremity of what was known as Ophir to the ancient Hebrews, or Sophir to the authors of the Septuagint version, whither the fleets of Hiram and Solomon voyaged on their trading expeditions. In various parts of the First Book of Kings are notices of the productions of Ophir. "And they came to Ophir, and fetched from thence gold, four hundred and twenty talents. 'And the navy also of Hiram, that brought gold from Ophir, brought in from Ophir great plenty of almug trees, and precious stones.' 'Once in three years came the navy of Tarshish, bringing gold and silver, ivory and apes, and peacocks.' The learned dispute as to the situation of Ophir; some contend that the eastern part of Africa now called Zanquebar and Mozambique, where there is a region called Fura producing gold, was the Ophir or the Tarshish of the East, Spain being that of the West. Others believe that the district of Oman in Eastern Arabia, where is a place called Al Ophir, is meant; and others say that India and Ceylon are to be understood. But although it is said, that the Queen of Sheba (the present country of the Habshi or Abyssinians and the southern parts of Arabia) came to see Solomon with great stores of gold, precious stones, and spices, it is nowhere said that these, at least the gold and precious stones, were the productions of Sheba. As Sheba lay contiguous to the gold regions of Africa and not far from India, it does not seem at all improbable that she obtained these precious articles by trade with those countries.

The Mount Ophir of Malacca is called Goonong Ladong. In Malay, Ophir is the generic term for any gold mine. Professor Max Muller believes Ophir to be India, and he proves it by a reference to the ancient names for the articles imported by Solomon, which are Sanscrit. Heeren thought the word Ophir had at first a very general signification, and was used even as early as the time of Moses to signify the distant countries with which the Jews were not acquainted except by hearsay. Gradually it came to mean those countries to the eastward with which the Phœnicians and others carried on trade, including Arabia, Persia, India and Ethiopia. The supposition that India in particular was meant is favoured by the fact that the ancient Egyptian word for this country was Zophir. Another supposition is that Ophir was merely a trading depôt of the Phœnicians somewhere on the Arabian coast, where they bartered their commodities for the gold which traders collected there. This is not in harmony with the fact that these voyages to Ophir in the time of Solomon took three years, or rather the ships came every third year with their valuable cargo. This expression might mean the whole of one year and a few months out of two other years. The nature and direction of the winds blowing in those quarters, would allow of a voyage from the head of the Red Sea to India, stopping at several places on the way, being accomplished by the rude vessels and cautious sailing of those days, in a period of from eighteen months to two years. Max Muller's philological argument only adds to the probability of the opinion that India is the Land of Ophir. Among the Biblical records, see I Kings, ch. ix, 28, x, 11 and 22; II Chronicles, ch. ix, 10 and 21. In Bochart's Geog. Sacr. (Phaleg) Lib. II, c. 27, he affirms that every circumstance required to constitute the Ophir of Hebrew scripture, may be found in the classical Taprobane, the modern Ceylon; "quia Taprobanæ insulæ, (quam Zeilan esse alibi probabo) omnia ad amussim quadrant quæ de Ophira legere est in libris Regum et Paralipomenon. Ibi enim aurum et ebur, gemmasque et margaritas magna copia nasci nemo est qui nesciat. Seatere etiam pavonibus, scribit steuckius in Arrianum. Et in Chersoneso proxima magni pretii cercopithecos memorat Ludovicus Vartamanus." In the second part of his sacred geography, or "Chanaan," (Lib. I, cap. 46) he collects diagrammatically, the proofs offered in support of his opinion by classical writers and modern geographers, travellers and others. In an interesting and valuable work on Ceylon, Sir Emerson Tennent has suggested that the port of Galle may be the Tarshish of the Bible, "which lay in the track between the Arabian Gulf and Ophir," and that Ophir itself is Malacca, or the Aurea. Chersonesus, because "Ophir in the language of the Malays is the generic name for any gold mine." But this view seems to General Cunningham to be quite untenable, as the names of all the articles brought back by Solomon's fleet are pure Sanscrit. Sir Emerson states that they are "identical with the Tamil names by which some of them are called in Ceylon to the present day." These names are sen-habin, or "teeth of elephants," kophim, or "apes," and tukum, or "parrots." But these are the pure Sanscrit words ibha, kapi, and suka, with the mere addition of the Hebrew plural termination. It is true that these Sanscrit names have been naturalized in the south of India, but they have not displaced the original Tamil appellations, which still remains the terms in common use, namely, yana for elephant, kurangu for monkey, and myle for peacock, or kilip-pullai for parrot. The writer of the article Ophir in Smith's 'Dictionary of the Bible' argues in favour of Arabia, by assuming that, "ivory, apes, and peacocks" were not imported from Ophir, but from Tarshish, and that gold and algum trees only were imported from Ophir. Sofir is the Coptic name of India at the present day; but the name must have belonged originally to that part of the Indian coast which was frequented by the merchants of the west. If the name of Sauvira was derived, as General Cunningham supposes, from the prevalence of the Ber-tree, it is probable that it was only another appellation for the province of Badari, or Eder, at the head of the Gulf of Cambay. In the Septuagint translation of the bible the Hebrew Ophir is always rendered by Sophir. This spelling was perhaps adopted in deference to the Egyptian or Coptic name of Sofir. The earliest mention of the name is in the book of Job, where the "gold of Ophir" is referred to as of the finest quality. At a later date the ships of Hiram, king of Tyre, "went with the servants of Solomon to Ophir, and took thence 450 talents of gold, and brought them to king Solomon." The gold of Ophir is next referred to by Isaiah, who says, "I will make a man more precious than gold, even a man than the golden wedge of Ophir." The word here translated 'wedge' means a 'tongue or ingot;' and General Cunningham infers that the wedge of gold of 50 shekels' weight that was concealed by Achan was most probably one of the ingots of Ophir. The district of Vadari, or Eder, which General Cunningham suggested as the most probable representative of Ophir, has been, and still is, one of the gold-producing countries of the world. Pliny, describes the people dwelling on the other side of mount Capitalia (or Aliu), as possessing "extensive mines of gold and silver." At the present day the Aravali range is the only part of India in which silver is found in any quantity, while the beds of its torrents still produce gold, of which many fine specimens may be seen in the Indian museum.—*Sharpe's History of Egypt, Vol.* i, *p.* 107; *Bikmore, p.* 403; *Ouseley's Travels, Vol.* i, *p.* 46; *Cunningham's Ancient Geography of India, pp.* 496 *to* 499, 561; *Tennent's Ceylon.* See Malacca.

OPHIURIDÆ, a family of fishes of the Asiatic seas, comprising seven species of Ophiurus, and one of Sphagebranchus.

OPHTHALMIC BERBERRY, Berberis lycium, *Royle.*

OPIAI of Hekæteus, their royal town has not been identified, probably Kabul.

OPIAN, called Hupian by Baber, is supposed by General Cunningham to be Alexandria apud Caucasum. The position of the city founded by Alexander at the foot of the Indian Caucasus has long engaged the attention of scholars. According to Pliny, the city of Alexandria, in Opianum, was situated at 50 Roman miles, or 45·96 English miles, from Ortospona, and at 237 Roman miles, or 217·8 English miles from Peucolaitis, or Pukkalaoti, which was a few miles to the north of Peshawur. Ortospana has been identified by General Cunningham with the ancient city of Kabul and its citadel, the Bala Hisar. Pliny further describes Alexandria as being situated sub ipso Caucaso, at the very foot of Caucasus, "which agrees exactly with the position of Opian, at the northern end of the plain of Koh-i-daman, or "hill-foot." The place was chosen by Alexander on account of its favourable site at the triodon, or parting of the "three roads" leading to Bactria. These roads, which still remain unchanged, all separate at Opian, near Begram. The north-east road, by the Panjshir valley, and over the Khawak Pass to Anderab. The west road, by the Kushan valley, and over the Hindu Kush Pass to Ghori. The south-west road, up the Ghorband valley, and over the Hajiyak Pass to Bamian.

The first of these roads was followed by Alexander on his march into Bactriana from the territory of the Paropamisadæ. It was also taken by Timur on his invasion of India; and it was crossed by Lieutenant Wood on his return from the sources of the Oxus. The second road must have been followed by Alexander on his return from Bactriana, as Strabo specially mentions that he took "over the same mountains another and shorter road" than that by which he had advanced. It is certain that his return could not have been by the Bamian route, as that is the longest route of all; besides which, it turns the Hindu Kush, and does not cross it, as Alexander is stated to have done. This route was attempted by Dr. Lord and Lieutenant Wood late in the year, but they were driven back by the snow. The third road is the easiest and most frequented. It was taken by Janghez Khan after his capture of Bamian; it was followed by Moorcroft and Burnes on their adventurous journeys to Balkh and Bokhara; it was traversed by Lord and Wood after their failure at the Kushan Pass; and it was surveyed by Sturt in A.D. 1840, after it had been successively crossed by a troop of horse artillery. As, however, it is noted that there was a mountain named Aruna at a distance of 5 miles to the south, it is almost certain that this city must have been on the famous site of Begram, from which the north end of the Siah-koh, or Black Mountain, called Chehel Dukhtaran, or the "Forty Daughters," lies almost due south at a distance of 5 or 6 miles. Begram also answers the description which Pliny gives of Cartana, as Tetragonis, or the "Square;" for Masson, in his account of the ruins, especially notices "some mound of great magnitude, and accurately describing a square of considerable dimensions. General Cunningham says that if he is right in identifying Begram with the Kiulu-sa-pang of the Chinese pilgrim, the true name of the place must have been Karsana, as written by Ptolemy, and not Cartana, as noted by Pliny. The same form of the name is also found on a rare coin of Eukratides, with the legend Karisiye nagara, or "city of Karisi," which he has identified with the Kalasi of the buddhist chronicles, as the birthplace of raja Milindu. In another passage of the same chronicle, Milindu is said to have been born at Alasandra or Alexandria, the capital of the Yona, or Greek country. Kalasi must therefore have been either Alexandria itself or some place close to it. The latter conclusion agrees exactly with the position of Begram, which is only a few miles to the east of Opian. The appellation of Begram means, he believes, nothing more than "the city" par excellence, as it is also applied to three other ancient sites in the immediate vicinity of great capitals, namely, Kabul, Jellalabad and Peshawur. Masson derives its appellation from the Turki, be or bi, "chief," and the Hindi, gram or city, that is, the capital. But a more simple derivation would be from the Sanscrit vi, implying "certainty," "ascertainment," as in vijapa, victory, which is only an emphatic form of jaya with the prefix in Vigrama, would therefore mean emphatically "the city," that is, the capital; and Bigram would be the Hindi form of the name, just as Bijaya is the spoken form of Vijaya. The plain of Begram is bounded by the Panjshir and the Koh-i-daman rivers on the north and south; by the Mahighir canal on the west; and on the east by the lands of Julgha, in the fork of the two rivers. Its length, from Bayan, on the Mahighir canal to Julgha, is about 8 miles; and its breadth, from Kilah Buland to Yuz Bashi is 4 miles.—*Cunningham's Ancient Geog. of India, pp.* 21-29, 237.

OPIFIR, see Krishna.

OPINI, Tam., Tel. Opium.

OPIO, Port., Sp. Opium.

OPIS, an ancient town on the Tigris, supposed to be marked by the ruins at Khafaji.

OPIS, see Kasra-i-shirin.

OPIUM, Dan., Dut., Eng., Fr., Ger., Lat., Rus., Sw.

Afim, Afyun,	Ar., Hind., Pers.
Hapium,	Bali.
Bein,	Burm.
O'-fu-yung; O'pi-en,	Chin.
Yang-yen ya-pi-en,	„
Fu-yung,	„
Valmuesaft,	Dan.
Mohnsaft,	Ger.
Opion; Aphionion,	Gr.
Ufim, Ufyun,	Guz.
Oppio,	It.
Apium,	Jav.
Afyun, Apyun,	Malay.
Ufyun, Caruppa,	Maleal
Shir-i-kush-kush,	Pers.
Opio,	Port., Sp.
Makovi sok,	Rus.
Chasa, Apaynum,	Sans.
Abim,	Singh.
Vallmo-saft,	Sw.
Apini,	Tam.
Abhini,	Tel.
Majun,	Turk.

Opium is the concrete inspissated juice of the white poppy, Papaver somniferum and its varieties, obtained by making incisions in the capsules and collecting the exuding juice. The plant has been long known, and is perhaps one of the earliest described. It is a native of Western Asia and probably also of the South of Europe, but it has been distributed over various countries. In British India, it is largely grown in Malwa, in the neighbourhood of Patna and Benares, in the Panjab, in Assam, in Berar, in Guzerat, and in Mysore. The bulk of it is exported to China, Sumatra, Java and Burmah, but the Rajput races and the Assamese use it largely. In Assam the whole population from the baby at the breast to the very few old men use opium, and in 1864–65 the population consumed £143,543 worth of that drug. Opium, it is said, was first introduced into Assam in 1794 from Bengal when the British Indian troops assisted the rajah against the Muttuck; since then it has spread over the whole country and deteriorated and enfeebled the population. The opium monopoly of the British Indian Government is deemed essentially necessary as a source of revenue, but in its present form is a protection of the most intense description. It is a public patronage of trade in a confessedly deleterious production. In Bengal, cultivators are permitted to cultivate the poppy, but the juice must be sold to Government at a certain fixed price. It is manufactured into opium in the Government factories at Patna and Benares and then sent to Calcutta and sold by auction to merchants who export it to China. There is no poppy cultivation in the Madras and Bombay presidencies, and the opium received at Bombay is brought, paid for under passes, from the native states of Malwa and Guzerat. In the Panjab, opium is not made a Government monopoly as it is in Bengal; the people are free to cultivate if they choose, only it ranks as a "zabti" crop and has certain higher charges made upon it; the sale of opium, poppy heads (quite a separate thing), bhang, ganja and charras, which are collectively termed "maskarat," is restricted, and these articles are subject to excise-duty. Opium used in the Panjab comes principally from Kulu, in the Himalaya, but is grown also in the plains, especially in the district of Shahapore. The poppy is, however, grown generally in the Panjab, and a decoction or infusion called 'post' is made by steeping the unripe poppy head in water. Shahapore opium sells at Lahore at 20*s.* per pound. In 1870–71, opium to the value of Rupees 44,400 was manufactured in the Nundidroog Division of Mysore and 80 candies of opium were exported. We do not know how many pounds a Mysore candy of opium contains, but two candies are in use in Bangalore, one of ℔s. 500 and the other of ℔s. 336–12–4, and it would seem to be the ℔s. 500 weight that forms the opium candy. In West Berar, the poppy is largely grown in the Maiker, or, as it is now designated the Buldanah district. When we saw it growing between Maiker, Jamphal and Bassim, we then examined the processes for making opium in which the people were busily occupied and exhibited an expertness betokening full experience, we have passed through and through and crossed the Berar in every posssble direction, and the impression left on our mind was that the culture of cotton, cereals and oil seeds would displace all other crops, but in 1870–71, 544 acres of land in the Buldanah district were under cultivation for opium. In the eleven months from April 1871 to February 1872, ℔s. 8,688, or tons 3, cwts. 17, ℔s. 64, were manufactured in the Bangalore and Kolar districts.

The gross revenues of British India in the eleven years 1861 to 1870, were on average about £46,000,000, of which opium produced nearly a seventh part as will be shown :

	Opium Revenue.	Gross Revenue.
30th April 1861	£ 6,676,759	£ 42,903,234
1862	6,359,269	43,829,472
1863	8,055,476	45,143,752
1864	6,831,999	44,613,032
1865	7,361,405	45,652,897
1866	8,518,264	48,935,220
31st March 1867	6,803,413	42,012,566
1868	8,923,568	48,429,644
1869	8,453,365	49,085,255
1870	7,953,098	50,706,604

A large quantity of opium is exported, and in the following years to the values of

1849	£ 5,772,526	1858	£ 9,106,635
1850	5,973,395	1859	10,827,642
1851	5,459,135	1860	9,054,394
1852	6,515,214	1861	10,184,713
1853	7,034,075	1862	10,553,912
1854	6,437,098	1863	12,494,128
1855	6,231,278	1864	10,756,093
1856	6,200,871	1865	9,911,804
1857	7,056,630		

The following table shows the quantities (as far as can be ascertained) and the value of Opium exported from all India to all parts of the world from 1850–51 to 1860–61.

Year.	Countries whither exported.														Total exported to all parts.		
	America.		Ceylon.		China.		Java and Sumatra.		Pegu and the Straits.		New South Wales.		Other Ports.		Quantity.		Value.
	Quan.	Value.	Quan.	Value.	Quan.	Value.	Quan	Value.	Quan.	Value.	Quan.	Value.	Quan.	Value.			
	Chests.	£	Chests.	£	Chests.	£	Chests.	£	Chests.	£	Chests.	£	Chests.	£	Chests.	Tons.	£
1850-51	....	......	....	......	48,030	5,074,078	100	9,206	3,972	375,850	....	......	....	......	52,102	3,489	5,459,134
1851-52	....	......	....	......	56,098	6,082,307	50	5,035	4,408	427,762	....	......	1	110	60,548	4,054	6,515,214
1852-53	....	......	....	......	56,412½	6,470,915	....	......	4,984	565,096	....	......	½	64	61,397	4,111	7,054,075
1853-54	....	......	....	......	60,954	5,802,469	...	......	8,112	633,865	5	481	3	283	68,174	4,565	6,437,098
1854-55	....	......	10	408	69,910	5,684,977	30	2,025	7,447	543,588	2	142	2	167	77,397	5,182	6,231,277
1855-56	15	982	6	667	63,427	5,592,532	....	......	7,108	601,357	41	4,847	5	486	70,606	4,728	6,200,871
1856-57	....	......	6	544	66,305	6,505,587	....	......	5,863	531,219	208	18,785	3	494	72,385	4,847	7,056,629
1857-58	....	......	....	......	68,003	8,241,031	....	......	6,895	859,009	67	6,534	1	60	74,966	5,020	9,106,629
1858-59	....	......	40	5,775	74,707	10,660,651	30	3,217	1,031	154,763	21	3,235	....	......	75,822	5,077	10,827,611
1859-60	10	1,715	....	......	54,863	8,366,335	5	820	3,675	664,230	114	18,955	14	2,338	58,681	3,929	9,054,393
1860-61	....	2	....	......	59,405	9,428,887	....	......	4,073	753,664	10	1,860	2	300	63,490	4,251	10,184,713

Though but little of the produce of British India is sent to Europe, in 1826 the imports of opium into the United Kingdom were 79,829 lbs., of which 28,329 lbs. were consumed in England. The imports and consumption in subsequent years are shown by the following figures:—

	Imports.	Consumed.		Imports.	Consumed.
1827..	lbs. 113,140..	lbs. 17,322	1845..	lbs. 259,644..	lbs. 38,229
1830..	,, 209,076..	,, 22,668	1848..	,, 200,019..	,, 61,055
1833..	,, 106,846..	,, 35,407	1849..	,, 105,724..	,, 44,177
1836..	,, 130,794..	,, 38,943	1850..	,, 126,318..	,, 42,324
1839..	,, 196,247..	,, 41,632	1851..	,, 118,024..	,, 50,682
1842..	,, 72,373..	,, 47,432	1852..	,, 205,780..	,, 62,521

According to Mr. E. Thornton's statistics, the production of opium in Bengal has increased cent. per cent. in the nine years 1840–41 to 1848–49:—

1840-41	Chests. 17,858	1845-46	Chests. 21,437
1841-42	,, 18,827	1846-47	,, 21,648
1842-43	,, 18,362	1847-48	,, 30,515
1843-44	,, 15,104	1848-49	,, 36,000
1844-45	,, 18,350		

The chest is about 140 lbs., so that the production in 1849 was 5,040,000 lbs. In India, the income from the opium monopoly is obtained by two principal means, namely, by a system of allowing the cultivation of the poppy by the natives of British India on account of Government, and by the impost of a heavy duty on opium grown and manufactured in foreign states, but brought in transit to a British port for exportation. The former system obtains in Bengal, the latter in Bombay. According to the statements published, Bengal opium yields a profit of 7*s.* 6*d*. per lb., whilst the duty derived in Bombay presidency is only equal to a surplus of 5*s.* 8*d.* per lb. By these means the total revenue realised by the opium monopoly, in Bengal and Bombay, in the year 1849–50 yielded £3,309,637.

The white variety of the poppy is that which is exclusively brought under cultivation for the production of the drug in India and Egypt, but in a poppy field flowers of all colours are to be seen. For the successful culture of opium a mild climate, plentiful irrigation, a rich soil, and diligent husbandry are indispensable. One acre of well cultivated ground will yield from 70 lbs. to 100 lbs. of "chick," or inspissated juice, the price of which varies from 6*s.* to 12*s.* a pound, so that an acre will yield from £20 to £60 worth of opium at one crop. Three pounds of chick will produce one pound of opium, from the third to a fifth of the weight being lost in evaporation. A chief chemical feature, which distinguishes Bengal opium from that of Turkey and Egypt, is the large proportion which the narcotine in the former bears to the morphia, and this proportion is constant in all seasons. It is a matter of importance to ascertain whether the treatment which the juice receives after its collection can influence in any way the amount of alkaloids, or of the other principles in opium. In Turkey it is the custom to beat up the juice with saliva, in Malwa it is immersed as collected in linseed oil, whilst in Bengal it is brought to the required consistence by mere exposure to the air in the shade, though, at the same time, all the watery particles of the juice that will separate are drained off, and used in making Lewah, or inferior opium. The lands selected for poppy cultivation are generally situated in the vicinity of villages where the facilities for manuring and irrigation are great. In such situations and when the soil is rich, it is frequently the practice with the cultivators to take a crop of Indian corn, maize, or vegetables off the ground during the rainy season, and after the removal of this in September, to dress and manure the ground for the subsequent poppy sowings. In other situations, however, and when the soil is not rich, the poppy crop is the only one taken off the ground during the year, and from the commencement of the rains in June or July, until October, the ground is dressed and cleaned by successive ploughings and weedings, and manured to the extent which the means of the cultivator will permit. In the final preparation of the land in October and November, the soil, after being well loosened and turned up by the plough, is crushed and broken down by the passage of a heavy log of wood over its surface, and it is in this state ready for sowing. The amount of produce from various lands differs considerably. Under very favourable circumstances of soil and season, as much as twelve or even thirteen seers (26 lbs.) of standard opium may be obtained from each biggah of 27,225 square feet. Under less favorable conditions the turn-out may not exceed three or four seers, but the usual amount of produce varies from six to eight seers per biggah. The chemical examination of different soils in connection with their opium-producing powers, presents a field for profitable and interesting inquiry; nor is the least important part of the investigation that which has reference to variations in the proportions of the alkaloids (especially the morphia and narcotine), which occur in opium produced in various localities. Atmospheric causes exert a certain influence in determining these variations is probable; they influence the amount of produce, and cause alterations in the physical appearance of the drug, these are facts well known to every cultivator; thus the effect of dew is to facilitate the flow of the juice from the wounded capsule, rendering it abundant in quantity, but causing it at the same time to be dark and liquid. An easterly wind (which in India is usually concomitant with a damp state of atmosphere), retards the flow of juice and renders it dark and liquid. A moderate westerly wind, with dew at night, form the atmospheric conditions most favourable for collection, both as regards the quantity and quality of the exudation. If, however, the westerly wind (which is an extremely dry wind) blow violently, the exudation from the capsules is sparing. Whilst the effect of meteorological phenomena in producing the above results are well marked, their action in altering the relative proportions of the chemical constituents of the juice of the poppy plant is more obscure, and it is highly probable that the chemical composition of the soil plays a most important part in this respect. Dr. O'Shaughnessy published the results of his analysis of specimens of opium from the different divisions of Behar agency, which are worthy of much attention. In the opium from eight divisions of the agency, he found the quantity of morphia to range from 1¾ grains to 3½ per cent., and the amount of the narcotine to vary from ¾ grain to 3½ grains per cent., the consistence of the various specimens being between 75 and 79 per cent. In the opium from the Hazareebaugh district (the consistence of the drug being 77), he found 4½ per cent. of morphia and 4 per cent. narcotine; whilst from a specimen of Patna garden opium he extracted no less than 10¾ per cent. of morphia, and 6 per cent. of narcotine, the consistence of the drug being 87. With respect to the last specimen, Dr. O'Shaughnessy mentions that the poppies which produced it were irrigated three times during the season, and that no manure was employed upon the soil. It is much to be regretted that these interesting results were not coupled with an analysis of the soils from which the specimens were produced, for to chemical variations in it must be attributed the widely different results recorded above. Opium as a medicine has been used from the earliest ages; but when it was first resorted to as a luxury, it is impossible to state. Such must have happened from the earliest ages, as it happens daily in the present: but as a national vice it was not known until the spread of mahomedanism, when, by the tenets of that reformer, wine and fermented liquors being prohibited, opium came in their stead along with the bang or hasheesh (made from hemp), coffee and tobacco. From the Arabs the inhabitants of the Eastern Archipelago most probably imbibed their predilection for opium, although their particular manner of using it has evidently been derived from the Chinese. China, where at present it is so extensively used, cannot be said to have indulged long in the vice. Previous to 1767 the number of chests imported did not exceed 200 yearly; now the average is 50,000 to 60,000. In 1773, the East India Company made their first venture in opium, and in 1796 it was declared a crime to smoke opium.

Opium has been known in China at least ever since the Mongol dynasty. During the Ming dynasty it came into more general use as an astringent and sedative medicine, in diarrhœa, dysentery, rheumatism, but generally in combination with other medicines. In A. D. 1736 opium was a recognized product of the prefecture of Yung-chang in the west of the province of Yunnan. Since the year 1859 the poppy has been grown to produce opium in the provinces of Honan and Shensi, and it was introduced into Se'chuen from India and Tibet in the middle of the 18th century. Fully one-half of the best arable land in Se'chuen is believed to be given up in spring to the bearing of an annual crop of poppy; probably seven-tenths of the dwellers in towns in Sech'uen, are habitual opium smokers, and more than one half of the country people have fallen victims to this seductive and injurious habit. Indian opium, Kung-kau or Kwang-t'u. is being replaced by the native drug, although the price of the former, and its name for better flavour are still kept up by the native preference for it. Sech'uen opium, called Chuen'tu, is produced to the extent of 6,000 piculs annually, and, in good years, can be produced at half the price of the Indian drug. The drug is made to imitate the Malwa and other forms of Indian opium, and yields 6·94 per cent. of morphia. It is liable to be adulterated with mud, sesamum and hemp seeds, and an extract from the fruit of Sophera japonica, but is positively less extensively tampered with than foreign opium in general. The best Sech-uen drug comes from Kai-chau and Pi-hien, and of the extract used for smoking, called Yen-kau and Shuh-yen, the Sech'uen opium yields more than the Indian product. Yunnan opium and that from Kwei-chau, are called Nan-t'u, and, by the Chinese are all derisively spoken of as dirt, or as Yoh-t'u, medicinal earth. This is a good quality of drug, but is perhaps not better than that from Kan-suh province. The opium from Kan-suh, Shensi and Shansi is called Si-t'u, and yields a good extract. A large quantity of opium, some of it of a very inferior kind is produced in Honan province and largely consumed on the spot. Hing-ching-hien, and places in Hwang-chau-fu, all in Hupeh, produce the drug: Manchuria, and in fact all parts of the Chinese empire, produce more or less of this crop, which is sown in the tenth month, and is secured by the third month of the next year. The drug used in smoking is prepared on a large scale by mixing the ashes of the opium-pipes with the raw opium, which facilitate the making of the watery infusion; this is filtered and then evaporated to the consistence of a thin extract which is combustible in the opium pipe held in the flame of a small lamp. Water dissolves from one-half to three-fourths of ordinary opium, but nothing is lost by the Chinese manipulator. The extract is usually made by the keepers of the opium saloons, who are heavily taxed and squeezed. Rich people and buddhist priests make their own extracts. The burning of this extract, in an incomplete manner as is carefully practised by the Chinese, yields a smoke, containing sundry incomprehensible empyreumatic compounds unknown to the chemist, but producing by absorption into the pulmonary vessels a soothing torpor. The person about to use the pipe lies down and lights the drug at the flame of a candle, the shrivelled skin of the emaciated confirmed opium smoker fills out with a soft warmth, the breathing becomes full, the pulse slow and full, and in a few minutes there is a seeming loss of consciousness. The moderate use of the opium pipe is not incompatible with the health of those who practise it. When smoked to such an extent as that its use becomes a positive necessity, there follows a loss of volitional, digestive and sexual power, or in other words, the gradual degradation of the man. The habit can be and is frequently broken off. The use of ammoniated valerian tincture, the employment of nux vomica and other tonics, the temporary smoking of the powdered root of the Aucklandia costus and above all the regular provision of wholesome food for both body and mind are among the plans which may be adopted, along with occasional disciplinary measures for the cure of the habit. Prepared opium is exported from China.

The number of persons in China given to the consumption of opium was estimated, in 1837, at three millions, and the average quantity smoked by each individual is about 17½ grains a day. The consumption of Indian opium (independent of Turkey opium) in China has gradually increased from 3,210 chests in 1817, to 9,969 chests in 1827, and about 40,000 chests in 1837, valued at 25,000,000 dollars. By the year 1850, it reached 50,000 to 60,000 chests. The Indian Government derived the following gross revenue from opium sent to China:—

1856-57	£ 5,011,525	1866-67	£ 6,701,928
1861-62	,, 6,282,088	1867-68	,, 8,923,536
1862-63	,, 7,938,608	1868-69	,, 8,453,265
1863-64	,, 6,685,464	1869-70	,, 7,953,800
1864-65	,, 7,232,275	1870-71	,, 6,922,281
1865-66	,, 8,435,745		

The opium shipped to China from India for following years was:—

1820	Bengal Opium,	3,591	Malwa Opium,	2,278
1830	Chests.	7,443	Chests.	12,856
1835	,,	14,851	,,	12,933
1840	,,	18,965	,,	18,321
1845	,,	21,457	,,	20,660
1846	,,	20,000	,,	19,063
1847	,,	21,650	,,	20,523
1848	,,	28,000	,,	17,490
1849	,,	36,000	,,	18,532

A return of the receipts and expenditure of the East India Company during the 10 years 1845-55, in respect of their opium monopoly, has been published. The average receipts were 2,30,43,550–15–8¼.

	Rs.	As.	P.
1845-46	1,98,82,577	8	7½
1846-47	2,09,61,421	7	8
1847-48	1,74,51,890	6	8¾
1848-49	2,46,27,136	12	5¼
1849-50	2,51,83,494	15	1¼
1850-51	2,23,72,576	7	1
1851-52	2,74,47,805	8	1¼
1852-53	2,73,89,125	8	9
1853-54	2,32,44,991	6	0½
1854-55	2,18,74,439	12	6

Opium is consumed in different ways. In Great Britain it is either used in a solid state, made into pills, or a tincture in the shape of laudanum. Insidiously it is given to children under a variety of quack forms, such as "Godfrey's cordial," &c. In India the pure opium is either dissolved in water and so used, or rolled into pills. It is there a common native practice to give it to children when very young, by mothers, who require to work and cannot at the same time nurse their offspring. In China it is either smoked or swallowed in the shape of Tye. In Bally it is first adulterated with China paper, and then rolled up with the fibres of a particular kind of plantain. It is then inserted into a hole made at the end of a small bamboo, and smoked. In Java and Sumatra it is often mixed with sugar and the ripe fruit of the plantain. In Turkey it is usually taken in pills, and those who do so, avoid drinking any water after swallowing them, as this is said to produce violent colics; but to make it more palatable, it is sometimes mixed with syrups or thickened juices; in this form, however, it is less intoxicating, and resembles mead. It is then taken with a spoon, or is dried in small cakes, with the words "Ma-sha-Allah," imprinted on them. When the dose of two or three drachms a day no longer produces the beatific intoxication, so eagerly sought by the opiophagi, they mix the opium with other drugs. It then acts as a stimulant. In addition to its being used in the shape of pills, it is frequently mixed with hellebore and hemp, and forms a mixture known by the name of majoon, whose properties are different from that of opium, and may account in a great measure for the want of similitude in the effect of the drug on the Turk and the Chinese. In Singapore and China the refuse of the chandu, the prepared extract of opium, is used by the lower classes. This extract, when consumed, leaves a refuse, consisting of charcoal, empyreumatic oil, some of the salts of opium, and a part of the chandu not consumed. One ounce of chandu gives nearly half an ounce of this refuse, called Tye, or Tinco. This is smoked and swallowed by the poorer classes, who only pay half the price of chandu for it.

When smoked it yields a further refuse called sam-shing, and this is even used by the still poorer, although it contains a very small quantity of the narcotic principle. Sam shing, however, is never smoked, as it cannot furnish any smoke, but is swallowed, and that not unfrequently mixed with arrack.

Chandoo is the extract of opium which is employed in opium-smoking. The opium, as received at Singapore from Calcutta, is in boxes containing forty balls, each of the size of a 32lb. cannon shot. These balls are enclosed in a husk of compressed poppy leaves, and contain a certain quantity of moist opium inside, but which, in this state, is unfit for consumption, for which it is prepared by four processes, in the following manner: About three or four o'clock in the morning, fires are lighted, and, as the first process, a ball is divided into two equal halves by one man, who scoops out, with his fingers, the soft part inside, and throws it into an earthen dish; frequently, during the operation, moistening and washing his hands in another vessel, the water of which is carefully preserved, into which, also is thrown the hardened poppy leaf-husks, when all the removable opium is obtained. In the second operation, the husks are boiled until all their adhering opium is dissolved, and then strained through a double filter of cloth and China paper. The strained fluids are then mixed with the opium that was scooped out in the first operation, and boiled down in a large iron pot to the consistence of treacle. The refuse is dried and sold to Chinese, who adulterate good opium with it, and the filter paper is used by the Chinese as an external application in affections of the lower bowels. In the third operation the dissolved treacle-like mass is seethed over a charcoal fire, strong and steady, but not fierce temperature, during which it is worked, spread out, and again and again worked up to expel the water but prevent it burning. When brought to the proper consistence, it is divided into half a dozen lots, each of which is spread like a plaster on a nearly flat iron pot, to the depth of from half to three-quarters of an inch, and then scored in all directions to allow the equal application of heat. One pot after another is then placed over the fire, turned rapidly round, then reversed, so as to expose the opium itself to the full heat of the red fire. This is repeated three times, the time and proper heat being judged by the workman from the aroma and colour. In this part of the process the greatest delicacy is demanded, for a little more or less fire would destroy the morning's work, or 300 or more dollars worth of opium. The head-workmen in Singapore are men who have learned their trade in China, and from their great experience are paid very high wages. The fourth operation consists in re-dissolving this fired opium in a large quantity of water, and boiling it in copper vessels till it be reduced to the consistence of the chandoo of the shops, the degree of tenacity being the index of its complete preparation, which is judged of by drawing it out by slips of bamboo. The quantity of chandoo obtained by the soft opium is about 75 per cent. But, from the gross opium, that is, including the opium and the bark, the proportion is not more than from 50 to 54 per cent. In this lengthened seething process, the chandoo or extract becomes less irritating and more soporific, the vegetable matter, the resin and oil, the extractive matter and a little opium being all thrown out in the refuse matter. By the seething process the oil and resin are almost entirely dissipated, so that the chandoo or extract, as compared with the crude opium, is less irritating and more soporific. The quantity of chandoo obtained from the soft opium is about 75 per cent.; but from the gross opium, that is, including the opium and the husk, the proportion is not more than from 50 to 54 per cent.

China, where, at present, opium is extensively used, cannot be said to have indulged long in the vice; all the early writers on that country are silent as to its use, except in medicine. "Opium is in truth a medicine, and properly it animates, purifies the breath, and dispels noxious vapours, its nature is very clearly explained in the work of Lina chin. He calls this herb the internal support." During the reign of the emperor Kien Lung, who reigned from 1733 to 1796, a tariff was regularly established, and the duty fixed at three taels for 100 catties and 2 taels, 4 mace and 5 candarines for fees. Previous to 1767 the number of chests imported did not exceed two hundred yearly. In 1773 the East India Company made their first venture in opium, and in 1796 it was declared a crime to smoke opium, since then, in spite of pains and penalties, edicts, and warnings, the consumption increased, until in 1837 it had reached the enormous extent of 40,000 chests, valued at twenty-five millions of Dollars. From this rapid increase within the last eighty years, it is but fair to conjecture that the use of the drug was, previous to that time, limited to medical purposes, and that, however long it may have been cultivated in the Chinese province of Yunnan, its use was far from universal. Even in that province the cultivation must have been limited, as Major Burney, in a letter dated Ava, 1831, says, "From the Arabs the inhabitants of the Eastern Archipelago most probably imbibed their first prediliction for opium, although their particular manner of using it has evidently been derived from the Chinese. Dampier states that the use of opium in his time was great and widely extended, and could not therefore have been recently acquired. He states that in 1688 he took in at Acheen from 300 to 400 pounds of opium to trade with at Malacca, where he disposed of it privately, as it was prohibited. From Malacca, he says, ships were accustomed to take it to the different Malay states and exchange it for pepper and other articles of produce. Mr. Bruce, Superintendent of Tea culture in Assam, in allusion to the opium-smoker says, the Assamese "will steal, sell his property, his children, the mother of his children, and finally even commit murder for it." Mr. Marsden says, "the use of opium amongst the people of Sumatra is a species of luxury that all ranks adopt, according to their ability, and which when once become habitual, it is almost impossible to shake off." Sir Stamford Raffles gives it as his opinion "that the use of opium is so much more dangerous because a person who is once addicted to it, can never leave it off."

Of the period when the poppy became an object of culture, for the manufacture of opium, we have not the least information. Whatever may be the antiquity of this drug, for medicinal uses, it may be asserted that its abuse is comparatively recent, or not more than a few centuries back. In none of the ancient heroic poems of Hindust'han is it ever alluded to; the guest is often mentioned in them as welcomed by the munwar piala, or 'cup of greeting,' but nowhere by the uml-pani, or 'infused opiate,' which has usurped the place of the phool-ra-arrac, or 'essence of flowers.' Before, however, the art of extracting the properties of the poppy, as at present, was practised, Rajpoots used the opiate in its crudest form, by simply bruising the capsules, which they steeped a certain time in water, afterwards drinking the infusion, to which they give the name of tejarro, and not unfrequently pos, 'the poppy.' This practice still prevails in the remote parts of Rajpootana, where either ignorance of the more refined process, prejudice, or indolence, operates to maintain old habits. The culture of opium was at first confined to the do-abeh, or tract between the Chumbul and Sepra, from their sources to their junction; but although tradition has preserved the fact of this being the original poppy-nursery of Central India, it has long ceased to be the only place of the poppy's growth, it having spread not only throughout Malwa, but into various parts of Rajpootana, especially Mewar and Harouti. But though all classes, Koombi and Jat, and Baniah and Brahman, try the culture, all yield the palm of superior skill to the Koombi, the original cultivator, who will extract one-fifth more from the plant than any of his competitors. It is a singular fact, that the cultivation of opium increased in the inverse ratio of general prosperity; and that as war, pestilence and famine, augmented their virulence, and depopulated Rajpootana, so did the culture of this baneful weed appear to thrive. The predatory system, which succeeded Mogul despotism, soon devastated this fair region, and gradually restricted agricultural pursuits to the richer harvests of barley, wheat and gram; till at length even these were confined to a bare sustenance for the families of the cultivator, who then found a substitute in the poppy. From the small extent of its culture, he was able to watch it, or to pay for its protection from pillage; this he could not do for his corn, which a troop of horse might save him the trouble of cutting. A kind of moral barometer might, indeed, be constructed to show that the maximum of oppression in Mewar, was the maximum of the culture of the poppy in Malwa. Emigration commenced in S. 1840 (A. D. 1784); it was at its height in S. 1856 (A. D. 1800), and went on gradually depopulating that country until S. 1874 (A. D. 1818). Its consumption, of course, kept pace with its production, it having found a vent in foreign markets. The districts to which the emigrants fled were those of Mundisore, Kachrode, Oneil and others, situated on the feeders of the Chumbul, in its course through lower Malwa. There they enjoyed comparative protection and kind treatment, under Appa Saheb and his father, who were long the farmers-general of these fertile lands. It could not be expected, however, that the new settlers should be allowed to participate in the lands irrigated by wells already excavated; but Appa advanced funds, and appointed them lands, all fertile though neglected, in which they excavated wells for themselves. They abandoned altogether wheat and barley, growing only mukhi or 'Indian corn,' for food, which requires no irrigation, and to which the poppy succeeds in rotation; to these and the sugar-cane, all their industry was directed. The process of cultivation in *Rajputana* was as follows: When the crops of Indian corn (mukhi) or of hemp (sunn) are gathered in, the stalks are rooted up and burned; the field is then flooded, and, when sufficiently saturated, ploughed up. It is then copiously manured with cowdung, which is deemed the best for the purpose; but even this has undergone a preparatory operation, or chemical decomposition, being kept in a hollow ground during the rainy season, and often agitated with long poles, to allow the heat to evaporate. In this state it is spread over the fields and ploughed in. Those who do not keep kine, and cannot afford to purchase manure, procure flocks of goats and sheep, and pay so much a night for having them penned in the fields. The land being ploughed and harrowed at least six or seven times, until the soil is almost pulverized, it is divided into beds, and slight embankments are formed to facilitate irrigation. The poppy seed is then thrown in, the fields are again inundated; and the seventh day following, this is repeated to saturation. On the seventh or ninth, but occasionally not until the eleventh day, the plant springs up; and on the twenty-fifth, when it has put forth a few leaves, and begins to look withered, they water it once more. As soon as this moisture dries, women and childern are turned into the fields to thin the plants, leaving them about eight inches asunder, and loosening the earth around them with iron spuds. The plant is at this stage about three inches high. A month later, it is watered moderately, and when dry, the earth is again turned up and loosened. The fifth water is given in about ten days more; two days after which, a flower appears here and there. This is the signal for another watering, called 'the flower-watering;' after which, in twenty-four or thirty-six hours, all the flowers burst their cells. When about half the petals have fallen, they irrigate the plants sufficiently to moisten the earth, and soon the rest of the flowers drop off, leaving the bare capsule, which rapidly increases in bulk. In a short period, when scarcely a flower remains, a whitish powder collects outside the capsule, which is the signal for immediate application of the lancet. The field is now divided into three parts, in one of which operations commence. The cutting-instrument consists of three prongs, delicate points, around which cotton thread is bound to prevent its making too deep an incision, and thus causing the liquid to flow into the interior of the capsule. The wound is made from the base upwards, and the milky juice which exudes coagulates outside. Each plant is thrice pierced, on three successive days, the operation commencing as soon as the sun begins to warm. In cold mornings, when it congeals rapidly, the coagulation is taken off with a scraper. The fourth morning, each plant is once more pierced, to ascertain that no juice remains. On each morning this extract is immersed in a vessel of linseed oil, to prevent it from drying up. The juice being all collected, there remains only the seed. The capsules are therefore broken off and carried to the barn, where they are spread out upon the ground; a little water is sprinkled over them, and being covered with a cloth, they remain till the morning, when the cattle tread out the seed, which is sent to the oilmen, and the refuse is burnt, lest the cattle should eat them, as even in this stage they are poisonous. Poppy oil is more used for the lamp than any other in Mewar. They calculate a maund (of forty seers, or about seventy-five pounds weight) of seed for every two seers of milk. The price of seed, in Colonel Tod's time, was twenty rupees per mani of one hundred and twelve (cutcha) maunds. One beega of Malwa land, of the measure Shahjehani (when the jureeb, or rod, is one hundred cubits long) will yield from five to fifteen seers of opium-juice, each seer being forty-five salimshahi rupees in weight, the medium is reckoned a good produce. The cultivator or farmer sells it, in the state described, to the speculator, at the price current of the day. The purchaser puts it into cotton bags of three folds, and carries it home. Having obtained the leaves of the poppy, he spreads them in a heap of two or three inches in depth and thereon deposits the opium, the balls of fifteen rupees' weight each, which are allowed to remain five months for the purpose of evaporation. If the milk has been thin, or treated with oil, seven parts in ten will remain; but if good and pure, eight. The beoparri (speculators) then sell it, either for home-consumption in Rajpootana, or for exportation. From the year S. 1840 (A.D. 1784) to S. 1857 (A.D. 1801), the market-price of the crude opium from the cultivator ran from sixteen to twenty-one salimshahi rupees per durri, a measure of five pucka seers, each seer being the weight of ninety salimshahi rupees. This was the price of the drug by the grower in the first stage, and a better criterion than that of the manufacturer in its prepared state. In the year S. 1857, it rose to twenty-five rupees; in S. 1860 to twenty-seven, gradually increasing till S. 1865 (A.D. 1809), when it attained its maximum of forty-two, or an advance of one hundred and seventy per cent. above the price of the year A.D. 1784; after which it gradually fell, until S. 1870 (A.D. 1804), when it was so low as twenty-nine. In S. 1873 it had again risen to thirty-three, and in S. 1784-5, when its transit to the ports of Sind and Guzerat was unmolested (whence it was exported to China and the Archipelago), it had reached thirty-eight and thirty-nine, where in (S. 1876 or A.D. 1820) it stood. In Kanthul (which includes Pertabgurh Deola), or the tracts upon the Myhie river, opium was, about A. D. 1820, cultivated to a great extent, and adulterated in an extraordinary manner. This being sold in China as Malwa opium, had greatly lessened the value of the drug in that market. The adulteration was managed as follows: a preparation of refined goor (molasses) and gum, in equal proportion, is added to half its quantity of opiate coagulum; the mass is then put into cauldrons, and after being well amalgamated by boiling, it is taken out, and when sufficiently dry is well beaten, and put into cotton bags, which are sewn up in green hides, and exported to Muska-mundi. The Gosaens of these parts were the chief contractors for this impure opium, which was reckoned peculiarly unwholesome. and was never consumed in Rajpootana. In selecting land for the poppy, care should be taken to avoid calcareous soils; the less lime there is in the soil the better for the poppy. In the Himalaya the opium is not grown on calcareous soils, but in soils which contain much iron, sand, and some clay—poor soils in fact—and if such soil is to be met with in the plains it would suit hill opium well; but iron seems to be an essential ingredient in opium soils. Perhaps the hills near the Rajmahal would afford such soil—any red soil, be it in the hills or plains, contains iron, and will do for poppy; but the higher above the sea, the better is the opium.

Preparation of Opium in British India.—Towards the end of March when the plant is nearly ripe the bleeding of the capsules takes place. This operation is performed in the evening, and consists of tracing four parallel lines with a sharp knife or shell, penetrating the epicarp and sarcocarp of the capsule; a milky juice immediately exudes and its flow is promoted by the deposition of dew during the night; each set of incisions yields on an average one grain of opium. This is removed the ensuing morning, and the incisions repeated so long as any milk flows. The whole of the opium collected daily and which is necessarily mingled with variable proportions of dew, is mixed together in earthen or wooden vessels. Should the quantity of dew have been excessive, a partial solution of the opium occurs, and an exudation of drops of a black, shining liquid (Pasewa) occurs on the surface of the opium. This pasewa contains many of the active principles of the drug, and should be mixed with it again, to secure the uniform power of the mass. The proportion of pasewa is often much increased by the fraudulent admixture of water by the growers, in hope of having their opium purchased by the gross weight. When brought to the factories, the opium is usually of the consistence of 64 to 68, that is, containing that proportion of solid matter per 100. It is then placed in large tanks of brickwork, or in wooden vats, with the upper surface exposed to the air. From these reservoirs, portions are daily removed and exposed on wooden trays three inches deep by four feet long and two broad: evaporation takes place under such circumstances with tolerable rapidity, and the opium eventually reaches the consistence of 70—the standard of the factory for the Chinese investment. The degree of inspissation is estimated on the purchase of the drug, as well as during its subsequent evaporation, by drying average portions of 100 grains each, on a metallic table heated to 208° by steam. A sufficient quantity of opium, average. quality is permitted to attain the consistence of 80°, and in that state is issued under the name of "Abkaree" to the licensed dealers of the bazaars. Lastly, the finest opium which can be procured is set apart for medical purposes, and allowed to lose by evaporation nearly the entire of its water. The Chinese investment opium is of a rich chesnut colour, translucent at the edges of thin masses, tears into portions with ragged margins; its structure is granular, its taste hot and bitter, its smell rich, peculiar, and agreeable; if a small portion be rubbed between the finger and thumb for a few seconds, it draws out into long colourless threads, and from the number, fineness, and tenacity of these threads the Chinese form their first estimate of the value of the drug. The abkaree, or Bengal bazaar opium is more solid than the Chinese investment drug, of a darker colour, and often of a heavy ascescent smell. For the Chinese investment the opium is made into cakes, each containing 4 lbs., and enveloped in a case made of the petals of the poppy, and agglutinated with a paste made of opium and water (Lewa). The abkaree opium is also vended in balls weighing 2 lbs. covered by strips of a coarse kind of silk cemented by a mucilage of gum. The medicinal opium is solid, brittle in the cold season, of a brown colour, and fine smell. The medicinal drug is packed with great care in 4 lb. and 2 lb. squares, covered with layers of talc, and further defended by a case of brown wax, ½ an inch in thickness. Besides the above, several kinds of opium are to be met with even in Indian commerce—that from Malwah demands most attention.

Malwah opium.—There are many varieties of this opium, some of which the Bengal Committee who investigated the drugs, had opportunities of examining through the means of Dr. Morehead of Bombay. The specimens were on the average, 1½ lb. in weight, hard, brittle, containing from five to ten per cent. of moisture, mixed with fragments of leaves and seeds, and impregnated with oil, apparently used in the collection; the colour was almost a rusty brown, the odour very powerful, and taste intensely bitter and lasting.

Preparation in Asia Minor.—Men, women, and children, a few days after the flower falls from the poppies, proceed to the fields, and with a shell scratch the capsules, wait twenty-four hours, and collect the tears, which amount to two or three grains in weight from each capsule. These being collected and mixed with the scrapings of the shells, worked up with saliva and surrounded by dried leaves, it is then sold, but, generally speaking, still more adulterated with cow's dung, sand, gravel, petals of flowers, &c.

Different kinds of opium are known in the markets of Europe and Asia. M. Berthemot, in a paper published in the "Journal de Pharmaçie," for September 1838, describes three principal kinds of opium known in Europe, viz.:

Alexandrian opium, is in small, very dry pieces, enveloped in fragments of leaves, of a very deep brown colour, clean and shining fracture, of faintly virose smell.

Constantinople opium is in two forms, usually in flattened morsels contained in large leaves, sometimes rather soft, occasionally dry and brittle, softening between the fingers, and translucent when pressed into thin layers. The smell is stronger than the Alexandrian opium, and is deemed a sufficient distinguishing sign between both.

Symrna opium, is either in flat pieces, or roundish balls; one kind is very dry, wrapped up in large leaves, of shining fracture, reddish brown colour internally, of bitter, acrid, and enduring taste. The second kind is rolled in seeds of the Rumex, is soft, and easily torn, of fawn colour internally, but darkens rapidly on exposure to the air, transparent when drawn out, and often mixed with the seeds which constitute its outer covering. The Smyrna opium is the most valuable of the varieties now described, containing the largest proportion of the narcotic alkali morphia, and in a state which permits this principle to be purified with greatest ease.

Smyrna opium, known in commerce as the Turkey or Levant, is the first in point of quality. It occurs in irregular, rounded, flattened masses, seldom exceeding two pounds in weight, and surrounded by leaves of a kind of sorrel; the quantity of morphia said to be derived from average specimens is eight per cent.

Constantinople opium, is of two kinds in the market, one in very voluminous irregular cakes, which are flattened like the Smyrna; this is a good quality. The other kind is in small, flattened, regular cakes, from two to two and a half inches in diameter, and covered with the leaves of the poppy; the quantity of morphia is very uncertain in this description of opium, sometimes mounting as high as 15 per cent. and sometimes descending so low as six, showing the great variety in the quality of the drug.

Egyptian opium, occurs in round flattened cakes, about three inches in diameter, and covered externally with the vestiges of some leaf. It is distinguished from the others by its reddish colour, resembling Socotrine Aloes. The quantity of morphia in this is inferior to the preceding. It has one quality which, when adulterated, ought to be known, that is, a musty smell. By keeping, it does not blacken like the other kinds.

English opium, is in flat cakes or balls enveloped in leaves. It resembles fine Egyptian opium more than any other kind. Its colour is that of hepatic aloes, and in the quantity of morphia it is inferior to the preceding, but in the strength of the mass it is said by one of its most extensive cultivators to be superior.

French and German opium, require no particular remarks. The French are cultivating the poppy in Algeria, from which they get opium giving a small percentage of morphia.

Trebizond or Persian opium, is sometimes met with of a very inferior quality in the form of cylindrical sticks, which by pressure have become angular.

Indian opium, of commerce, is of four kinds, Cutch, Malwa, Patna and Benares, but it is also made in Berar and in Mysore. Of these Cutch is but little known. It occurs in small cakes covered with leaves, and its colour is much inferior to Smyrna. Malwa opium is to be met with of two kinds. The inferior is in flattened cakes, without any external covering, dull, opaque, blackish brown externally, internally somewhat darker, and soft. Its colour is somewhat like the Smyrna, but less powerful, and with a slight smoky smell. Superior Malwa is in square cakes, about three inches in length and one inch thick. It has the appearance of a well prepared, shining, dry, pharmaceutical extract; its colour is blackish brown, its odour less powerful than Smyrna; it is not covered by petals as the following kinds are, but smeared with oil; it is then rubbed with pounded petals. Behar, Patna, and Benares opium is strictly in the hands of Government, and no adulteration can take place, without a most extensive system of fraud; but it will not be uninteresting to trace the progress of the opium from the hands of the natives, to the condition in which it is delivered to the public by the Government. 'From the commencement of the hot season to the middle of the rains the Government is ready to receive opium, which is brought by the natives every morning, in batches, varying in quantities from twenty seers to a maund. The examining officer into each jar thrusts his examining rod, which consists of a slit bamboo, and, by experience, he can so judge of the qualities of the specimens before him, which are sorted into lots of No. 1 to No, 4 quality. Opium of the first quality is of a fine chesnut colour, aromatic smell, and dense consistence. It is moderately ductile, and, when the mass is torn, breaks with a deeply notched fracture, with sharp needle-like fibres, translucent and ruby-red at the edges. It is readily broken down under water, and the solution at first filters of a sherry colour, which darkens as the process proceeds. One hundred grains of this yield an extract to cold distilled water of from

35 to 45, and at the temperature of 212 degs., leaves from 20 to 28 per cent., having a consisting of a 70 to 72, the consistence of the factory. The second quality is inferior to the first, and the third quality is possessed of the following properties, black paste, of a very heavy smell, drops from the examining rod, gives off from 40 to 50 per cent. of moisture, and contains a large quantity of "Pasewa;" while the fourth or last number embraces all the kinds which are too bad to be used in the composition of the balls, comprising specimens of all varieties of colour and consistence. This number is mixed with water, and only used as a paste to cement the covering of the balls. The three first qualities are emptied from their jars into large tanks, in which they are kept until the supply of the season has been obtained. The opium is then removed and exposed to the air on shallow wooden frames until it becomes of the consistency of from 69 to 70, when it is given to the cake-maker, who guesses to a drachm the exact weight, and envelops the opium in its covering of petals, cemented by a covering of quality number 4. The balls are then weighed and stored, to undergo a thorough ventilation and drying. Formerly the covering of the balls was composed of the leaves of tobacco; but the late Mr. Flemming introduced the practice of using the petals of the poppy, which was such an improvement that the Court of Directors presented him with 50,000 rupees. The balls, forty in number, are packed in a mango wood case, which consists of two stories with twenty pigeon holes in each, lined with lath and surrounded by the dried leaves of the poppy. Sometimes these balls are so soft as to burst their skins, and much of the liquid opium running out, is lost. In 1823 many of the chests of Patna lost five catties from this cause, and to this day we have the same thing continuing to occur. Patna chests are covered with bullock hides, Benares with gunnies. A very elaborate, useful paper, by Mr. Little, Surgeon, of Singapore, appeared in the 2nd vol. of the "Journal of the Indian Archipelago," furnishing a complete history of the drug, and the physical and mental effects resulting from its habitual use. There are also some able remarks in Dr. O'Shaughnessy's Bengal Dispensatory.

Malwa.—Dr. Impey, who resided in Malwa from 1843 to 1846, published, at Bombay, in 1848, a valuable treatise on the cultivation, preparation and adulteration of Malwa opium. It was some time before he obtained permission to publish the result of the experience he had acquired in Malwa, and as Government inspector of opium at Bombay. For the successful cultivation of opium, a mild climate, plentiful irrigation, a rich soil, and diligent husbandry, are indispensable. In reference to the first of these Malwa is placed most favorably. The country is in general from 1,300 to 2,000 feet above the level of the sea: the mean temperature is moderate, and range of the thermometer small. Opium is always cultivated in ground near a tank or running stream, so as to be insured at all times of an abundant supply of water. The rich black loam, supposed to be produced by the decomposition of trap, and known by the name of cotton soil, is that prepared for opium. Though fertile and rich enough to produce thirty successive crops of wheat without fallowing, it is not sufficiently rich for the growth of the poppy until largely supplied with manure. There is, in fact, no crop known to the agriculturist, unless sugar-cane, that requires so much care and labor as the poppy. The ground is first four times ploughed on four successive days, then carefully harrowed; when manure, at the rate of from eight to ten cart-loads an acre, is applied to it; this is scarcely half what is allowed a turnip crop in Britain. The crop is after this watered once every eight or ten days, the total number of waterings never exceeding nine in all. One begah takes two days to soak thoroughly in the cold weather, and four as the hot season approaches. Water applied after the petals drop from the flower, causes the whole to wither and decay. When the plants are six inches high, they are weeded and thinned, leaving about a foot and a half betwixt each plant; in three months they reach maturity, and are then about four feet in height if well cultivated. The full-grown seed-pod measures three and a half inches vertically, and two and a half in horizontal diameter.

Early in February and March the bleeding process commences. Three small lancet-shaped pieces of iron are bound together with cotton, about one-twelfth of an inch of the blade alone protruding, so that no discretion as to the depth of the wound to be inflicted shall be left to the operator; and this is drawn sharply up from the top of the stalk at the base, to the summit of the pod. The sets of the people are so arranged that each plant is bled all over once every three or four days, the bleedings being three or four times repeated on each plant. This operation always begins to be performed about three or four o'clock in the afternoon, the hottest part of the day. The juice appears almost immediately on the wound being inflicted, in the shape of a thick gummy milk, which is thickly covered with a brownish pellicle. The exudation is greatest over night, when the incisions are washed and kept open by the dew. The opium thus derived is scraped off next morning, with a blunt iron tool resembling a cleaver in miniature. Here the work of adulteration begins—the scraper being passed heavily over the seed-pod, so as to carry with it a considerable portion of the beard, or pubescence, which contaminates the drug and increases its apparent quantity. The work of scraping begins at dawn, and must be continued till ten o'clock, during this time a workman will collect seven or eight ounces of what is called "chick." The drug is next thrown into an earthen vessel, and covered over or drowned in linseed oil, at the rate of two parts of oil to one of chick, so as to prevent evaporation. This is the second process of adulteration—the ryot desiring to sell the drug as much drenched with oil as possible, the retailers at the same time refusing to purchase that which is thinner than half-dried glue. One acre of well-cultivated ground will yield from 70 to 100 pounds of chick. The price of chick varies from three to six rupees a pound, so that an acre will yield from 200 to 600 rupees worth of opium at one crop. Three pounds of chick will produce about two pounds of opium, from the third to a fifth of the weight being lost in evaporation. It now passes into the hands of the Bunniah, who prepares it and brings it to market. From twenty-five to fifty pounds having been collected, is tied up in parcels in double bags of sheeting cloth, which are suspended from the ceilings so as to avoid air and light, while the spare linseed oil is allowed to drop through. This operation is completed in a week or ten days, but the bags are allowed to remain for a month or six weeks, during which period the last of the oil that can be separated comes away; the rest probably absorbs oxygen and becomes thicker, as in paint. This process occupies from April to June or July, when the rain begins. The bags are next taken down and their contents carefully emptied into large vats from ten to fifteen feet in diameter, and six or eight inches thick. Here it is mixed together and worked up with the hands five or six hours, until it has acquired an uniform colour and consistence throughout, become tough and capable of being formed into masses. This process is peculiar to Malwa. It is now made up into balls of from eight to ten ounces each, these being thrown, as formed, into a basket full of the chaff of the seed-pods. It is next spread out on ground previously covered with leaves and stalks of the poppy; here it remains for a week or so, when it is turned over and left further to consolidate, until hard enough to bear packing. It is ready for weighing in October or November, and is then sent to market. It is next packed in chests of 150 cakes, the total cost of the drug at the place of production being about fourteen rupees per chest, including all expenses. About 20,000 chests are annually sent from Malwa, at a prime cost charge of two lakhs and eighty thousand rupees. It may easily be supposed that manipulations so numerous, complex, and tedious, as those described, give the most ample opportunities for the adulteration to which the nature of the drug tempts the fraudulent dealer.

In order to enable the cultivator to carry on his agricultural operations, he receives from time to time certain advances, the amount of which reaches in the aggregate to about one-half of the value of the estimated out-turn of produce. If the land has been under cultivation in previous seasons, its average produce is known; if it be new land, and considered by the Sub-Deputy Agent as eligible, then the cultivator, in addition to the usual advances, receives an advance of so much per biggah to enable him to bestow a certain amount of extra care in tilling and dressing the soil. The first advance is made on the completion of the agreement or bundobust, and this takes place in September and October. The second advance is made on the completion of the sowings in November, and the final or Chook payment is made immediately after the delivery and weighing of the produce. Nothing therefore can be fairer to the cultivator than this system of advances: he is subject to no sort of exaction, in the shape of interest or commission on the money which he receives, and it puts within his power the certain means of making a fair profit by the exercise of common care and honesty. It is an established rule in the agency that the cultivator's accounts of one season shall be definitively settled before the commencement of the next, and that no outstanding balances shall remain over. When a cultivator has from fraud neglected to bring produce to cover his advances, the balances due by him are at once recovered, if necessary by legal means; whereas, if he can satisfactorily show that he has become a defaulter from calamity and uncontrollable circumstances, and that the liquidation of his debt is placed entirely beyond his power, his case is then made the subject of report to the Government by the Agent, with the request that the debt may be written off to profit and loss. These provisions are most wise, for outstanding balances may be made the means of oppression, and to their operation may be traced a considerable amount of litigation and agrarian crime in the indigo districts of lower Bengal. It is clear that when such balances become so large that the cultivator cannot discharge them, he is no longer a fr agent, but is perfectly subservient to the w of his creditor, for whom he must cultiva whether he desire it or not. Such burdens m even be handed down from father to son. T fairness of the agency system, and the justi with which the cultivators are treated are best evidenced by the readiness with which they come forward to cultivate, and also by the comparative rarity of agrarian crime, arising out of matters connected with the poppy cultivation.

Egypt.—Opium is grown to some extent in Egypt, 39,875 lbs. were produced even in 1831, and sold at two dollars a pound. At the end of October, after the withdrawal of the Nile waters the seed, mixed with a portion of pulverised earth, is sown in a strong soil, in furrows; after fifteen days the plant springs up and in two months has the thickness of a Turkish pipe, and a height of four feet; the stalk is covered with long, oval leaves, and the fruit, which is greenish, resembles small orange. Every morning before sunrise, in its progress to maturity, small incisions are made in the sides of the fruit, from which a white liquor distils almost immediately which is collected in a vessel; it soon becomes black and thickish, and is rolled into balls, which are covered with the washed leaves of the plant; in this state it is sold. The seeds are crushed for lamp oil, and the plant is used for fuel.

Dr. Royle tells us that opium seems to have been known from early times. Hippocrates is supposed to have employed it, and Diagoras condemned its use in affections of the eyes and in ear-ache. Dioscorides describes it: but it does not appear to have been much employed until the time of the Arabs, except in the form of the confections called Mithridatica, Theriaca, and Philonium. The Arabic name afioon, the Hindu afim, and the name afooyung, by which it is known in China, must all have proceeded from the original Greek name, which is itself derived from opos, juice. The Sanscrit apoynum seems to have a similar origin. Opium is obtained by a very simple process, consisting merely in making incisions in the evening into the capsules of the poppy, shortly after the petals fall off, taking care not to penetrate into the interior, when a milky juice exudes, and either concretes upon the capsule, whence it may be taken off in little tear-like masses, or earlier in the morning in a softer state. Upon this will depend whether the grains run together, or remain separate even when pressed. When thus collected, they require nothing more than being dried in a warm and airy room, when the opium becomes of a brown colour, with a shining fracture, and has a strong and peculiar odour. Some opium which Dr. Royle prepared in this manner in the Saharunpoor Botanic Garden in 1828-29, was pronounced by the Medical Board of Bengal to be like Turkey opium. Most of the opium made in the Himalaya mountains is similarly prepared, and is of very fine quality. Belon and Oliver describe the opium of Asia Minor as formed by the assemblage of the small tears collected off the capsules. Dioscorides, however, describes the process as consisting in making incisions into the capsules when the dew has evaporated, collecting the juice in a shell, mixing the several portions, and rubbing them up in a mortar. Kæmpfer gives this as the Persian process, and M. Texier describes it as being adopted in Asia Minor; and it is certainly practised with the immense quantities collected in India in the provinces of Behar and Benares and of which an excellent description has been given by Dr. Butter in the Journal of the Asiatic Society, v, p. 136. When this method is adopted, the mass will appear homogeneous; when it is omitted, it will appear to be composed of agglutinated tears. Both appearances may be observed in the opium of commerce. Dr. Butter describes the quantity of opium from each capsule as varying according to soil, irrigation, and to the quantity of dew which falls, but averaging about 1 gr. from each quadruple incision. The tears are of a reddish white colour externally but semi-fluid in the interior, and of a reddish-white colour. The juice is apt to be mixed with dew, and fraudulently with a little water, and will separate into a fluid portion (passewa) and into one which is more consistent, the former containing much the largest portion of the bimeconate of morphia. The whole of the day's collection is rubbed together in a mortar, so as to break down the grains, and reduce the whole to a homogeneous semi-fluid mass, which should be dried as quickly as possible in the shade, when it is called pucka or matured, being called raw in its former state. All samples of opium brought for sale are submitted to a steam drying process, by which the quantity of fluid in each is easily ascertained. The opium for the China investment contains about 30 per cent. of moisture: that for medical use in India is made quite dry.

The Opium of European commerce have been described under the following heads by Professor Guilbourt.

That collected in *Asia Minor*, chiefly in Anatolia, is generally all included under the head of Turkey opium, and most of it is exported from Smyrna; some of it, however, is taken to Constantinople, whence it is re-exported to other parts of Europe. Some Egyptian is imported into Britain. The Persian is only known. The Indian kinds are exported to China.

Smyrna opium, called also Levant opium, is generally in flattened masses, and in consequence of its original softness, without any definite regular form; weighing from a half to two pounds and covered with the capsules of a species of Rumex. It is at first soft, of a distinct brown colour, becoming blackish and hard when dried, losing weight from evaporation of water, having the strong and peculiar odour of opium. "When examined with a magnifier, it is seen to be composed of yellowish agglutinated tears." This is the purest kind of opium, yielding about 8 per cent. of morphia and 4 per cent. of narcotine, and on an average, about 12 per cent. of Hydrochlorate of morphia. An inferior kind is, however, also imported from Smyrna, which is more apt to be adulterated, is harder, of a darker colour, appears homogeneous, and may be seen covered either with Rumex capsules, or with the leaves of the poppy. The Smyrna opium is produced at several places, at from 10 to 30 days' distance in the interior; but that grown at Caisar, about 60 miles from Smyrna, is the most esteemed for its cleanness and good quality. Mr. Hamilton states that much is produced at Bogaditza: it is made into lumps about four or five inches in diameter, round which leaves are wrapped.

Constantinople opium, M. Guibourt conceives, may be collected in the northern parts of Anatolia. One kind is in small lenticular pieces about two inches in diameter, weighing from four to eight ounces, and always covered with a poppy leaf, of the midrib of which the mark may be seen on the middle of the pieces of opium. Another variety is in large irregular cakes. Both are more mucilaginous than the Smyrna kind, and, though of good quality, the Constantinople is less uniform in the quantity of morphia it contains, some yielding less, and others as much as, the best kinds of opium.

Egyptian opium is in flattened roundish cakes about three inches in diameter and covered with the remains of some leaf which M. Guibourt was unable to distinguish. It looks well externally, is homogeneous, has something of a reddish hue, not blackening by keeping, but softening on exposure to the air, and has somewhat of a musty smell. It is generally inferior, and M. Guibourt obtained only ¼ of the morphia yielded by Smyrna opium.

Persian opium, Dr. Pereira calls Trebizond opium, from his specimens having been obtained from thence. The specimens in the King's College Museum were sent by Mr. Morson, to whom M. Guibourt was also indebted. This kind is of a black colour, apparently homogeneous in texture, and in sticks some inches in length, each wrapped up in a separate piece of paper, and tied with a piece of cotton. Opium has been collected in Algiers. A new variety imported from Turkey has been described by Mr. Morson (P. J., iv, 503). It resembled the Constantinople, but was soft and light coloured; contained much wax, caoutchouc, and about 6½ per cent. of morphia. Some opium is occasionally met with of European manufacture; and it might easily be produced in England if the summer was more regular. In the south of Europe the summer is probably too hot and dry. Some good English opium has been produced, but it is irregular in strength. The quantity of morphia said to have been obtained from some specimens of French and of German opium is enormous,—being from 16 to 20 per cent.

Indian opium, is largely used in India and is exported to China. In India it can only be cultivated in the cold weather. The Saharunpoor garden opium, sent to Britain in 1844, was of a brown colour, shining fracture, with the strong and peculiar smell of opium, and yielded 8 per cent. of morphia. Some specimens of this opium, prepared when Dr. Royle was superintendent of the Saharunpore Botanic Garden, sent to the Medical Board of Bengal in 1829, were considered equal, if not superior to the finest Turkey opium that comes into the market in England.

Himalayan opium possesses similar sensible properties and though liable to be adulterated, is, when pure, of very fine quality.

Malwa opium, is in flat circular cakes, average weight 1½ lb., of a rusty brown colour, strong odour, and bitter permanent taste, varying much in quality. Some Malwa opium lately analysed yielded only 2 per cent. of morphia, was oily and mucilaginous and appeared to have been obtained by expression of the capsules. Dr. Smyttan, late opium Inspector at Bombay, obtained from three to five per cent. of morphia from some varieties, and from 7¼ to 8 per cent. from finer kinds. Some Kandeish opium yielded to Mr. E. Solly 72 per cent. of soluble matter, and about 7 per cent. of morphia.

Bengal opium, which is chiefly produced in the provinces of Behar and Benares, with some in that of Cawnpore, is of different qualities: that intended for medicinal use in the hospitals in India is of very fine quality, of a brown colour, and fine smell, packed with great care in 4lb. and 2lb. squares covered with layers of talc, and further defended by a case of brown wax half an inch in thickness. This Dr. Jackson, lately Opium Inspector at Calcutta, informed Dr. Royle is the Patna Garden Opium, cultivated, prepared, and selected exclusively for the Dispensary, and that it yields about 7 to 8 per cent. and sometimes more (10½), of morphia. It is of this kind that Dr. Christison says, "I have examined specimens little inferior to average Turkey opium in the quantity of morphia they contained."

Chinese Investment Opium, which is highly esteemed by the Chinese, is made into cakes or balls, each containing about 4 lbs. and covered with a thick layer of poppy petals, made to adhere to the opium and to each other by means of a mixture of inferior kinds of opium and water. It is of a dark-brown colour, of the consistence of an extract when first cut into, containing 70 per cent. of solid matter, and about 2½ per cent. of morphia. The British Indian Government grant licenses for the cultivation of the poppy, and contract for all the produce at certain rates, varying with the quality. No opium can be grown without this licence, and an advance equal to about two-thirds of the value of the produce is made to the grower. This produce is made over to district collectors, who approximately fix the worth of the contents of each jar, and forward it to Patna, where rewards are given for the best samples, and the worst are condemned without payment; but all is turned to some account in the reduction of the drug to a state fit for market. The cultivation is very carefully conducted. During the N. W., or dry winds, the best opium is procured, the worst during moist, or E. and N. E., when the drug imbibes moisture, and a watery bad solution of opium collects in cavities of its substance and is called "passewa," according to the absence of which the opium is generally prized. At the end of March, the opium jars arrive at the stores by water and by land, and continue accumulating for some weeks. Every jar is labelled and stowed in a proper place, separately tested with extreme accuracy and valued. When the whole quantity has been received, the contents of all the jars are thrown into great vats, occupying a very large building whence the mass is distributed, to be made up into balls for the markets. This operation is carried on in a long paved room, where every man is ticketed, and many overseers are stationed to see that the work is properly conducted. Each workman sits on a stool, with a double stage and a tray before him. On the top stage is a tin basin containing opium sufficient for three balls; in the lower another basin holding water: in the tray stands a brass hemispherical cup, in which the ball is worked. To the man's right hand is another tray, with two compartments, one containing thin pancakes of poppy petals pressed together, the other a cupful of sticky opium-water, made from refuse opium. The man takes the brass cup, and places a pancake at the bottom, smears it with opium-water, and with many piles of the pancakes makes a coat for the opium. Of this he takes about one-third of the mass before him, puts it inside the petals and agglutinates many other coats over it: the balls are then again weighed, and reduced or increased to a certain weight if necessary. At the day's end, each man takes his work to a rack with numbered compartments, and deposits it in that which answers to his own number, thence the balls (each being put in a clay cup) are carried to an enormous drying-room, where they are exposed in tiers, and constantly examined and turned, to prevent their being attacked by weevils, which are very prevalent during moist winds, little boys creeping along the racks all day long for this purpose. When dry, the balls are packed in two layers of six each in chests, with the stalks, dried leaves, and capsules of the plant, and sent down to Calcutta. A little opium is prepared of very fine quality for the Government hospitals, and some for general sale in India; but if the proportion is trifling, and such is made up into square cakes. A good workman will prepare from thirty to fifty balls a day, the total produce being 10,000 to 12,000 a day; during one working season 1,353,000 balls are manufactured for the Chinese market alone. The poppy-petal pancakes, each about a foot radius, are made in the fields by women, by the simple operation of pressing fresh petals together. They are brought in large baskets, and purchased at the commencement of the season. The liquor with which the pancakes are agglutinated together by the ball-maker, and worked into the ball, is merely inspissated opium water, the opium for which is derived from the condemned opium, (Passewa,) the washing of the utensils, and of the workmen, every one of whom is nightly laved before he leaves the establishment, and the water is inspissated. Thus not a particle of opium is lost. To encourage the farmers, the refuse stalks, leaves, and heads are bought up, to pack the balls with; but this is far from an economical plan, for it is difficult to keep the refuse from damp and insects. A powerful smell of opium pervaded these vast buildings, which Dr. Corbett assured Dr. Hooker did not affect himself or the assistants. The men work ten hours a day, becoming sleepy in the afternoon; but this is only natural in the hot season; they are rather liable to eruptive diseases, possibly engendered by the nature of their occupation. Even the best East Indian opium is inferior to the Turkish, and owing to peculiarities of climate, will probably always be so. It never yields more than five per cent. of morphia, whence its inferiority, but is as good in other respects, and even richer in narcotine.

Cultivation.—The mode of raising the poppy in the Patna district in India, is thus described: "The ryot or cultivator having selected a piece of ground, always preferring (cæteris paribus) that which is nearest his house, fences it in. He then, by repeated ploughings, makes it completely fine and removes all the weeds and grass. Next, he divides the field into two or more beds by small dykes of mould, running lengthwise and crosswise according to the slope and nature of the ground, and again into smaller squares by other dykes leading from the principal ones. A tank is dug about ten feet deep at one end of the field, from which by a leathern bucket, water is raised into one of the principal dykes and carried to every part as required; this irrigation is necessary because the cultivation is carried on in the dry weather. The seed is sown in November, and the juice collected in February and March, during a period, usually, of about six weeks; weeding and watering commence as soon as the plants spring up, and are continued till the poppies come to maturity. Incisions are then made in the rind of the seed vessel, from them the juice exudes.

The Chinese Repository, (Vol. v., p. 472,) states that four sorts of opium are brought to China: Turkey, which sells cheapest in China, and is brought chiefly from Smyrna; Patna and Benares, which are grown in the British Indian territories, and sold at Calcutta; and Malwa, which is cultivated out of their jurisdiction, but pays them a revenue of about 200 rupees each chest for its transit to Bombay where it is shipped. The Portuguese also export a small quantity from their settlement in Damaun. The drug is rolled in balls, and then packed in strong boxes weighing from 116 lbs. for Patna to 134 lbs. or 140 lbs. for Malwa. The Malwa opium is grown and prepared entirely by natives, and is often so extensively adulterated as to be worthless. There are between 400 and 500 cakes in a chest of Malwa, and the cultivator there receives double the wages of the ryot in Bengal. The chests of Patna and Benares are made of mango wood, and consist of two stories or parts, in each of which there are twenty partitions; the forty balls to fill these partitions are carefully rolled in dried poppy leaves. The chest is covered with hides or gunny bags, and the seams closed so as to render it as impervious to the air as possible, but considerable allowances is made for dry gage.

Effects of opium-smoking.—Opium is at present largely consumed in the Malayan islands, in China, in the Indo-Chinese countries, and in a few parts of Hindustan, much in the same way in which wine, ardent spirits, malt liquor and cider, are consumed in Europe. Stupor, reverie, and voluptuous listlessness are the immediate effects produced. In this state the individual can be at once and easily aroused to exertion or business. No sickness, constipation, or any other functional disturbance supervenes on each indulgence; gradually, however, the appetite diminishes, the bowels become irregular, emaciation takes place, sexual tendencies are destroyed, and premature old age speedily comes on. This it is admitted is an extreme case; when the habit is but moderately followed, it appears to occasion no greater evil than the proportionate indulgence in wine or other spirituous liquors. Its deleterious character has been much insisted on, but, generally, by parties who have had no experience of its effects. Like any other narcotic or stimulant, the habitual use of it is amenable to abuse, and as being more seductive than other stimulants, perhaps more so; but this is certainly the utmost that can be safely charged to it. Thousands consume it without any pernicious result, as thousands do wine and spirits, without any evil consequence. There is not known any person of long experience and competent judgment who has not come to this common sense conclusion. Dr. Oxley, a physician and naturalist of eminence, and who has had a longer experience than any other man of Singapore, where there is the highest rate of consumption of the drug, gave the following opinion: "The inordinate use, or rather abuse, of the drug most decidedly does bring on early decrepitude, loss of appetite, and a morbid state of all the secretions; but I have seen a man who had used the drug for fifty years in moderation without any evil effects; and one man I recollected in Malacca who had so used it, was upwards of eighty. Several in the habit of smoking it have assured me that, in moderation, it neither impaired the functions nor shortened life; at the same time fully admitting the deleterious effects of too much." There is not a word of this that would not be equally true of the use and abuse of ardent spirit, wine, and, perhaps even of tobacco. The historian of Sumatra, whose experience and good sense cannot be questioned, came early to the very same conclusion. The superior curative virtues of opium over any other stimulant are undeniable, and the question of its superiority over ardent spirits, appears to have been for ever set at rest by the high authority of Sir Benjamin Brodie. "The effect of opium, when taken into the stomach," says this distinguished philosopher, "is not to stimulate but to soothe the nervous system. It may be otherwise in some instances, but these are rare exceptions to the general rule. The opium-eater is, in a passive state, satisfied with his own dreamy condition while under the influence of the drug. He is useless but not mischievous. It is quite otherwise with alcoholic liquors. It may be worth while to show what is really the relative consumption in those countries in which its use is alleged to be most pernicious. In the British settlement of Singapore owing to the high rate of wages, and the prevalence of a Chinese population, the consumption is at the rate of about 330 grains, or adult doses, a year, for each person. In Java, where the Chinese do not compose above one i a hundred of the population, and where wages are comparatively low, it does not exceed 40 grains. Even in China itself where the consumption is supposed to be so large, it is no more than 140 grains chiefly owing to the poverty of the people, to whom it is for the most part inaccessible. Opinm is eaten to a very considerable extent by the Burmese and the drug is easily procured. The value of opium increases for a short time by age; but this soon ceases to be the case, and Turkey opium in particular deteriorates unless carefully preserved from the air. The opium brought from India sells from $ 550 to $ 700 a chest, and the Turkey from $ 370 to $ 500 a pecul. The price of the commodity fluctuates, however, according to the extent of importation and other causes.

Opium adulterations.—The modes of adulterating opium are various. Pounded leaves, catechu, cow-dung, coarse sugar, and many other ingredients, are used for this purpose. They are easily detected by incineration. If adulterated with

Water,—Heat 100 grs. on a water bath for half an hour, the loss is water.

Starch, pease-meal, flour—boil 20 grs. with water, strain, allow to cool, add tincture of iodine which gives a blue precipitate with these impurities.

Resins, dammar and clay—subside as a harsh mass during the trituration of 100 grains in distilled water.

Catechu, Gab.—To the first solution add a solution of isinglass, there is a copious precipitate.

Mucilaginous extracts of bel (fruit of Ægle marmelos) and mekanna, seeds of Euryale ferox,—add alcohol to the water solution previously concentrated to ¼th. A copious precipitate of gummy matter ensues, quite soluble in hot water.

The presence of datura, tobacco and bang can only be detected by the smell of the drug, which resembles that of a bad hookah.

Dr. Royle says, the most injurious fraud is that of washing out the soluble and most valuable parts of opium, and bringing the residual mass for sale. In this case the opium loses its translucency and redness of colour, also its adhesiveness. Sand, clayey mud, sugar, molasses, cowdung, Datura-leaves, the glutinous juice of Ægle marmelos, and even pounded poppy-seed, are employed to adulterate opium. Malwa opium often contains oil and other matters obtained by the expression of the poppy-heads. Some kinds of opium from which morphia has been extracted have been occasionally met with in European commerce. To be enabled to judge of good opium, one must be well acquainted with the different varieties of opium, their respective colours, tastes, and textures, as well as the natural degree of moisture, and see that no mechanical admixtures are apparent, nor left on a filter. Several methods have been proposed for ascertaining the quantity of morphia in opium, but none of them are very satisfactory. Dr. Christison considers Dr. Gregory's method of obtaining muriate of morphia as the only one; but it requires about a pound of opium to be operated on which, if good, should not yield less than ten per cent. of a snow-white salt.

Uses.—Opium, applied externally, is at first stimulant, producing pain, as on the eye, and then sedative. When taken internally, in small doses, excitement is first produced, as apparent in the increased frequency of the pulse, and heat of the skin. This is soon followed by diminished sensibility, calmness, and sleep, with abatement of pain, suspension of mucous secretion, with the exception of that of the skin. But if the tendency to sleep be resisted, opium, in moderate doses, and in those habituated to its use, in excessive doses, will produce intellectual excitement accompanied by bodily activity, soon to be followed by general debility, as is exemplified in opium-eaters. In large doses, it is a narcotic poison. It is frequently employed as an anodyne and hyponotic, as a sedative, and to restrain inordinate discharges, as in diarrhœa and cholera, also as a diaphoretic, often as an antispasmodic, and even as a febrifuge. In delirium tremens it is beneficially given in large doses, and, combined with calomel and sometimes with the addition of ipecacuanha, even in inflammatory affections; though in general it is contraindicated when there is inflammation or much fever. It is no doubt the most important of all therapeutical agents, and that which is perhaps the most frequently employed. Before the discovery of Cinchona, it was counted one of the most powerful febrifuges, and given either plain or with bark, or an aromatic tonic, it has since then been found very useful. Its action has been thus explained. "It first excites the ganglionic system, increasing its action on the vascular apparatus, and especially augments the activity of the nerves, and vessels on the periphery of the body, causing fulness of the pulse, and heat and some turgor of the skin. By this increased peripheral action, the ganglionic system is somewhat relieved and thus a portion of the real cause of the affection is removed, and this effect is still more strongly produced, when the opium is given according to the old fashion with wormwood or bark. If now the cold stage comes on it occurs when the opium has already began to exercise its secondary operation. It then manifests its power of controlling cramps; the shivering and the heat also are less, and the equilibrium of the nervous system is restored without so strong a reaction as usual of the vascular system being produced. Opium therefore is a medicine which both acts on the causes of the disease, and dilates the vassal of the attack. Whatever may be the theory of it this last fact is attested by many.—*Simmond's Commercial Dictionary*; *Journal of the Indian Archipelago, 1st January* 1848; *Les Anglais et l'Inde, p.* 251; *Powell's Hand-book, p.* 293; *Dr. Little; Cameron, pp.* 215–16; *Tod's Rajasthan, Vol.* ii, *pp.* 630–34; *McCulloch's Dictionary, London Home News,* 10*th April* 1857; *O'Shaughnessy, pp.* 172-74; *Letter from the Inspector-General, I. M. D., Madras, to the Secretary to Government, Military Department, No.* 20, *dated* 18*th April, and No.* 192, *dated* 14*th June* 1872; *Smith's Mat. Med. of China, p.* 164; *Bonynge America, p.* 170; *Annals of Indian Administration*; *Journal of Indian Archipelago, No.* 1, *January* 1848; *Williams' Middle Kingdom, Vol.* ii, *pp.* 286, 383 *to* 385; *Smith's Materia Medica of China, p.* 164; *Hooker's Himalayan Journal Vol.* i., *pp.* 83—85; *Malcolm's Central India, Vol.* iii, *p.* 45; *Crawfurd's Dictionary of the Archipelago, p.* 313; *quoting Psychological Inquiries, p.* 248; *Dr. Mason's Tennaserim*; *The Hon'ble Mr. Morrison's Compendious Description; Royle's Materia Medica; Dr. Impey, on the cultivation of opium in Malwa; Dr. Little on the opium manufacture at Singapore, in Journal of the Indian Archipelago; Dr. Butter, in Journal Ben. As. Soc., Vol. p.* 136.

OPIUM-CLIPPER, a quick-sailing vessel, formerly engaged in smuggling opium from India into China, now replaced by Steamers.—*Simmond's Dict.*

OPLISMENUS, a genus of plants of the order Panicaceæ; O. burmanni, *Rom. and Sch.*, grows in Bengal, as also does O. colonus, *Kth.*, called in Bengali, Shama, cattle are very fond of it. Enormous islets of living water-grasses (Oplismenus stagninus), and other plants float on the Megny river. O. lanceolatus, *Kth.* and O. strictus, *Sch.*, are also Bengal plants. Oplismenus Stagninus is cultivated in the gardens at Kotah, but the inhabitants do not believe in its reputed virtues.—*Hooker, Him. Journ., Vol.* ii, *p.* 338; *Genl. Med. Top., p.* 185; *Voigt*; *Roxburgh.*

OPLISMENUS FRUMENTACEUS, *Roxb.*

Panicum frumentaceum, *Roxb.*

Damra-shama,	BENG.	Samaka,	HIND.
Shama,	„	Sanwak,	„

Several varieties of this grass are cultivated in British India, cattle are fond of it, and the seeds are wholesome and nourishing; and constitute an article of diet, amongst the poorer people; in a good soil, it yields about fifty-fold. In the Punjab, it is a cultivated cereal uncommon out in the plains except Cis-Sutlej and common in places in the eastern part only of the Punjab Himalaya. Its grain is considered heating and is one of the poorer of the millets. —*Drs. Roxburgh*, i, 304; *Voigt*, 703; *J. L. Stewart's Punjab Plants*, 257.

OPLOPHORUS TYPUS, *Edwds.* One of the crustacea of N. Guinea, belonging to the order Stomatopodes, Fam. Cardioides.

OPOBALSAM.

Akuyila-semun-i-rumi,	AR.	Balsamum verum album,	LAT.
Balessan,	EGYPT.	„ egyptiacum,	„
Balm of Gilead,	ENG.	Judaicum de Mecca,	„
Balsamier de la Meque,	FR.	Roughan-i-Bulsan,	PERS.
Opobalsamo,	IT.		

Balm of Gilead called also Opobalsam and Balm of Mecca, is procured from the Balsamodendron gileadense, a middle-sized tree growing in Arabia, also from the Balsamum berryanum. There is but little of the true balm of Gilead which reaches Britain. The same may be said of another of the terebinthine resins, Bdellium, which is obtained from India and from Africa. The best opobalsamum is obtained from the greenish liquor found in the kernel of the Balsamum berryanum. An inferior quality of opobalsam is obtained by expression from the fruit of Amyris gileadensis when the fruit is at maturity. The carpobalsamum of the ancients was from the fruit of Balsamodendron gileadense. It is a liquid gum-resin, obtained from the Amyris gileadensis, a tree found in Arabia, Abyssinia, and Syria. It is first turbid and white; of a pungent smell resembling turpentine, but sweeter; and of a bitter, acrid, astringent taste. When old it becomes thin, limpid, of a greenish hue, then of a golden yellow, and at length of the colour of honey. It is chiefly used as a cosmetic by the Turkish ladies.—*McCulloch's Com. Dict., p.* 60.

OPOEK, RUS. Currants.

OPOIDIA GALBANIFERA, of the tribe Symrneæ. It occurs in commerce in agglutinated plastic masses. It is hot, acrid and bitter, and in properties resembles assafœtida, but weaker.—*McCulloch; Royle Ill.; O'Shaughnessy*; *McClelland.* See Galbanum.

O-PO-KIEN, a people mentioned by Hwen Thsang, supposed to be Affghan.

OPOPONAX.

Jawashir,	AR., HIND., PERS.	Opopo-nace,	IT.
Peh-chi-hiang,	CHIN.	Gawsher,	PERS.
Opoponax,	FR.	Opoponaca,	SP.
Panax gummi,	GER.		

A gum resin obtained from the stalks of Opoponax chironium, a tall plant. According to Pelletier's analysis 100 parts contain—resin, 42, gum 33, starch 4, extractive and malic aci 4, volatile oil 5, with traces of caoutchouc an wax, and 9 of woody fibre. The sp. gr. 1622 with water it forms a milky fluid. Opopona is derived from ὀπος juice, παν all, and ἀχος remedy, meaning that it is a remedy for a diseases! In action it resembles assafœtida, bu is much feebler. The plant occurs in dry fields in the South of Europe and Asia Minor. A milky juice exudes from the root when wounded, and hardens into a fœtid gum resin, in most of its properties closely resembling assafœtida. The resin is found in all the bazaars of Bengal, and is even exported from British India to Europe. According to Dr. Royle "Jawashir" is imported into India from Arabia and into England from Asia Minor. He says that Dr. Lindley had some seeds sent from the hills of Beluchistan which were called "hashi" and were then considered to be the Opoponax. "Jawashir" occurs in the bazaars of Bagdad, it sells for 10½*d.* per lb., and is imported from Persia.—*O'Shaughnessy, p.* 361; *McCulloch's Commercial Dictionary, p.* 866; *Powell's Hand-book, Vol.* i, *p.* 403.

OPOPONACA, SP., Opoponace. IT. Opoponax.

OPPIDAM, see Kasra-i-shirin.

OPPIO, IT. Opium.

OPPOSITE-LEAVED MANGO, Cambessedea oppositifolia.

OPUNTIA, a genus of plants of the order Cactaceæ, several species of which have been introduced into British India, from the West Indies, Peru and Brazil.

brasiliensis, *DC.*, from Brazil, with large greenish yellow flowers
cochinillifera, *Haw.*, syn. of Cactus cochinillifer of S. America, with the petals bright rose coloured at several seasons of the year. It is employed in the West Indies for rearing the cochineal.
curassavica, *Haw.*, syn. of C. curassavicus, *L.* from Curacoa, with large yellow-flowers, 1½ inch across.
cylindrica, *DC.*, syn. of C. cylindrica, *Lam.*, from Peru with largish scarlet flowers.
dilenii, *Haw.*, syn. of C. dillenii, *Ker.*, and C. indicus, *Roxb.*, from S. America, is the Nagphena of Bengal, and the prickly pear of Europeans in India; the cochineal insect thrives on this plant.
elatior, *Haw.*, from S. America, with large purplish yellow flowers.
ficus indica, *Haw.* " " syn. of C. ficus indica with large sulphur yellow flowers.
leucantha, *Hort.*, *Berol.*
nigricans, *Haw.*, *DC.*, C. tuna, β nigricans, B. M., from S. America.
roxburghiana, syn. of C. chinensis, *Roxb.*
rubescens, *Salm.*, from Brazil.
triacantha, *DC.*, " S. America.
tuna, *Haw.*, syn. of C. tuna major, *Roxb.*, from S. America, with large reddish flowers, it is the favourite food of the cochineal in Mexico and Brazil.
vulgaris, *Haw.*, syn. of Cactus opuntia, *L.*, Southern States of N. America, cultivated in Europe, where its fruit is called the Indian fig.

Dr. Fontana, in an interesting communication, published in the Asiatic Annual Register for 1799, and re-printed in Pennant's Indian Recreations, mentions both the Manilla and Chinese Opuntias, states that the cochineal insects thrived best on the species indigenous to Bengal. The cultivation was extended, and the quality improved, as in 1795 only five rupees a seer, but in 1797 seven rupees a seer were given for Bengal cochineal when Mexican was selling at about 16—20 rupees. The Bengal Sylvestris, Dr. F. states contains only from 9—16 to 10—16 parts of the colouring matter contained in the Mexican. The cultivation however, was subsequently given up, probably on account of the decreased price of cochineal, and the more profitable cultivation of indigo. The cochineal, Coccus cacti, is chiefly cultivated with any care in Mexico, where the grana fina is sown on the plants about the 10th of October, on the return of the fine weather, the females having been kept under cover during the rains, the Grana sylvestra is gathered from insects in a wild state, but cochineal is also imported from Georgia and South Carolina, and some of the West India Islands. It has also been tried in Peru, Hayti, and Brazil. The imports are from 220,000 to 330,000 lbs., and have been as high as 700,000 lbs., but the price is kept down by the importation of large quantities (600,000 lbs.) of lac, the produce of another species of coccus C. lacciferus, peculiar to India. A demand, however, exists for it in Central Asia, as we learn from Lieut. Burnes they give at Herat thirty-two rupees a seer for which they import from Bokhara and Yarkund, probably the Kermes produced in Russia and Tartary. A kind is also produced on the roots of plants in the marshes near Herat; as is the scarlet grain of Poland, Coccus polonicus, or the roots of Scleranthus perennis in the north-east of Europe. The Kermes, or Coccus ilicis, produced on the Quercus ilex and quercus cocciferus growing in the south of Europe, has yielded a crimson dye from the earliest ages. The Persian name kirm, a worm, indicates that the Asiatics were acquainted with its nature, when in Europe, it was thought to be the seed of a plant. The French introduced the cochineal into Algiers, with other tropical products. —*Royle, Ill. Him. Bot., pp.* 5, 224.

OPUNTIA COCHINELLIFERA, *Haw.*

Cactus cochinellifera, *Linn.*

Ka-la-zoung-let-wæ,	BURM.	Cochineal plant,	ENG.

A plant of S. America, where it is largely employed for feeding the Cochineal insect. It has large red flowers at several seasons of the year. It has been introduced into India.

OPUNTIA DILLENII, *Haw.*

Cactus dillenii, *Ker.*		Cactus indicus, *Roxb.*	
Ka-la-zoung,	BURM.	Prickly pear,	ENG.
Hedge pear,	ENG.	Nopal,	HIND.

A plant of S. America, domesticated throughout British India. The Cochineal insect of S. America thrives on this.

OPUNTIA SPINOSISSIMA, *Haw.* Spined opuntia, a plant of Jamaica.

OR, Fr. Gold.

OR or Odru tribe, see Odru, India.

ORA, see Kaffir.

ORACHE, or Mountain spinage, one of the Chenopodiaceæ. Of these there are several varieties, commonly known as red and green sage—the leaves are slightly acid, both sorts are boiled as spinage, but the red is most esteemed. Propagated by seed—no particular soil required. —*Riddell.*

ORAK ZYE, an Affghan tribe, reside in Tirah, intermingled with the Afredi, and some of them are found in the hills south of Peshawur. It was amalek or chief of this tribe who conducted Nadir Shah and a force of cavalry, by the route of Chura and Tirah, to Peshawur, when the principal road through the hills was defended against him. The Orak Zye are to be met with to the north-west of Kohat, near the Hungoo valley.

ORAL, Kol. Pteromys petaurista, *Pallas, Blyth.*

ORANG, Malay. A word, meaning a people, a race.

Orang-Binua, the people of the country, the aborigines. See Binua, Kedah, India, Jakun, Johore, Dyak.

Orang-Baju, or Baju-laut, sea-faring people. See Banca, Borneo.

Orang-Dusun, see Ambong.

Orang-Gunong, people of the mountains, hill-men.

Orang Utan, wild men, the Orang utang, monkey of Europe.

The island of Borneo bears the same relation to eastern India, that the continent of America bears to Europe, being a country in which the various tribes inhabiting the further east may find a refuge from religious persecution, or escape the disadvantages of over-population in their mother countries. Thus we find the coasts of the island to be inhabited by several nations, totally unconnected with each other, governed by their own laws, and adopting their own peculiar manners and customs. The west coast is occupied by Malays and Chinese, the north-west coast by the half-caste descendants of the Moors of Western India; the north part by the Cochin-Chinese; the north-east coast by the Sulu; and the east and south coasts by the Bugis tribes of Celebes. In addition to these, there are no fewer than three distinct tribes, living in prahus, and wandering about the shores of the island; the Lanun from Magindano; and the Orang Baju and Orang-Tidong, source unknown. The Dyak who are the Orang-Benua, or aboriginal inhabitants of Borneo, constitute by far the most interesting portion of its population. They are scattered in small tribes over the face of the island, those inhabiting the banks of the large rivers being generally under the dominion of one more powerful than the rest; but the tribes which reside in the depths of the forests, where the communication between them is more difficult, are generally perfectly distinct from each other, and these people would scarcely know that other human beings existed beside themselves, were not individuals of their little communities sometimes cut off by the roving warriors of a distant, and more powerful tribe. The various tribes are said to differ considerably from each other, but Mr. Earl saw individuals belonging to several distinct tribes, who with the exception of a difference of dialect, might be recognized as the same people, those who lived entirely on the water being much darker than the rest. It is said by the Dyak themselves, that some parts of the interior are inhabited by a woolly-haired people: but as they also assert that men with tails like monkeys, and living in trees, are also discoverable, the accuracy of their accounts may be doubted. He met with no Dyak who had seen either, but as a woolly-haired people to be found scattered over the interior of the Malay peninsula, their existence in Borneo seems by no means improbable. The Dyak are of the middle size, and, with the exception of those who are continually cramped up in their little canoes, are invariably straight-limbed, and well formed. Their limbs are well rounded, and they appear to be muscular, but where physical strength is to be exerted in carrying a burthen, they are far inferior to the more spare-bodied Chinese settlers. Their feet are short and broad, and their toes turn a little inwards, so that in walking they do not require a very wide path. The native paths are found very inconvenient by a European traveller. The paths used by the Dyaks and Chinese being generally worn down several inches below the surface of the soil, and, as they are very little wider than the foot, pedestrian exercise proves both painful and fatiguing. The Chinese guides mentioned that he should soon become accustomed to these by-ways, from which he judged that the settlers had adopted the native mode of walking with one foot before the other, since their arrival in the country. Their foreheads are broad and flat, and their eyes, which are placed further apart than those of Europeans, appear longer than they really are, from an indolent habit of keeping the eye half-closed. The outer corners are generally higher up the forehead than those nearer to the nose, so that were a straight line drawn perpendicularly down the face, the eyes would be found to diverge a little from right angles with it. Their cheek-bones are prominent, but their faces are generally plump, and their features altogether bear a greater resemblance to those of the Cochin-Chinese than of any other of the demi-civilized nations in Eastern India. The Laos tribes inhabiting the inland parts of Cochin-China and Cambodia are undoubtedly the same race as the Dyak, speaking a dialect of the same language; and, as the Cochin-Chinese are probably descendants of these people, civilized by communication with the Chinese, the resemblance may be easily accounted for. The Cochin-Chinese, however, are physically superior to the Dyak, the natural results of a different mode of life. The hair is straight and black, and is kept cut rather short by both sexes, but if permitted, would grow to great length. Some of the Dyak women who are married to Chinese adopt the fashion of wearing tails. He never saw a nearer approach to a beard among the men than a few straggling hairs scattered over the chin and the upper lip. The Dyak countenance is highly prepossessing. The countenances of the Dyak women, if not exactly beautiful, are generally extremely interesting, which is, perhaps in a great measure owing to the soft expression given by their long eyelashes and by their habit of keeping the eyes half-closed. In form they are unexceptionable, and the Dyak wife of a Chinese, whom Mr. Earl met with at Sinkawan, was, in point of personal attractions, superior to any eastern beauty who had come under his observation, with the single exception of one of the same race, from the north-west coast of Celebes. The one he met with at Sourabaya soon after her arrival from Celebes, was, for a native, extremely fair, and her portrait would not have disgraced the "Book of Beauty." In complexion, the Dyak are much fairer than the Malay from whom they also differ greatly in disposition and general appearance, although not so much as to lead to the conclusion that they could not have sprung from the same source, giving rather the idea that the cause of the dissimilarity has proceeded from the long disconnection of the Malay from the original stock, in addition to their admixture and intercourse with foreign nations. The Dyak are a much superior people to the Malay, although the latter affect to consider them as beings little removed from the orang-utan. Though the most numerous of the aboriginal tribes are found congregated in villages on the banks of the rivers and the large inland lakes; they also possess several towns of considerable size. The capital of the most powerful tribe on the west coast is Sigao, a town about forty days' journey up the Pontianak river, which has a population of several thousands. The Dyak inhabit thatched bamboo houses, erected upon piles, those belonging to each family or petty tribe being joined together by means of a stage or verandah running along the front. Many of the small villages are defended by stockades, and the ladders by which they ascend into their dwellings are always pulled up when they retire to rest at night. Under these dwellings the pigs are kept; for, although some of the tribes in the vicinity of the Malay have adopted the mahomedan religion, they are not sufficiently rigid in their observance of its tenets to abstain from the use of pork. The Dyak cultivate rice in large quantities, as it forms their principal vegetable food, their animal sustenance being pork, fish and the flesh of deer and other animals which are procured by the chase. Some of the tribes possess bows and arrows, but the sumpit or blowpipe, a wooden tube about five feet long, through which small bamboo arrows are shot with great precision, is in more general use. The arrows are steeped in a subtle poison, which is said to destroy birds and smaller animals, when struck with them, almost instantaneously, a slight wound from an arrow on which the poison is strong, being said to occasion inevitable death, even to man. The effects of weapons of this description are always exaggerated by those who use them; the poison therefore, is not, in all probability, so destructive to the human species as it is represented; and although the Dyaks assert that no antidote is known, yet the preparation of the poison being similar to that practised by the aboriginal inhabitants of Celebes, for which a remedy has been discovered, the people of Borneo are probably acquainted with it. They show no hesitation in eating animals which have been killed by their arrows, taking the precaution, however, of removing the flesh immediately adjacent to the wounded part. The poison, which is called ippo throughout the island, consists of the juice of a tree, and its mode of preparation appears to be perfectly similar to that practised in Java, and other islands where it is employed.

The Orang Binua of Johore occupy all the interior of Johore over which the Tamungong now rules. They also possess the interior of the most southerly portion of Pahang. They occupy the upper branches of the last or most southern system of rivers in the Malay peninsula, that is, of the rivers Johore (the Lingiu and the Sayong) Binut, Pontian, Batu Pahat or Rio Formosa (the Simpang Kiri, Pau, and Simrong with their numerous affluents) and Indau (the Anak Indau, Simrong and Made), with the country watered by them. By means of these rivers a constant communication is maintained between the families of the Binua on the two sides of the peninsula. The Indau and its branches are directly connected with the Batu Pahat, and its branches by the Simrong. The other principal branch of the Batu Pahat the Pau is connected with the Slabin, a branch of the Indau, by a path of only one day's journey. Paths lead from the Made and the Simrong to the Lingiu, thus connecting the Johore with the eastern rivers, while it is still more closely united to the western by its other branch, the Sayong, which rises in the same low hill from which the Binut issues. No Binua were found on the river Johore below the junction of the Sayong and Lingiu. There are none on the Pulai; and the aboriginal families on the Tamrao and Sakodai, which fall into the old Straits of Singapore, (*Orang Sabimba*) were about A. D. 1840 imported by the Tamungong from the islands of Battam to the south of Singapore, for the purpose of collecting taban (Guttah percha.) The river nomades (Biduanda Kallang or *Orang Sletar*) and the sea nomades (*Orang Tambusa*,) termed also Orang Laut and Ryat Laut, people of the sea, &c., who lurk about the estuaries and creeks of the Johore, Libbam, and other rivers along the southern coast of the peninsula are distinct from the Binua, and cut off from all communication with them. Binua have never been known on the upper part of the Sidili although it has its source in the same mountains where the Johore and the Made rise. On the north-west they do not extend beyond the Simpang Kiri and Pau. About half a day's walk from the source of the former rises an affluent of the river Muar called Sungei Pago, which gives its name to a tribe found on its banks and amongst the adjacent hills. The Binua describe the *Orang Pago* as a wild race, naked, without houses, shunning all intercouse with the Malays, and having very little intercourse even with them. They are probably a secluded and rude branch of the Udai, or of the Jakun. Whether the Pahang tribes immediately to the north of the Indau (who are said to be very numerous), are similar to the Orang Binua is uncertain, but the Orang Binua inhabiting the country indicated, undoubtedly form a separate family in themselves; for, while they are all mutually related, they have no connection with any other tribes, and hardly any knowledge of such. Their language, appearance, and habits are similar. They describe themselves as being "leaves of the same tree." Individuals on the Indau had relatives and acquaintances on the Lingiu, Sayong, Binut, and the branches of the Batu Pahat, and they had visited all these rivers.

The lofty Gunong Bermun is probably nearly one hundred miles to the north of the Lulumut group. This with the mountains which adjoin it, may be considered the central high lands of the Orang Binua. In the ravines and valleys of Gunong Bermun, two of the largest rivers of the peninsula, the Pahang and the Muar, with their numerous upper tributaries have their source. There also rises the Simujong which unites with the Lingi. The upper part of these rivers and many of their feeders are occupied by five tribes of aborigines differing somewhat in civilization and language.

The Udai (who appear to be the same people who are known to the Binua of Johore under the name of *Orang Pago*) are found on some of the tributaries of the Muar, as the Segamet, Palungan and Kapi, and in the vicinity of Gunong Ledang. This tribe has less approximated to Malayan habits than the others.

The Jakun partially frequent the same territory, the lower part of Palungan, Gappam, &c., and extend northwards and north-westward within the British boundaries. They are found at Tidong, Ayer Chirmin, Ayer Itam, Darat Yassin, Ulu Kissang and Bukit Singer.

The Mintira, the largest tribe, dwell around Gunong Bermun and the adjacent mountains, G. Rissam, G. Licha, G. Singwang, G. Kamuning, G. Kayu Libet and G. Garun. They possess the higher part of both the western and eastern streams. Thus they occupy the Triang, Simplas, Gipau, Bangkong, Gading and Tuang. On the south they frequent the upper part of the Longat, &c. Amongst the other streams occupied by them are the Limama, Ayer Mangis, Langkap, Kunu, Kapayang, Nahacha, Sabangas, Sabulu, Seneng Jimpul, Bayai, Tapak, Jilibu, Singi, Berumpun, Klassa, Jinam, Kamen, Trus, Bilabong and Klawang.

The Sakai succeed to them in the interior, frequenting the neighbourhood of Gunong Kinabui. On the north-west the Mintira march with the Besisi, one of the most numerous tribes, who occupy all the streams flowing in that direction from Gunong Bermun and the mountains lying to the southward of it, as G. Angsi, G. Beraga and G. Datu. It is this tribe which occupies the Sungei Ujong and Lingi, the Lukut, the Sippang, and the lower part of the Langat, with their feeders, the Kallang, Pijam, Tike, Jijan, Lamar, Gallah, Labu, Chinchang, Trip, Girintul, Rami, Lana, Gimru, Pinang, &c. These five tribes (as well as those inhabiting all the interior of the peninsula to the north), are sometimes by the Malays called Orang Binua. Another group, are the Bermun tribes, so called from the circumstance of most of the streams on which they are found rising in the Bermun mountain system, receiving accessories from it, or joining rivers which have their source in its ravines.

The Orang Laut or sea-people, also called Ryot Laut who are similar in their habits to the Baju, and are found upon the coasts of Borneo and Celebes, though belonging to it, can scarcely be said to inhabit the island, for they live entirely in their little prahus, and wander about the coasts. They subsist principally by fishing, and it is said that they are always ready to give information to the piratical rovers. The arms of the Orang laut (men of the sea), dwelling on the coasts and among islands, are the limbing, or lance: the tampuling, a large hook; the kujore, a sort of spear with a very broad head, used in fishing; and the serampong, a sort of prong. The Udai, or Semang have not any other weapons than the sumpitan. This is the most savage of the aboriginal tribes that roam the mountains and forests in the centre of the Malay peninsula, and upon the borders of the Malacca territory.

Orang Rawa, a people of Rawa, Raw or Ara in Sumatra, immediately to the north of Menangabau and penetrated by the large but scarcely navigable river, Rakan.

Orang Sleetar, originally with the Biduanda Kallang, joint occupants of Singapore. They speak a Malay dialect with a guttural accent.

Orang-Malayu, the Malay race.

Orang-Menangkabau, the people of Menang kabau.

Orang-Milanowe, see Kyan.

Orang-Tatou, see Kyan.

Orang-Tidong, see Borneo; Kyan.

Oran-ula, see Binua.—*Mr. G. W. Earl*; *Newbold's Malacca, Vol.* ii, *p.* 210; *Journal Indian Archipelago.*

ORANG-UTAN, or Orang-outang, names by which the Pithecus satyrus of Geoffroy (Simia satyrus of Linnæus), the Red Orang, is now generally designated. The muzzle is large, elongated, somewhat rounded anteriorly; forehead sloping backwards, slight supraciliary ridges, but strong sagittal and lambdoidal crests. Facial angle 30°. Auricles small. Twelve pairs of ribs; bones of the sternum in a double alternate row. Arms reaching to the ankle-joint. No ligamentum teres in the hip joint. Feet long and narrow, hallux not extending to the end of the metacarpal bone of the adjoining toe; often wanting the ungueal phalanx and nail. Canines very large, their apices extending beyond the intervals of the opposite teeth. Intermaxillary bones anchylosed to the maxillaries during the second or permanent dentition. Height under five feet. It is an inhabitant of the islands of Borneo and Sumatra. Professor Owen remarks that the young individual exhibits the anthropoid character in the relative smallness of the face to the cranium, resulting from the state of dentition, but that it corresponds with the adult skeleton in the number of ribs and in the relative proportion of the lower extremities. With regard to the number of the vertebræ, he observes that the figure of the adult skeleton, in the Museum of the Royal College of Surgeons, exhibits the abnormal number of five lumbar vertebræ instead of four, which is the number existing in the trunk of the mature Orang preserved in the Museum of the Zoological Society of London, and in the skeleton in the Museum of Comparative Anatomy in the Jardin-des-Plantes. Mr. Russell Wallace tells us that with the exception of the Orang Utan, the Siamang, the Tarsius spectrum and the Galeopithecus all the Malayan genera of quadrumana, are represented in India by closely allied species. The Indo-Malay islands have 170 species of mammalia. Of these, 24 are quadrumana. The Orang utan species occur in Sumatra and Borneo; the Siamang, next to them in size, in Malacca and Sumatra; the long-nosed monkey in Borneo, and Gibbons, long-armed apes and monkeys, and the lemur like animals Nycticebus tarsius and Galeopithecus in all the islands. Thirty-three Carnivora are known, amongst them the Malayan glutton, Helictis orientalis, which is represented in N. India by H. nipalensis.

Bos sondaicus is found in Burmah, Siam, Java and Borneo. The two-horned rhinoceros and also the long-horned are found in Burmah, Sumatra and Java. The Sumatra elephant of Sumatra and Borneo is identical with that of India, Ceylon and Malacca. There are about 50 bats, 34 rodents. There are 22 hoofed animals, seven of which occur in India and Burmah. Some of the cattle occur also in Malacca, and the Bos sondaicus is found in Burmah and Siam.

Bos sondaicus are large and handsome animals of a light brown colour with white legs.

The Bengal Asiatic Society's museum received from Sir James Brooke of Sarawak seven skeletons of large adult Orang-utans and the results of Mr. Blyth's examination of them, were given as a sequel to a former memoir on the genus published in the 22nd volume of the Society's Journal.

Of these seven skeletons, five are referable to the Mias Rambi of Sir J. Brooke; although one of them (a small but full-grown female) is marked by himself M. Pappan; and another is sent by the new name M. Chapin, which is also that of an old female animal, remarkable for its extraordinarily large and vertically elongated orbits. It is probable that this alleged Chapin merely represents an individual variation; and Sir J. Brooke states, in his letter announcing the presentation, that some of these skeletons had been labelled by him with the names specified by natives, who, accordingly (as may be supposed in such a case), are not particularly conversant with the osteological distinctions of the different species.

The sixth skeleton is that of an old female of the Mias Pappan, with double-crested skull like that of the male. It even exceeds that male in size, but the skull is smaller; and the sexual distinctions of the two are unmistakeable. In this female, the epiphyses of the limb-bones, scapulæ, ilia, &c., are thoroughly anchylosed, denoting completion of growth; even the symphisis pubis is united (with much irregular deposition of bone externally), and the sacro-iliac symphysis on the right side only. The male Pappan had not quite completed his growth; for some of the epiphyses are loose, and others are but partially soldered: those of the humeri are fixed and semi-anchylosed; as are also those of the left radius and ulna; but the epiphyses of the right radius and ulna are detached; those of the scapulæ and ilia are fixed but slightly, and those of the ischia more extensively. This animal had therefore (as will be attempted to be shown presently) not completed its full growth: the female being much more advanced in age, with its teeth proportionally worn down. On comparison of the skulls of the two sexes, that of the female is seen to be smaller, with the maxillæ less protruded, increasing the facial angle from 32° to 35°; the Zygomatic arch is much less robust; and the longitudinal grinding surface of the upper molars less by $\frac{3}{16}$ in., while that of the lower molars is less by $\frac{1}{4}$ in. than in a youthful male presented by Mr. Nicholl; and by $\frac{7}{16}$ in. than in Dr. Clarke Abel's Sumatran male. In the form of the ascending ramus of the lower jaw, this female specimen more nearly resembles the Sumatran male referred to than any other of numerous specimens; but the condyle is considerably larger; and, as compared with Mr. Nicholl's Bornean male, the antero-posterior diameter of the ascending angle is much less; being in the Bornean male (on a level with the surface of the grinders) $2\frac{5}{8}$ in.—in Dr. Abel's Sumatran male but $2\frac{1}{4}$ in.—and in Sir J. Brooke's Bornean female $2\frac{1}{2}$ inch Lastly, this Bornean female presents the very extraordinary anomaly (throughout the series of placental mammalia) of a fourth true molar above and below, though on the left side only: that of the upper jaw being of small size and round form, its crown scarcely exceeding that of an upper false molar of Macacus rhesus; and it is placed posteriorly to the ordinary last true molar on a line with its outer surface, that tooth having been pressed a little inward: in the lower jaw the accessory fourth true molar is very little smaller than the normal molars; and it projects from the internal margin of the anterior surface of the ascending angle of the jaw, its crown being directed obliquely inwards much more than forwards or upwards: as a functional tooth, it must, therefore, have been almost useless; though the outer or upper margin of its crown is a little worn down by attrition, as is also the outer cusp of the small accessory molar above. This old female Pappan had been badly wounded in its day; having had its left humerus severely fractured, and the fibula of that side also broken; the fractured bones having healed; the unset humerus, however, in an extraordinary manner, exhibiting two large and deep perforations in the great lumpy mass of united bone, where suppuration had ensued and large shot had probably been ultimately discharged from the orifices.

The seventh skeleton is that of a species altogether distinct and new. Although that of a large old male, with the cranial sutures much obliterated, and the anchylosis of the epiphyses of its limb-bones complete, it is very remarkable for the comparatively slight protrusion of the jaws, and the consequently increased facial angle; apparently, however, to a greater extent than really, from the flatness of the face, the unusually slight protrusion of the sockets of the upper incisors, and, above all, the elevation of the condyle of the lower jaw raising so considerably the occipital portion of the skull and consequently the auditory orifice. The facial angle does not actually exceed $32\frac{1}{2}$°; while in the two Rambi (male and female) figured in Mr. Blyth's former memoir, it is as low as 30°—(this being also Prof. Owen's estimate of his adult skulls of the Rambi). The zygomata (or cheek-bones) are unusually prominent. The canines, incisors, and the first three upper molars on each side, are exceedingly much worn down by attrition; the canines even to a level with the other teeth: but the circumference of these canines, especially in the lower jaw, is conspicuously less than in males and even large females of the Rambi and Pappan; though they are proportionally larger than in the Kassar. It is further remarkable that the frontal ridges of the skull, instead of uniting upon the vertex to form a single sagittal crest (as in the Rambi), or continuing separate and well apart throughout (as in the Pappan), approach to contact upon the vertex but without uniting; which is very likely to prove a constant and specifical distinction, as the present old males show much irregular deposition of bone externally to its contiguously double sagittal crest. The long bones of the limbs, though fully as stout as in the Rambi and Pappan, and about twice as stout as those of the old female Kassar, yet probably do not exceed the corresponding bones of the full-grown male Kassar in length; being very much shorter than those of the adult Rambi and Pappan: and this remarkable brevity of limb, combined with the conspicuous differences in the skull and sundry other distinctions, can scarcely be considered otherwise than as indicative of specifical peculiarity.

Of the five Rambi sent, there are two

large full-grown females (including that ticketed Mias Chapin), and also a full-grown female of smaller dimensions (which was labelled M. Pappan;) with a male of superior age and stature to the male Pappan presented formerly by Mr. Nicholls; and also a young male, with the last molars brought into wear, but which nevertheless had not nearly attained its full growth, which bade fair to rival that of the gigantic Sumatran male already noticed.

The specimen to which the name Mias Chapin was attached, appears (as already mentioned) to be a large old female Rambi, very remarkable for the enormous size and vertically elongated form of its orbital cavities, which measure 2 inches, by nearly $1\frac{3}{4}$ inch, across. Its skull is larger, though less massive, than that of the female Rambi figured in the former memoir: the muzzle is conspicuously more slender, measuring but $2\frac{5}{8}$ in. in greatest width (outside the canines), instead of $2\frac{7}{8}$ in.: and whereas the coronoid process of the lower jaw in the former specimen is smaller and about on a level with the condyle, in the present example (labelled Chapin) the posterior or condyle process is unusually prolonged, and raises the skull (with lower jaw in situ) so remarkably, that placing it on a level surface together with the other skull noticed, the zygoma of the so-called Chapin not only overlaps that of the other, but its lower edge is about $\frac{1}{16}$ in. higher than the upper edge of the zygoma of the other specimen: the nasal bones, which in the other are united and ascend to the very summit of the glabella, in this skull continue separate, and reach only to the lower portion of the glabella. The limb-bones are even rather longer than in the great female Pappan, and in fact exceed in length those of any other of the full-grown specimens: the humerus measuring 15 in., the ulna (to tip of styloid process) $15\frac{3}{4}$ in.; femur $11\frac{1}{2}$ in.: and tibia $10\frac{1}{3}$ in.; circumference of middle of trunk of humerus $3\frac{1}{8}$ in.; and of femur $2\frac{7}{8}$ in. The few digital bones seem to accord in dimensions with the corresponding bones of our male Pappan. The extreme length of the scapula is $8\frac{1}{4}$ in.; and of pelvis $10\frac{7}{8}$ in.; clavicle 8 in. This specimen is marked as having been procured in Sadong (in Borneo).

Another specimen, which was marked Pappan, Mr. Blyth considers to be a small female Rambi, though fully mature and even old, as shown by the almost complete obliteration of the cranial sutures, the anchylosis of the various epiphyses, and the amount of attrition of all the teeth. The cranial ridges are very small; and the sagittal crest is hardly at all raised, but nevertheless exhibits a tendency to rise along the median line of the skull, between the frontal ridges which converge from the temples, and to be prolonged in front, anterior to the convergence of the latter, which takes place unusually far back: the nasal bones are united and singularly minute, actually not rising so high as the wide part of the orbital cavities; and the latter are small and circular, measuring barely $1\frac{3}{8}$ in every way. The skull considerably resembles that of the female Rambi formerly figured, only that the sagittal crest is so much smaller; the zygomata being also more raised (in consequence of the greater prolongation of the condyle process of the lower jaw); and the orbits are smaller and more circular, and surmounted by much slighter ridges: consequently the face is flatter, and the sockets of the incisors are also less protruded. This skeleton was unfortunately very imperfect, wanting most of the bones of the hands and feet, and one tibia and fibula: a portion of the lower jaw, with the canine, first præmolar, and part of the second, is also lost; but the other long bones are present, and the pelvis is complete. Length of humerus but $13\frac{1}{2}$ in.; of ulna $13\frac{7}{8}$ in.; of femur $10\frac{3}{8}$ in.; and of tibia 9 in.; circumference of middle of humerus $2\frac{1}{3}$ in.; and of femur $2\frac{3}{4}$ in.; metacarpal bone of middle finger $3\frac{12}{16}$ in.; metatarsal of corresponding toe $3\frac{3}{4}$ in.; os calcis 2 in. Total length of scapula (with acromion $1\frac{1}{8}$ in.); and of pelvis $9\frac{7}{8}$ in.; extreme breadth apart of the ilia (or hips) $10\frac{7}{8}$ in.; clavicle $6\frac{3}{8}$ in. This specimen also is marked from Sadong in Borneo.

The third female Rambi is of large size and fully mature, with the various epiphyses well soldered; but it has even less trace of sagittal crest than the last; the frontal ridges meeting as far back upon the skull, but not quite uniting, and a small mesial ridge rising between them above the vertex: the orbits are moderately large and a little elongated vertically, measuring $1\frac{5}{8}$ by $1\frac{1}{2}$ in.; and the nasal bones are united and ascend a little into the glabella. Size about that of the first specimen (marked Chapin), but the muzzle rather broader or $2\frac{11}{16}$ in. This specimen is nearly perfect: length of humerus $14\frac{3}{4}$ in.; ulna $15\frac{1}{4}$ in.; femur $11\frac{5}{8}$ in.; tibia $10\frac{5}{8}$ in.; circumference of middle of trunk of humerus 3 in.: and of femur $2\frac{3}{4}$ in.; metacarpal bone of second or middle figure $4\frac{5}{16}$ in. first phalanx of ditto $3\frac{1}{16}$ in.; second phalanx $1\frac{11}{16}$ in.; metacarpal bone of thumb $2\frac{1}{8}$ in.; first phalanx of ditto $1\frac{13}{16}$ in.; metatarsal bone of middle toe $3\frac{13}{16}$ in.; first phalanx of ditto $2\frac{1}{8}$ in.; second phalanx $1\frac{3}{4}$ in.; metatarsal bone of hallux $2\frac{1}{16}$ in.; first phalanx of ditto $1\frac{3}{16}$ in.; and unguinal $\frac{11}{16}$ in. Total length of scapula $9\frac{1}{4}$ in.; clavicle $7\frac{5}{8}$ in.; extreme length of pelvis $11\frac{1}{4}$ in.; and extreme breadth of pilia 12 inches.

The two remaining Rambi were males: and one of them was a young animal, whose skull which had obviously not attained its full dimensions, though the last true molars had been brought into wear: but the general massiveness of this skull indicates that the animal would probably have become a male of the largest size: the sagittal crest had begun to rise on a grand scale; and the frontal ridges converge directly to it, although these are scarcely indicated for $\frac{3}{4}$ in. before their junction. The teeth are more crowded than in the full-grown animal; the inter-space between the upper canine and outer incisor, which in a large Sumatran male, is $\frac{3}{8}$ in., being scarcely $\frac{1}{4}$ in.; and the first false molar, instead of being completely posterior to the canine, advances considerably on its outer surface posteriorly; in the lower jaw, also, there is a bony interspace between the canine and first false molar in the large mature male, but not in the adolescent male: nasals partially anchylosed, and continued upward to the lower part of the glabella: epiphyses of the humeri considerably anchylosed, and also, those of the tibiæ and fibulæ but not of the radii and ulnæ. This skeleton also was tolerably complete. Length of humerus $14\frac{3}{8}$ in.: of ulna $13\frac{3}{4}$ in.; of femur 10 in.; and of tibia 9 in.; circumference of middle of trunk of humerus $2\frac{15}{16}$ in.; and of femur $2\frac{7}{16}$ in.; metacarpal bone of middle finger (the epiphyses beginning to anchylose) $3\frac{3}{4}$ in.; first phalanx of ditto $2\frac{7}{8}$ in.; second phalanx $1\frac{7}{16}$ in.; metacarpal of thumb $1\frac{7}{8}$ in.; metatarsal of middle toe $3\frac{9}{16}$ in.; first phalanx of ditto $2\frac{3}{4}$ in.; second $1\frac{5}{8}$ in.; metatarsal of hallux $1\frac{7}{8}$ in.; clavicle $6\frac{1}{8}$ in. Extreme length of scapula (minus epiphysis) $7\frac{1}{2}$ in.; of pelvis (with ischial but not iliar epiphysis) $9\frac{3}{4}$ in.; and extreme breadth at the hips $10\frac{1}{8}$ inches.

The next is a mature male, but certainly not of the largest dimensions: being about the size of the great females already described; and not otherwise recognisable from them than by the general massiveness of the skull (which is remarked at the first glance), and less conspicuously than usual in the present instance, by the form of the pelvis. The superciliary ridges are much broader than in any female skull; and the zygomata equally robust: the sagittal crest is also broad and well developed: nasals distinct, and reaching up to the lower part of the glabella. Skeleton tolerably complete; wanting most of the unguinal phalanges and some other small bones. Length of humerus $14\frac{3}{4}$ in.; of ulna (with loose epiphysis) $15\frac{1}{8}$ in. of femur $11\frac{1}{8}$ in.; tibia $9\frac{7}{8}$ in.; circumference of middle of trunk of humerus $3\frac{1}{8}$ in.; and of femur $2\frac{3}{4}$ in.; metacarpal bone of middle finger $4\frac{1}{4}$ in.; first phalanx of ditto $3\frac{1}{16}$ in.; second phalanx $1\frac{11}{16}$ in.; metacarpal of thumb $1\frac{1}{16}$ in. first phalanx $1\frac{1}{8}$ in.; metatarsal of middle toe $4\frac{1}{8}$ in.; first phalanx of ditto $2\frac{13}{16}$ in.; second phalanx $1\frac{11}{16}$ in.; metatarsal of hallux $2\frac{3}{16}$ in., clavicle $7\frac{1}{4}$ in.; scapula $8\frac{3}{8}$ in.; pelvis $10\frac{3}{4}$ in. in extreme length, and $11\frac{3}{4}$ in. broad at the hips. This specimen was marked Mias Rambi by Sir J. Brooke; and was from Sadong in Borneo. The female Pappan already noticed though of greater size than the male described on a former occasion, with considerably longer and broader pelvis, had nevertheless a smaller skull, less prominently developed jaws, and conspicuously smaller teeth: the zygomatic arch is shorter and a little weaker than in the male; but the superciliary ridges and width of the bony orbits are much the same, and in fact there is little further difference between two skulls: the bony crests on the vertex are less prominent in the female, and they approach to within $\frac{3}{4}$ in. of each other; whereas in the male they remain 1 in.; apart where most approximated: length of base of skull, from between the middle incisors to the anterior margin of the occipital foramen, $6\frac{7}{8}$ in.; in the male, and $6\frac{1}{8}$ in the female; breadth of zygomata apart $6\frac{5}{8}$ in., in both. Length of humerus 15 in.; of ulna $15\frac{5}{8}$ in.; femur $11\frac{1}{8}$ in.; tibia $10\frac{3}{8}$ in.; circumference of middle of trunk of humerus $3\frac{1}{4}$ in.; of femur 3 in.; metacarpal bone of middle finger $4\frac{1}{8}$ in.; first phalanx $3\frac{1}{8}$ in.; second $1\frac{9}{16}$ in.; metacarpal bone of one thumb 2 in., of the other somewhat less and, bearing a very short first phalanx, only $\frac{7}{8}$ in.; metatarsal bone of middle toe 4 in.; first phalanx 3 in.; second $1\frac{3}{8}$ in.; metatarsal of hullux $2\frac{1}{2}$ in.; clavicle $7\frac{1}{4}$ in.; scapula $8\frac{1}{2}$ in. in extreme length; and pelvis $10\frac{5}{8}$ in. long, and $11\frac{3}{4}$ in. broad at the hips.

A new species, which has been designated Pithecus curtus, is perhaps the genuine Mias Chapin of the Dyaks. The specimen is decidedly male, and well advanced in years; and the skull has a more anthropoid appearance than that of any other Orang-utan known. This chiefly results from the much reduced prolongation of the muzzle, while the cheek-bones project remarkably, giving a sort of Kalmuk expression to the skull. The absolute projection of the maxilla, in a horizontal line carried from the lower margin of the orbital ring, is, in the large Sumatran male Rambi skull, fully 3 in.; in the male Pappan it is about the same; in the female Pappan $2\frac{1}{2}$ in.; in the old female Kassar (a much smaller animal) about $2\frac{1}{4}$ in.; and in the great male curtus barely 2 in. Extreme breadth of zygomath 7 in.; height of the skull with lower jaw in situ, 11 in.; length, in a straight line, from the summit of orbital cavity to between the incisors, $4\frac{1}{4}$ in. (the same measurement being of the male Rambi $5\frac{1}{8}$ in.; and in the male Pappan $4\frac{5}{8}$ in.): length from occipital foramen to base of upper incisors 6 in. in the male Rambi $7\frac{1}{8}$ in. and male Pappan $6\frac{7}{8}$ in.): length of the palate 3 in. (in the other $3\frac{7}{8}$ in. and $3\frac{5}{8}$ in.) on orbital cavities $1\frac{5}{8}$ by $1\frac{1}{2}$ in. across: extreme width of bony orbits apart externally 5 in.: extreme breadth of ascending ramus of lower jaw $3\frac{7}{8}$ in.; height of the condyle $4\frac{3}{8}$ in.; length of grinding surface of the upper molars $2\frac{1}{16}$ in. The skeleton was fortunately nearly perfect. Extreme length of humerus $13\frac{1}{4}$ in.; ulna $14\frac{3}{16}$ in.; femur 10^{3} in.; tibia $9\frac{3}{8}$ in.: circumfererence of middle of trunk of humerus, $3\frac{1}{4}$ in.; of femur $2\frac{7}{8}$ in. (length and circumference of humerus of old female Kassar $12\frac{3}{4}$ and $2\frac{1}{4}$ in.; ditto of femur $9\frac{7}{8}$ in. and $2\frac{1}{4}$ in.): length of metacarpal bone of middle finger $3\frac{7}{8}$ in.; first phalanx of ditto $2\frac{15}{16}$ in.; second $1\frac{15}{16}$ in.; metacarpal bone of thumb $2\frac{1}{16}$ in.; first phalanx $1\frac{1}{8}$ in.; metatarsal bone of middle toe $3\frac{11}{16}$ in.; first phalanx $2\frac{3}{4}$ in.; second $1\frac{5}{8}$ in.; metatarsal bone of hallux 2 in.; clavicle $6\frac{7}{8}$ in.; extreme length of scapula $8\frac{3}{4}$ in.; of pelvis $10\frac{1}{8}$ in.; and breadth at the hips 11 in.: length of the vertebral column, from atlas to sacrum, measured internally, $16\frac{1}{4}$ in.; in the scarcely full-grown male Pappan, $17\frac{1}{2}$ in., and in the old female Kassar, $15\frac{1}{4}$ in.; axis-vertebra soldered to the next. As compared with the Rambi and Pappan, the metacarpals and metatarsals are shorter, and the first phalanges of the fingers and toes are longer. It has been remarked that in the adult and aged specimens of the Rambi and Pappan, the canines are always perfect; whereas in those of the small Kassar they are as regularly broken or worn down to about a level with the incisors. This remark is borne out by the series of skulls now under examination. The canines are long and unbroken in all the specimens of the Rambi and Pappan; and are ground down in the old female Kassar, and also in the old male P. curtus! Denoting probably a difference of food. The different species of these animals do not appear to inhabit the same district; and, seemingly, P. owenii represents, in the southern part of the great island, the P. morio of the northern part.

When examining the grand series of skulls and skeletons of adult Orang-utans amounting to twelve in all (viz., 3 males and 4 females of Pithecus brookei or Mias rambi, 1 male and 1 old female of P. satyrus or M. pappan, one old male of the P. curtus or M. chapin?, an old female of the P. morio or M. kassar, and the adolescent female with short fore-arms, provisionally designated P. owenii,—in addition to Professor Owen's excellent lithographs of the male Kassar and of male and female Rambi in the Tran. Zool. Soc., Vols. i and ii), the observer is first struck with the very obvious and conspicuous distinctness of the comparatively puny Mias kassar, and of the adolescent small skeleton, from all the rest. The next glance suffices to separate the Rambi, pappan, and P. curtus: the last being quite as thoroughly distinguished apart by the tout ensemble of its appearance, as the Pappan is by its conspicuously double-crested vertex. No zoologist, accustomed to the discrimination of specifical characters would hesitate, with the present series of skulls before him, to acknowledge the distinctness of each of these three, but such an observer would ponder for a while over the remarkable female Rambi skull with enormous and vertical oblong orbits, and would doubtless hesitate in regarding it as specifically identical with the old female Rambi of small size; so great is the contrast between them. Presuming, however, that he arrived at the conclusion here ventured upon, it still follows that the Rambi is subject to an extraordinary amount of variation for a wild animal; and this, although it may not invalidate the opinion of its distinctness from the Pappan and P. curtus, nevertheless prompts a reconsideration of the grounds for the view formerly expressed, with regard to the specifical distinctness of the small specimen having short fore-arms. From the detached state of the epiphyses of its limb-bones, it is certain that that specimen was not full-grown; and as those of the ulnæ at least (as shown by the adult male Rambi, and also by that of the male Pappan,) are the last to become anchylosed, it should follow that the fore-arm continues to increase in length after the upper arm and the leg had ceased to grow; but the difference is still too great to be thus accounted for satisfactorily.

This fact would appear certain, that the partial anchylosis of the epiphyses of the limb-bones does not rigorously denote cessation of growth, unless the female Orangs attain to greater stature than the males, which is most unlikely. It would seem rather, that as the earthy salts are continuously absorbed and re-deposited, some continuance of extension supervenes, until finally checked and stopped by the considerably increased deposition of bone. The skull also continues long to increase in size, after the last true molars have been brought into use.

As regards the sexual distinction, a practised eye discerns it readily in the adult skull, by its superior general massiveness in the male; and, in the skeleton, the larger and broader pelvis of course denotes the female animal, combined with a proportionally smaller and less robust skull than in the other sex. There is no reason to doubt the correct determination of sex in any one of the specimens here noticed.

The occasional but rare occurrence of the unguinal phalanx to the hallux or great toe, would seem to be proper to no particular sex or species; for it exists in the male Pappan from Sumatra, and in the female Rambi from Borneo.

It now remains to connect the osteological with the external characters of the different species; to determine the stature attained by the largest males of the Rambi, Pappan, and also Kassar, to obtain further information of the Pithecus curtus, and to verify or otherwise the P. owenii.—*Blyth in Beng. As. Soc. Journ.*

ORANGE.

Naranj,	AR.	Limau manis,	MALAY
Coolee orange Ch'ang,	CHIN.	Jaruc-manis,	,,
Mandarin,	,,	Jaruk japun,	,,
Kan,	,,	Madra narangi,	MALEAL.
Naringhie,	DUK.	Narangi,	PERS.
Orangen,	DUT.	Laranja,	PORT.
Oranges,	FR.	Pomeranezu,	RUS.
Pomeranzen,	GER.	Naga-runga,	SANS.
Narunghie; kounla,	GUZ.	Swadoo naringa,	,,
Narunghi; kounla,	HIND.	Panneh dodang,	SINGH.
Arancia; Melarance,	IT.	Naranja,	SP.
Jeruklegi,	JAV.	Kichli pallam,	TAM.
Aurantium	LAT.	Collungi pallam,	,,
Citrus aurantium,	,,	Kichilie-pandoo,	TEL.

Like the lemon, this is a native of India, being found in the forests on the borders of Sylhet, and also on the Neilgherries, perhaps also in China. The Sanscrit Nagrunga, and the Arabic Narunj, are no doubt the European names of Naranja (Spanish), Arancia (Italian), whence we have Aurantium and Orange. The orange-tree attains a height of 16 or 20 feet and bears great abundance of fruit, and like others of the genus, bearing the fruit at all ages at the same time with the flowers. Though a native of India, it does not ripen its fruit there until the winter, and hence has been able to travel so much further north than others of its compatriots. Oranges are cultivated in many parts of the East Indies and are carried by land and by water to considerable distances. The Coolee orange of China, the Ch'ang of the Chinese, is a large thorny tree, but there is also a small variety: its fruit has a thin, yellow, closely adhering skin, and fine, but rather sharp flavour; marmalade is made of the fruit. In China kiuh means any orange. The kan of the Chinese, also called by them Chii and sha-kan, is the red skinned variety, the Citrus nobilis of authors: its rind is connected with the endocarp, with many loose threads. It grows in Central China and its fruit is smaller and sweeter than that of the Coolee orange: it is used as dessert and its peel is exported to Japan. The orange is extensively cultivated all over the Deccan. The finest sorts are the Cintra, Cowlah, and a small sweet orange which grows on a tree more like a creeper. The principal method of culture is by budding, the stocks generally being either seedlings or cuttings from the sweet lime. The best Cintra, with a thin close rind, is produced upon the seedling stock, and it is said that the fruit grown upon the sweet lime stock is generally loose and soft: this is very perceptible with some of the oranges. The best time for budding is in the cold season. In Tenasserim, oranges are quite abundant, but for the want of proper attention they are much inferior to the West India oranges, and to those cultivated in the south of Europe. The trees are often exceedingly prolific. A seedling planted, produced in the ninth year more than two thousand oranges. The leaves are rather bitter, and contain essential oil. A still more fragrant oil, called oil of neroli by perfumers, is afforded by the flowers. The berries while unripe are gathered, dried, and turned in the lathe to the size of peas, and are used in issues on account of their fragrant odour. The rind or peel of the orange is bitter and aromatic, and affords a very useful stomachic tincture and syrup. The juice of the ripe fruit contains sugar, malic and citric acids, citrate of lime, mucilage, albumen and gum. Like the lemon juice it makes an excellent cooling drink, and is an invaluable specific in the treatment of scorbutic diseases. The seeds of the orange yield oil by expression. The fruit of the orange is eaten as a dessert, is candied and is made into marmalade. From its extremely agreeable and refreshing juiciness it is much esteemed as a fruit even for the sick, and as a refrigerent. When of a small size, the fruit which falls off is dried, and forms the Aurantii baccæ or Curacoa oranges, so called from being employed in flavouring curacoa. The smaller ones are smoothed, and used for making issues. The rind or peel for the fruit is sometimes substituted for that of the bitter orange, as are also the flowers and their essential oil, also the oil expressed from the grated rind, likewise orange flower water; all being used for the same purposes as those produced from the bitter orange. One variety of the orange fruit is in high estimation amongst the Tamil medical practitioners, who suppose that it purifies the blood, improves the appetite and cures catarrh. The wood of the orange tree is not available of any size, or in any quantity. Leaves of the orange are officinal on account of their bitterness and the aromatic properties of the essential oil stored up in the vesicles with which their substance is studded. This essential oil may be obtained by distillation, as also a distilled water. An infusion of the leaves may be employed as a bitter and aromatic excitant and diaphoretic. The orange, lemon and lime trees, (Citrus), are evergreens that seldom exceed about 15 feet in height. The wood is only met with as an object of curiosity; it is of a yellow colour, but devoid of smell. In confirmation of the orange and lemon being natives of India, it may be adduced, that the Asiatic names of the orange are in SANSCRIT, Nagrunga; HIND. Narungee; ARAB, Nar[illegible]nd those of the lemon, Sans.; Nimbooka; Beng. Neeboo; Hind. Neemoo, leemboo. It is further worthy of notice, that the Persian and Arabian authors do not, as is their wont, give any Greek synonyme of either; but of the citron, which is supposed to have been known to the Romans, they say that marseeska is the Yoonanee, and atrogha, the Syrian name, neither of which terms have been traced. The Sanscrit name of the citron is beejapoora, the Arabic ooturuj, and the Persian toorunj. By the last it is also known in the northern provinces of India.—*Drs. Riddell*; *Mason*; *O'Shaughnessy; Ainslie; M. E. J. R.; Tredgold; Royle Ill. Him. Bot., p.* 130.

ORANGE-BELLIED GRAY SQUIRREL, syn. of Sciurus lokriah, *Hodg.*

ORANGE-DYE PLANTS. The flowers of the butea with an alkali, the corolla tubes of the tree of mourning, and the leaves of the henna tree, yield beautiful orange dyes. The latter are used in India to dye skins of a reddish-yellow.—*Mason.*

ORANGE GOURD, Cucurbita aurantia.

ORANGE PEEL.

Chin-pi,	Chin.	Post-i-Turanj,	Pers.
Hung-pi,	"		

This is the peel of the various kinds of orange fruit, the Citrus aurantium, C.bigaradia, C. margarita and C. nobilis. It is used as a stomachic, stimulant, anti-spasmodic.

ORANGE-PEKOE, a black tea from China, so named, of which there is also a scented kind. —*Simmond's Dictionary.*

ORANGE WINE or Auranta, is an agreeable beverage, of a somewhat peculiar flavour, resembling Malmsey or Muscat. It is recommended for flavouring jellies.—*M. E. J. R.*

ORANGE ZEST, or Orange threads.

Kiuh-peh,	Chin.	Kiuh-lo,	Chin.

The dried threads of the fruit, that cover the pulp of the sweet orange, prolongations of the endocarp.

ORAON, a tribe found amongst the races in the Chota Nagpur territory. Their language is of the Dravidian stock. They are located in the highlands east of the Udipur and Sargujah districts of the Chota Nagpur division. They form a considerable part of the population of the Jushpore highlands, and these Jushpore Oraon are the ugliest of the race. Thence, eastwards, the Oraon have pushed themselves into the country of the Mundah in the plateau of the Chota Nagpur district and adjoining country. They are not, at present a dominant race. They are laborious and industrious and are engaged as labourers in Bengal. The Oraon call themselves Khoonkir. They have traditions that they were once settled in Guzerat, but on being expelled there, travelled eastwards fighting unsuccessfully on the road, and finally settled on the Rhotas hills, where some of them seem to have remained until the mahomedans erected a fort there. There is no similarity between the language of the Oraon and that of the Mundah and their cognates, the Mundah is soft and sonorous, while the Oraon is guttural and harsh and the Oraon language of the Rajmahal hills and the Tamil have a near connection. The Oraon, when driven from the Rhotas hills, brought with them to the plateau large herds of cattle and implements of husbandry previously unknown to the Mundah. Also, the Oraon, when driven from the Rhotas hills, separated into two great divisions, one of these moving to the S. E. formed a settlement in the Rajmahal hills, and are now known as the Male or Rajmahali; the other sought refuge to the south in the Palamow hills, and wandered from valley to valley in those ranges, till they found themselves in Burwai, a hill-locked estate in Chota Nagpur proper. From there they occupied the highlands of Jushpore and formed the settlements in the vicinity of Lohardugga, on the Chota Nagpur plateau where they still constitute the bulk of the population. The present customs of the Oraon have been derived from the Mundah, and differ therefore from those of the Rajmahali people whose isolated position has preserved their ancient ceremonies. In the marriages of the Oraon, a public recognition that the couple have slept together is a part of the ceremony; the Oraon burn their dead. They are sworn on the Doob grass. Their supreme deity is the sun, called Dhurmo, a Sanscrit word. Amongst the Rajmahali people, it is customary for the engaged couple to sleep together before marriage. They bury their dead. They swear on salt. They worship Bedo Gosain, an invisible spirit. The Rajmahali is less cheerful than the Sonthal, less industrious and does not join in the dances to which the people of the Mundah stock are so devoted. The Oraon are more lively than the Mundah, quite as industrious and the most active and nimble-footed of dancers. The Oraon are now a good deal interposed between the Kharawa and the Mundah, but though the Kharawa and Oraon are in contact, they are described by Colonel Dalton as very unlike one another in language, appearance, manners and customs. Oraon settlements predominate in the western parts of Chota Nagpur plateau and each village group has its peculiar flag. The Oraon are a very small race, but well proportioned. The young men have light graceful figures and are as active as monkeys. Those residing in isolated positions are generally black or dark and ill-favoured. They have wide mouths, thick lips, projecting maxillary processes, nostrils wide apart, no marked elevation of the nose, and low foreheads, though not, in general very receding. The Oraon who dwell in mixed communities have more varied features and colours softer, fairer and pleasing when young and improve in appearance with civilisation. The Oraon, according to Colonel Dalton have more of the African type of feature, he has seen woolly heads amongst them and the wild Oraon have almost an ape-like physiognomy. The Jushpore Oraon, according to Colonel Dalton, are the ugliest of the race, with very low foreheads, flat noses and projecting cheek bones, and approach the negro in physiognomy and in manner, the Oraon are more like bright-hearted negroes are fond of gaiety, decorating rather than clothing his person, whether working or playing, always cheerful, and young Oraon boys and girls are intensely fond of decorating their persons with beads and brass ornaments which they discard on becoming christians. Oraon youths and maidens speedily acquired the songs and the steps of the Mundah. The Oraon have small, ill-built, untidy huts, in which the family reside. But they have in each village of old standing, a Dum-Kuria, or bachelor's hall in which all boys and unmarried men of the tribe are obliged to sleep. Any absentee is fined; in the Dum-Kuria, also, is placed all the flags, instruments used in their dancing and other festivals, and in front of it is a clear circular space for the dancing ground. In some Oraon villages, also, the unmarried girls have a house to themselves with an elderly woman to look after them—she has always a stick in hand. The Oraon have no gardens or orchards belonging to individual houses, but they have some fine trees, common property within the village, and outside, their groves of fruit trees form a beautiful feature of Chota Nagpur scenery. The Oraon have a veneration for salt; Mundah and Oraon marriages as a rule are not contracted until both bride and bridegroom are of mature age, the young people often making love and suiting themselves. In Chota Nagpur amongst the agricultural classes, and in Singbhum amongst all classes of Kols, girls have a fixed price sometimes up to 40 head of cattle; and girls often long remain unmarried, even to be old maids. When they are married, the bride clasps a mahwa tree, the groom a mangoe tree, and at the close of the ceremonies the bridesmaids pour a jar of water over the heads of each of the couple who then retire to change their wet clothes. The next morning the bridesmaids burst into the nuptial chamber and bring forth the bride and groom. In villages east of Ranchee, wholly inhabited by the Oraon, the Mundah, not the Oraon, is the language spoken. Mundah and Oraon village officers are the Bhumhar, whose head is called Mundah; —the Mahto or assessor, Bhandari, his assistant; the Pahan or priest: Gorait or messenger, and Kotwar or Police. The Oraon according to their own traditions, were driven across the Sone by the intrusion into their native land of gangetic hindoos, and ultimately settled in Chota Nagpur, the country of the Kol tribe of Mundah or Ho. At a later period, hindoos spread, also, into this territory, reduced the more civilized Oraon to slavery, drove the wilder Kol into revolt, and eventually forced them to migrate to the southward and eastward into the land of the Bhuian. The more northerly of the eastern emigrants passed out into the low country and mixing with the Bhumij and Bhuian natives, formed the class of Tamaria. The more southerly moved into Singbhum and Kolehan, living at peace with the Bhuian pre-occupants, until the intrusion of hindoos from Marwar, who first leagued with the Bhuian against the Kol, and then with the Kol against the Bhuian. and finally appropriated Singbhum, leaving Kolehan Hodesham to the Kol or Ho, as the southern tribe call themselves. Remnants of the Kol are still found to the northward in Chota Nagpur and they appear to be also spread to the northwards towards Rajmahal.

The Sonthal tribe appears to be very widely spread. It is found in Chota Nagpur and in the skirts and valley of the Rajmahal hills. It is enumerated by Mr. Stirling in his list of the tribes of Cuttack, and, according to Captain Sherwell, its range is from Cuttack through Chota Nagpur to Rewa, thus embracing the territory of both divisions of the eastern Vindyan races.

The Male and Oraon languages are mainly Dravidian, and it is remarkable that although the Male are now confined to the N. E. extremity of the Vindhya, where the Ganges washes and bends round the chain, and are separated from the south Dravidian nations by the Kol, their language is more Dravidian than the Kol itself. The explanation is probably to be found in the circumstance of the Oraon and Male having originally formed an uninterrupted extension of the Gond tribes and dialects that extended from the Godavery to the N. extremity of the Vindhya. According to Dr. Caldwell, Oraon is an uncultivated idiom, and contains many roots and forms belonging to the Kol dialects and so many Dravidian roots of primary importance, that it is considered by Dr. Caldwell as having originally been a member of the Dravidian family of languages.

The Oraon worship the sun under the name of Dhurmi, as the creator and preserver, and offer white animals to him in sacrifice. Dara, worshipped by the Oraon and Mundah of Chota Nagpur, is a carved stick, stuck up where the great jatras are held, or in the village dancing place, and is worshipped with much revel and wassail, with much drunkenness amongst the old, and dancing and love-making amongst the young.—*Dalton, pp.* 134, 169, 170, 171, 172, 175-179, 198; *Campbell, pp.* 22, 33, 39.

ORAZIO, a friar who travelled in Central Asia. See Sakya muni.

ORCANETE, FR. Alkanet.

ORCHAKA, BENG. Sonneratia acida, *Linn.*

ORCHIACEÆ, *Lindl.*, the Orchis tribe of plants comprising 7 gen., 1,990 sp., viz.:

Of these, there are about 1,700 species in British India, viz.:

Malaxieæ	390	Arethuseæ	218
Epidendieæ	153	Neotieæ	270
Vandeæ	487	Cypripedieæ	23
Ophydeæ	449		

Many of the Orchiaceæ have very beautiful flowers. Salep which consists of bassorin is obtained from a species of Eulophia. Orchidaceous plants are rare throughout the plains of Northern India, and in the Punjab. Only the ubiquitous Zeuxine sulcata occurs generally, while Eulophia is found locally, and only one other was found in the Trans-Indus hills to 8,000 feet. Bolbophyllum, species, B. auricomum, Careyanum, flexuosum, fuscescens, Jenkensonii, serpens, and sunipia, occur in Nepal, the Khassya hills, Burmah and Tenasserim. The most highly valued of the orchid order among the Burmese and Karens, is the sweet-scented bolbophyllum, which Karen youths wear in the lobes of the ear, and maidens in their hair. It abounds in almost every part of the jungles, throwing down delicate straw-coloured racemes over the rough gray bark of old lagerstrœmia. Bolbophyllum careyanum, is a common orchid in the vicinity of Maulmain, easily recognized by a long leaf at the apex of a false bulb, and by its small purplish flower. Species of Dendrobium occur in south-eastern Asia and Australia. Dr. Wight in his Icones, gives thirteen, Dr. Voigt names twenty-five species, and on the Tenasserim coast, there are fifteen or more species, viz.:—

album.
alpestre,
aureum,
barbatulum,
denudans,
filiforme,
graminifolium,
heterocarpum,
heyneanum,
humilis,
jerdonianum,
aggregatum,
bicameratum,
cambridgeanum,
candidum,
calceolus,
cœrulescens,
clavatum,
crumentatum,
crysanthum,
densiflorum,
flavum,
formosum,
gibsonii,
jenkinsii,
longicornu,
macrostachyium,
paxtonii,
pendulum,
pierardi,
pulchellum,
pumilum,
purpureum,
ramosissimum,
secundem,
stuposum,
sulcatum,
teretifolium.

Of all the air plants on the Tenasserim coast, the most interesting is a dendrobium, the flowers of which are white, with a yellow lip, three or four inches in diameter, and exquisitely fragrant. The plant blossoms in March, and it flowers. May be seen whitening under the emerald foliage of the groves nearly six months of the year to the close of October. The Burmese call it the silver flower. Of species of Epipactis, Wight gives figures of Epipactis carinata, and Dalhousiæ macrostachya. Eria obesa, is one of the most abundant of Tenasserim epiphytes, but the flowers are small, and have little to recommend them. Wight gives figures of E. epiphytes, pauciflora, polystachya, pubescens and reticosa. Air-plants possess the power of living for a considerable time suspended in the air. All plants, however, require inorganic as well as organic constituents, and although these latter elements can be supplied from the air in the form of carbonic acid, ammonia, and water, the former cannot, and in the end they all perish. There are however, two different tribes to which the name of Air-plants has been applied; of which one, containing the moss-like Tillandsia usneoides, which hangs in festoons from the branches of trees in the hot damp forests of tropical America, and the fragrant T. xiphioides, which adorns the balconies of the houses in Buenos Ayres, is called by botanists Bromeliaceæ; the other, abounding in species of the most different nature and appearance, is named Orchidaceæ. The genera, Eulophia, Orchis, Satyrium are believed to produce the salep of commerce, a substance largely used as a restorative and as a dietetic. Orchis mascula, called early orchis, male orchis, and male fool's stones, grows plentifully throughout Europe, northern Africa, Persia and the temperate region of High Asia. In Persia the roots are washed and thrown into boiling water to remove the outer skin; they are then dried, strung on cords and hung in the sun or in ovens until perfectly free from moisture. The dried bulbs are of the size of a cherry stone to that of an olive, are slightly transparent and of a horny colour, they are pounded by being soaked in cold water, until they become soft and then rapidly dried, and the powder is dissolved like other fecula, in water, milk or broth, requiring sixty parts of liquid to one of fecula. It may be used for the same purposes as sago, tapioca and arrowroot; and when good is an excellent diet article for convalescents, two drams being sufficient for a meal for an invalid. O. morio of Great Britain, the meadow orchis, or female fool's stones, and the O. militaris or man orchis, also of Britain, all furnish the salep tubers: Orchis biflora, O. commelinæfolia, O. latifolia and O. papilisnacea are also named. Dr. Royle was of opinion that the genus Eulophia furnished the salep of High Asia, Cashmere and Affghanistan, the Himalaya, the Neilgherries and Ceylon, and Dr. Bellew found an orchis at Hazarah four marches west of Karram fort at a height of 1,000 feet, some of the tubers being almost as large as a walnut. Dr. Royle names Eulophia vera of the Himalaya, near the Jhelum, and E. campestris near the Kheree pass as yielding salep. There are three kinds of salep known in the bazaars of N. W. India, viz., Salep misri or Egyptian salep, the genuine salep of Kashmir, salep-kohi or salep kabuli, the mountain or Kabul salep and Simla salep and salep Hindustani, which is the worst kind.—*Mason's Tenasserim; Eng. Cyc.* See Aerides, Cymbidium, Dendrobium, Epidendrum, Gunnia, Loranthus.

ORCHILLA WEED.

Orchella, Archil,	Eng.	Rocella tinctoria,	Lat.
Orseille,	Fr., Ger.	Orchilla,	Sp.
Oricello, Orcella,	It.		

Orchilla weed is the lichen Rocella tinctoria, from which is obtained the dye called Orchil or Archil, by maceration in urine or other ammoniacal liquid.

ORDEAL. The earliest mention of the trial by ordeal is contained in the 5th chapter of the book of Numbers from the eleventh verse, in which the priest gave holy water to a woman to drink, imprecating her with a curse, that if guilty, her thigh should rot and her belly should swell. Trial by ordeal, though forbidden by the Koran, is to be found in some form or other throughout the mahomedan world. In Sind it is called Toro, and there are several forms in which it is practised. In hinduism nine ordeals were recognised: in trivial cases, a few grains of rice that have been weighed with the salagramma are put into the mouth of the suspected or accused person, who chews them and spits them out on a pepul leaf. If the person be innocent, the grain appears as if stained with blood: if guilty, the rice is dry. In the trial by Cosha or image-water, the accused person drinks some of the water with which an idol has been washed, and if the accused survive free from calamity through the next fortnight, he is innocent. The ordeal of the balance is applied to women, children, the aged, blind, lame and sick men, and to brahmins. After a fast of 24 hours, both of the accused and the priest, the accused bathes in holy water, prayers are offered up and oblations are presented to fire. The beam of the balance is then adjusted, the cord fixed and the accuracy of the scales ascertained. The accused then sits in the scale and, while being weighed, the priests prostrate themselves, repeat certain incantations and after an interval of six minutes the paper with the writer's accusation, is bound around the head of the accused who invokes the balance thus: Thou Oh! Balance, art the mansion of truth: thou wast anciently contrived by the deities: declare the truth therefore Oh! giver of success, and clear me from all suspicion. If I am guilty, Oh! venerable as my own mother, then sink me down: but if innocent, then raise me aloft. The accused is then re-weighed; if he then weigh heavier, he is found guilty, but if lighter, he goes free.

In the trial by fire, the accused in India walks barefoot into a heap of burning pipul leaves (Ficus religiosa); in Siam, over a pit filled with burning charcoal. In the ordeal by boiling oil, the accused has to thrust his hand into the scalding fluid.

The hot-iron ordeal is practised. Nine circles are drawn, each 16 fingers in diameter, and each the same distance of 16 fingers apart. The hands of the accused are rubbed with unhusked rice (paddy) and all marks on them carefully noted. Seven pepul leaves are then bound with seven threads on each hand, and the priest gives him a red hot ball to carry as he steps from circle to circle, keeping his feet within each until he reach the eighth, when he throws the ball on a heap of dry grass inside the ninth. If his hands, which are then examined, be not burned, he is pronounced innocent.

In Japan, a reputed thief bears on his hand a piece of thin paper having the figures of three deities. On this a piece of red-hot iron is placed, and if his hand escape, he is pronounced free.

The water ordeal is in vogue in India, in Burmah and in Borneo. In India, the accused stands in water, nearly up to his waist, attended by a brahman staff in hand. A person near shoots three arrows from a bamboo bow and a man hurries to pick up the furthermost shaft. As he takes it from the ground, another person runs towards him from the water's edge; at the same moment the accused grasps the brahman's staff and dives beneath the water. If he remain there till the two arrow-fetchers return, he is innocent, but if any part of his body appear, he is guilty. In Burmah, a stake is driven into the water, the accuser and accused take hold and together plunge beneath the water, and he who remains longer submerged is declared to have truth on his side.

In the poison ordeal, white arsenic and butter in a mixture is administered.

In the snake ordeal, a cobra and a ring are placed in an earthern pot, and the accused has to withdraw the ring.

In the idol ordeal, two images, one called Dharma or Justice, the other Adharma, or Injustice, are placed into a jar, and the accused is allowed to draw: if Dharma image be withdrawn he is innocent.

The Borneo Dyaks place two pieces of salt in the water, to represent the accuser and accused, and the owner of the piece dissolving the first loses the cause. Also, two shells are placed in a plate and lime juice squeezed over them, and he whose shell moves first, is pronounced guilty or innocent as may have been resolved on. But the more common mode amongst the Dyaks is for the accuser and accused to plunge their heads beneath the water, and he who remains the longer is free.

The Binjara people use the branch of a Nim tree (Azadirachta indica.) A husband throws it on the ground and, turning to his wife, says, if thou be a true woman, lift that nim branch. In the first volume of the Asiatic Researches, is an article on the trial by ordeal as in use among the hindus. Several modes are there detailed. The trial by jury, called Panchayet, was likewise formerly in extensive usage, and, up to the close of the 19th century, was not entirely discontinued, in some districts of India. Trial by ordeal is in use on the coast of Africa : All criminal charges are tried by the Pynin or judges, who hear and weigh the evidence produced. But if there be no evidence the cause is decided by a species of ordeal called doom, which consists in administering to the person accused a certain quantity of the bark of a tree deemed poisonous. If he retain it on his stomach, he is pronounced guilty; if otherwise, innocent. The refusal to submit to this ordeal is considered as a decisive proof of guilt, and the judges proceed accordingly. There is a fire ordeal with the hindoos, among whom in both peninsulas the usage is very general, extending to buddhist Siam and Pegu. Both hands of the accused are ordered to be rubbed with rice in the husk, and well examined; then let seven leaves of the Aswatha (the religious fig-tree) be placed on them, and bound with seven threads, saying these words: "Thou, O fire, pervadest all beings; O cause of purity, who givest evidence of virtue and of sin, declare the truth in this my hand.—*Richard F. Burton's Sindh, p.* 382 ; *Wilk's Mysore, Vol.* i, *p.* 501 ; *Hindu Infanticide, p.* 150 ; *William's Story of Nala, p.* 192 ; *Fourth Report of the African Institution* ; *Letter from Mr. Meredith on the Gold Coast, December* 1809 ; *Asiatic Researches*. See Divination.

ORDO, see Kibitka.

ORELIA GRANDIFLORA, Aubl. Syn. of Allamanda cathartica.

ORELLANA, It., Port. Arnotto.

OREN, Heb. The ash-tree. Fraxinus, *sp.*

ORENIUM ASPERUM, syn. of Coleus barbatus, *Benth.*

OREOCINCLA WHITEI, the Turdus whitei; or White's thrush, A Siberian species, according to the Prince of Canino, with 14 tail-feathers ! Distinct from the very similar O. dauma of India (from the Hindustani word Dama, equivalent to 'Thrush'), with which it has been supposed identical.

OREODAPHNE, a genus of plants of the order Lauraceæ, the Laurel tribe. Oreodaphne cupularis, is the cinnamon of the Mauritius. Oreodaphne opifera, *Nees.*, yields a volatile oil, smelling of orange peel and rosemary, used as a stimulating liniment.—*O'Shaughnessy, p.* 548.

OREODOXA OLERACEA, *Endlich.*

Areca oleracea, *Jacq.*	Edible cabbage tree, Eng.
Euterpe caribæa, *Spreng.*	

A palm of the W. Indies, one of the Cocoaceæ. The green top of the trunk is eaten in the W. Indies both raw and cooked. It has been introduced into India.

OREODOXA REGIA, *Humb. and Bonpland.*

Oenocarpus regius, *Spr.*

A palm of Cuba in the vicinity of Havannah. It has been introduced into India.

OREOPHORUS HORRIDA, *Edws.* A crab of the Red Sea.

OREOSERIS LANUGINOSA, *DC.*

Chaptalia gossypina, *Royle.*

Kafi	Beas.	Poorjloo,	Ravi.
Bur, Buzh, Kapfi,	Chenab.	Bujlo,	„
Pat-patoola,	Jhelum.	Kapfi,	„
Kho,	Kangra.	Kufra,	Sutlej.
		Khare-booti,	Tr.-Indus.

Common in the Himalaya up to the Indus, (and found in the hills beyond it) from 3,200 to 7,000 feet. Wherever it grows in any quantity, tinder and occasionally moxas appear to be made from it, sometimes by beating up the body of the leaf with the tomentum on its under-surface (as is done with some other plants), but generally by breaking through the former and tearing off the latter to be used alone. Cloth is said to have been made from this, but Dr. Stewart nowhere found this to be the case in the Punjab Himalaya. The plant is quite small, and does not grow closely, so that a wide area would need to be searched to get any considerable quantity of the tomentum; and the process of removing the latter is a tedious one, and would probably be costly.—*Dr. J. L. Stewart,* m. d. *in Punjab Plants.*

ORFA, is the capital of a Turkish pashalik which extends in a north-west direction from the mouth of the Shat-ul-Arab to the rocks of Merdin, the Baghdad frontier towards Constantinople. In an east and west line, it stretches from the confines of Persia to the banks of the Khabour which separates it from the pashalik of Baghdad; Orfa is the Osrhoene of the Romans, and that part of Mesopotamia which contained the Harran of Abraham, and the famous Edessa of the Crusades.

ORGANJ, Urghanj or Jarjaniah, formerly the chief city of Khwarezm, the country now known as Khiva. It stood on both banks of the Oxus, with a bridge connecting them. It was the scene of awful devastation and massacre by the Mongols under Jenghiz in 1221, and a hundred thousand of the only class spared, the artizans are said to have been transported to Mongolia.—*Yule Cathay, Vol.* i, *p.* 232.

ORGE, Fr. Barley.

ORGLUM, see Purmuli or Fermuli.

ORGOON—? A light brown coloured wood, close-grained and strong, grows in the Santhal jungles, plentiful near Sooree and scarce beyond Ranee-bahal up to Hasdiha. Used by the natives for building purposes and might be used in the construction of timber bridges.—*Cal. Engineers' Journal, July* 1860.

ORHOTA, Tart. Ginseng.

ORIAH, see India, Uria.

ORIANA, It., Port. Arnotto.

ORICELLO, It. Orchilla weed.

ORICHALCUM, Lat. Brass.

ORIDAVANA, see Meru.

ORIENTAL, a term in use in philology to indicate a class of languages; in geography it is applied broadly to Asiatic countries east of Europe, but in a more restricted sense to the East Indies or the countries now known as British India. In mineralogy it is applied to precious stones, varieties of corundum, the violet oriental amethyst, the green oriental emerald, the red oriental ruby, the blue oriental sapphire, the yellow oriental topaz, are all variously coloured varieties of corundum. The oriental amethyst is also of a purple colour but is an extremely rare gem. Its colour can be destroyed by heat and its purity then resembles that of the diamond. They are all found abundantly in the peninsula of India, but not of great beauty, the ruby of the N. E. of Burmah is the true oriental ruby. They are all distinguishable from the other gems of the same names which have not the prefix oriental by their greatly superior hardness and greater specific gravity. Sapphires are found in gravel and sand in the island of Ceylon and in Pegu, but they have never been seen in a matrix. They are also occasionally found in gravel in different parts of Europe, and they have been met with of a clear blue colour and crystallised in the lava of Neider Mendig, near Andernach on the Rhine. The sapphire is a remarkable instance how the mysterious chemistry of nature in the mineral kingdom produces from the same elements substances the most different in external form; this beautiful precious stone yielded by the analysis of Chenevix 94 per cent. of alumine; and Tennant found in emery, when freed from its admixture of iron, 92 per cent. of the same earth. The sapphire is, after the diamond, the most valuable of gems; it is usually dark-blue, but also occasionally colourless, and the green variety of corundum is the rarest of all gems.

Oriental emerald.

Zamarrud,	Ar., Pers., Hind.	Smeraldo,	It.
Emeraude,	Fr.	Smaragdus,	Lat.
Ismaragdon,	Gr.	Esmeralda,	Sp.
Prasinus,	„	Pachi, Kallu.	Tam.

Emerald, the green variety of corundum, is the rarest of all gems: it is of a beautiful green colour, unsurpassed by any gem. The finest occur in a limestone rock, at Muzo, in New Granada near Santa Fé de Bogota, 5° 28', at Odontchelong in Siberia and near Ava. It is associated with spinel.

When of a deep rich grass-green colour, clear and free from flaws, it sells at from £20 to £40 the carat. Those of lighter shade from 5*s.* to £15 the carat. The emerald pillars in the temple of Hercules at Tyre; the emerald sent from Babylon as a present to a king of Egypt, four cubits in length and three in breadth, and the emerald obelisk described by Herodotus, were all doubtless green jasper. The Ural and Altai mountains have latterly furnished the finest emeralds. See Precious Stones, Gems.

ORIENTAL ARBOR VITÆ, or Chinese Arbor vitæ, Thuja orientalis, is a native of rocky situations in Siberia and China and on the mountains of Japan.—*Eng. Cyc.*

ORIENTAL LANGUAGES, is a term applied to all the languages of Asia, whether of the Aryan, Semetic or other class. With all the oriental languages those who would acquire them, encounter their first difficulty in the variety of writing characters in use, and a second difficulty in the discordant manner in which, when a foreign character is used, or indicated by foreigners, the powers of the letters are employed. Two modes have been proposed and largely followed, of indicating by the Roman letters, the characters in use for the vernacular tongues of India. The one put forward by Sir William Jones, about the year 1788, was an analogous classification of the letters, the other proposed by Dr. John Borthwick Gilchrist, in the early part of the nineteenth century was the representation of the sounds of the vernacular letters by equivalents of similar enunciation according to the powers of the letters as given by the English people; in other words the one principle is analogy, the other pronunciation. The latter principle is well adapted for expressing the oriental characters in English letters in such a manner that English readers unacquainted with the oriental characters would be enabled to articulate the words with a very near approach to their correct pronunciation: but it is for the most part unsuitable for all others of the European nations who use the Roman letters. The principle of analogy adopted by Sir William Jones retains the original letters with certain distinguishing marks and permits the learned men of all Europe to follow the word to its source, and it has been generally followed by the learned. The most recent writer on the subject is professor Horace Hayman Wilson in his Glossary, and he considers that the characters in the

English alphabet have enabled him to represent letters in nine alphabets of thirteen different languages of British India. But, to do this he has, by diacritic points and marks, and by compound letters, increased the english alphabet from 26 to 70 characters, nineteen of the English letters having two to six forms, b, c, e, i, j, o, p and u, each two; g, h and l, each three; *d* and *k*, each four; *a*, *r*, *s*, *t* and *z*, each five, and *n* has six forms, and he has even recommended other additions.

ORIGANUM ACINACIFOLIUM, *Wall.* O. marjoranoides, *Willde.* O. onites, *Lam.* O. wallichianum, *Benth.*, syns. of Marjorana hortensis, *Mœnch.*

ORIGANUM DICTAMNUS, *W.*

Baklut-ul-gezal,	ARAB.	Dittany of Crete,	ENG.

ORIGANUM HERACLEOTICUM, *W.*

Culina gallinacea, Pliny, 20, 16; Cato, De Re Rustica, c. 127; Seren, v, 909;	Winter sweet marjoram, ENG.

Ὀρίγανον ἡρακλεωτικὸν of Dioscorides, 3, 29.

A very variable species, but is recognized by the bracts being longer than the calyxes, by the loose spikes and small flowers. Flowers white; it seldom ripens seed in Britain, and is propagated by slips and cuttings. It requires a dry and sheltered situation. It is a native of the region of the Mediterranean, Greece, and about Odessa on the Black Sea. It has an aromatic sweet flavour, and is much used as a relishing herb in cookery.

ORIGANUM MARJORANA, *Linn.*

Marjorana hortensis, *Mœnch.*

Murda-kush?	ARAB.	Amarakon,	GR. of Theoph.
Mirzun-joosh,	„	Sampsukon,	GR. of Diosc.
Murwa,	DUK.	Marru,	TAM.
Knotted marjoram,	ENG.	Mridu maru vamu,	TEL.
Sweet „	„		

This delicate sweet smelling plant is a native of India, very easily reared in beds or pots, either by slips from the roots, or seed. It is used for flavoring sauces, &c., the hindoos offer it at the shrines of Vishnu and Siva. It is a tree or shrub in its native country, but an annual in gardens of Europe. It is native of the north of Africa near Mascar, on hills, and of Asia, on the mountains of Kumaon. When in blossom, the plant is cut and dried for winter use, as a savoury ingredient in cookery.—*Jaffrey*; *Eng. Cyc.*

ORIGANUM NORMALE, *Don.*

O. vulgare, *Linn.*

Mirzan-josh,	ARAB, HIND.	Marjoram,	ENG.

This herb grows commonly in the Punjab Himalaya from 2,500 to 10,500 feet. Aitchison states that in Lahoul it is eaten as a pot-herb.—*Dr. J. L. Stewart*, M. D.

ORIGANUM ONITES, *W.* Pot marjoram.

ORIGANUM VULGARE, *Linn.*

Baklat-ul-jezal,	ARAB.	Agroriganos,	GR. of Diosc.
Satur?	„	Oushneh?	PERS.
Common majoram,	ENG.	Mridu-marurvamu,	TEL.
Origanon melan,	GR. of Theoph.		

An ornamental and aromatic plant, a native of Great Britain in dry uncultivated places, and of Europe, north of Africa, and of Middle Asia and America. It yields what is sold as oil of thyme in the shops, a common remedy for toothache. It is frequently mixed with olive oil as a stimulating liniment against baldness, in rheumatic complaints, and against strains and bruises. The dried leaves used instead of tea are very pleasant; they are likewise employed in fomentations. The essential oil is so acrid that it has been used by farmers as a caustic. —*Eng. Cyc.*

ORINOLI, IT. Watches.

ORIOLE, the oriolus genus of birds: Oriole is the popular name of several birds, having their plumage of a golden yellow mixed with black. Ainsworth in defining the word Icterus quotes a passage from Pliny, as follows: A yellow bird, which if one see, being sick of the yellow jaundice, the person recovers, and the bird dies. It is also called Galgalus. In British India, the orioles are called the mango birds, from their yellow colour resembling that of the mango fruit. There are several species in the E. Indies, viz.

O. acrorhynchus, *Vigors.*
O. broderipi, *Bonap.*
O. ceylonensis, *Bonap.*
O. chinensis.
O. hippocrepis, *Wagler.*
O. horsfieldii, *Bonap.*
O. indicus, *Brisson.*
O. kundoo, *Sykes.*
O. macrourus, *Blyth.*
O. melanocephalus, *Linn.*
O. philippensis, *Gray.*
O. tenuirostris, *Blyth.*
O. traillii, *Vigors.*
O. xanthonotus, *Horsf.*

The-black headed mango bird, or oriole, famous in Indian poesy, is one of the most numerous of Tenasserim songsters. It comes to the garden at early dawn, when its rich mellow notes are heard pealing far through the mango bowers. It is a large yellow bird with a black head, easily recognized. In Burmese it is called Hgnet-wa, or yellow bird. There is another mango bird, differing slightly from the preceding, and for which the Burmese have no name, to distinguish it from the other, though they are aware of the existence of the two species. Sir J. E. Tennent says in the elevations of the Kandyan country there are a few singing birds such as the robin of Neuera-ellia, Pratincola atrata, *Kelaart*, and the long-tailed thrush, Kittacincla macrura, *Gm.*, whose song rivals that of their European namesakes; but, far beyond the attraction of their notes, the traveller rejoices in the flute-like voices of the Oriole, the Dayal-bird, Copsychus saularis, *Linn.*, called by Europeans in Ceylon the "Magpie robin." This is not to be confounded with the other popular favourite the "Indian robin," (Thamnobia fulicata, *Linn.*), which is "never seen in the unfrequented jungle, but, like the cocoanut palm, which the Singhalese assert will only flourish within the sound of the human voice, it is always found near the habitations of men. The true Orioles are found in Asia, Africa, Australia and the Archipelago, one species occurring in the S. of Europe. O. kundoo, *Sykes*, extends over the whole of British India up to the base of the Himalayas. It lives in large groves of trees, gardens, and avenues and feeds chiefly on fruits. Its call is a loud mellow whistle resembling pee-ho, and its French name of Loriot answers to its call. O. indicus, *Brisson*, the black-naped Indian Oriole, is rare, though spread throughout India, Arrakan, Pegu, Tenasserim and Malacca, and is more confined to the forest regions. O. melanocephalus, *Linn.*, the black-headed Oriole, inhabits the forests, gardens and groves of Central India, Bengal, Assam, Burmah, and the Malay peninsula, it is a lively and noisy bird, constantly flying from tree to tree and uttering a loud mellow whistle. O. ceylonensis, *Bonaparte*, occurs in Ceylon and the southern part of the peninsula of India.—*E. L. Layard, in Tennent's Sketches of the Natural History of Ceylon, pp* 241–42; *Dr. Mason, Dr. Jerdon.*

ORIOLINÆ, a sub-family of birds, comprising 2 gen., 12 sp., viz., 11 Oriolus; 1 Sphecotheres viridis.

ORIOLUS, the Oriole genus of birds: see Oriole.

ORIPEAU OLIQUENT, Fr. Orsidue.

ORISSA, Or-Desa, Oordha des, or Utkala desa, now styled Cuttack, extends along the western shore of the Bay of Bengal on the north. It is separated from Bengal, by the Subernarika river, from which it extends southwards to the Chilka lake of the Northern Circars. It has the sea on the east and Gondwana on the west. Orissa Proper, or Cuttack, the Utkala desa of the hindoos is the north-eastern part of peninsular India. It was originally occupied by the Oodru tribe that developed into the Uria nation speaking the Uria tongue, and spread over Cuttack, Midnapore, Ganjam, Vizagapatam, Hooghly and Rajahmundry. The whole territory is sacred ground to which hindoos perform tirt'h or pilgrimage, but about July is the great period of assembly at Juggunath (yoga-natha). The sun was formerly the object of worship there. Now there are three deities, Juggurnath, Balram and Sudia, mere shapeless wooden logs. The country is fertile, producing cereals and pulses, and in the arts, coarse cottons and plain filigree work. In 1834-35 the country was laid waste by inundations, and a remission was made of Rs. 1,86,942. In 1837-38, on the occurrence of a similar calamity, Rs. 5,87,146 were remitted. In 1842-43, from the early cessation of the periodical rains, Rs. 4,86,625 were remitted, and in 1866-67 rice rose in value between the 6th January and 31st March, and before the end of the year from $\frac{1}{3}$ to $\frac{1}{2}$ of the entire population are supposed to have been swept away. From A. D. 473 to A. D. 1311, the Kessori dynasty occupied the throne of Orissa. They were succeeded by the Gungabansa who held power till 1568 when it was subdued by mahomedans. The Panji records of Orissa mention that Salivahana Saka Hara or Saka Deo Raja came from the north. A record in the Uria language, preserved in the temple of Jaganath, called the Vansavali, and Raja Charita, and supposed to have been commenced in the twelfth century, after the usual detail of the mythology, and of the early kings of India, down to Vikramaditya, gives as the first sovereign of this kingdom, in A.D. 142, Bato Kesari, who commenced the Kesari Vansa or Kesari dynasty. After an interregnum of 146 years, during which the Yavana reigned, the Kesari Vansa dynasty was restored in A.D. 473 by Jajati (Yayati) Kesari, capital Jajepur. He was a warlike and energetic prince, but it is not known who he was or whence he came. Cuttack was built in A.D. 989. In A.D. 1131, the Ganga vansa dynasty commenced with the invasion of Churang, Saranga deva, or Chor Ganga, and ended with Raja Narsinh-deo who in 1277, built Kanarak, the Black Pagoda. The Surja Vansa rajas reigned from 1451 to 1550. After them came the Zemindari races, Khurda rajas or Bhui vansas, from 1580 to 1804 when Mukund deo was deposed by the English.

The Andhra or Vrispala dynasty, of Andhra (Orissa ?) or Telingana is first noticed in the Vishnu Purana which predicts that thirty Andhra Bhritya kings will reign 456 years: Professor Wilson adds in a note that the Vayu and Bhagavata state also 30 kings and 456 years, and the Matsya has 29 kings and 460 years. The actual enumeration of the texts gives but 24 names; that of the Bhagavata, but 23; that of the Vayu, but 17. The Matsya has the whole 29 names, thus adding several to the list of 24, and the aggregate of the reigns amounts to 435 years and six months. The first was Sipraka, B.C. 21, a powerful servant of Suserman, and whom he killed and then founded the Andhra Bhritya dynasty. The last was A. D. 428, Chandrasri (or Vijaya, last Magadha king, 300 Jones, 546 Tod) Pulomarchish, (Poulomien of Chinese, Wd.) died 648 A.D. Salomdhi, Tod, contemporary of Boppo Rawal of Mewar, A.D. 720 ?) Professor Wilson arrives at the conclusion that the race of Andhra kings should not commence till about 20 years B. C. which would agree with Pliny's notice of them: but it is possible that they existed earlier in the South of India, although they established their authority in Magadha only in the first centuries of the christian era and ended in A.D. 436. Chicacole and Rajahmundry were the capitals of the territory.

which is now known as Telingana, and also the Northern Circars. Pliny speaks of the Rex Andrarum as a powerful Indian prince. The Andhra brahmans regard themselves as a distinct race. Anyanka Bhima is a prince celebrated in Orissa. He unfortunately killed a brahmin and he raised numerous temples in expiation. He also endowed Juggurnath (Yoghanatha.) The Mahanadi, Brahmani, Lahundee, Borahani, Subunreka and Byturni rivers flow through Orissa. The interior is mountainous, covered with woods, but the coasts are low and marshy Its chief bay is Balasore in lat. 21° 28′ N. long. 87° 4′ E. Orissa table-land rises on the other side of the Mahanuddy, in some places to 1,700 feet backed by the chain of the E. Ghauts.

Rajahmundry was the capital of the junior, or eastern branch of the Chalukya princes of Vengi, whose authority extended to the frontiers of Orissa. The kingdom of Vengi was established about A.D. 540, by the capture of the old capital of Vengipura, the remains of which still exist at Vengi, 5 miles to the north of Ellore and 50 miles to the west-south-west of Rajahmundry. About A. D. 750, Kalinga was conquered by the raja of Vengi, who shortly afterwards moved the seat of Government to Rajahmundry. According to the chronicles of Orissa, the present town of Amaravati was founded or established as a subordinate seat of Government, by Surya Deva, raja of Orissa, in the twelfth century. The name is connected with the worship of Siva as Amaranatha, or Amareswara; and one of the twelve great Linga of this god, which is assigned to Ujain, almost certainly belonged to the holy city on the Kistna, as we know that Ujain possessed its own famous temple of Mahakala, and that all the other shrines of Siva belong to different places. Orissa, as a revenue province of British India, has three revenue divisions of Balasore, Kuttak, and Puri. Orissa produces timber, diamonds, rubies and gold.

In Dr. John Shortt's Medical Topography of Modern Orissa, published in the Indian Annals of Medical Science, No. IX, we read (p. 187) of "the Coomug or Wild Goat," as being met with in the province, but the Indian Gazelle, or 'Ravine Deer' of Bengal sportsmen, which is often termed 'Goat Antelope' in the Madras presidency, must be intended. The author also mentions "the Sambre or Elk, Nilgai, Gyal, the Spotted, Four-horned, Antelope! Barking and Mouse-Deer," as very plentiful. The Gyal of Orissa is the Gour (Bos gaurus) or 'Bison' of Indian sportsmen, a very different animal from the true Gayal (Bos frontalis) of the trans-Brahmaputra hills. The Chetah, he says, is numerous. The true Chita of N. India is the Hunting Leopard.

The population of Orissa is estimated at rather above four and a half millions. The hill chiefs, of whom the Kondah rajah was the head, were all plunderers, and their ancestors are said to have emigrated to Orissa some six centuries ago from the north-west of India. Amongst the customs peculiar to this province, he says, is one, that if a man die childless, his brother, if he have one, must marry the widow. The brahmins of Orissa differ from all other brahmins, in some respects as regards their food. The people may be divided into five principal tribes. Firstly, the Ooryah who are brahminists, and inhabit the plains and valleys in the western tracts towards Cuttack; the Kol to the northward, also called Ho, are a race who are semi-barbarous; the Khond in the central part, and the Sauria in the south. These three last races believe themselves to be the aborigines of the districts they now inhabit, and of others more extensive of which they have been dispossessed by the encroachments of other tribes. The Kol are faithful, honest, and of happy ingenuous dispositions, as strikingly contrasted with the trickery and falsehood of the hindoo; they are hospitable, but very irascible and so prone to feel injuries acutely, that they frequently vent their resentment or grief in suicide, to which this untutored people are terribly addicted. The Khond, inhabit the central part of Orissa, until the middle of the 19th century, they practised the barbarous Meriah sacrifices to the deity of the earth whose votaries seek to propitiate him by the slaughter of human victims, generally children, who are stolen from neighbouring districts, and purchased by the Khond race for sacrifice, as no Khond can be sacrificed, and no victim is held acceptable unless purchased. This horrible practice is supposed to propitiate the god of earth, and induce him to bestow on the sacrificers abundant crops. At the period appointed by their priests a solemn feast is held, lasting two days and nights, which time is passed in the most revoltingly drunken obscenity. On the third day the hapless victim is brought out, and bound to a stake. The victims limbs are first broken, and, the priest having given the coup de grace with an axe, the whole set upon it and hew the quivering body piece-meal, each striving to carry away a bloody fragment to throw upon his own field. The British Government exerted itself strenuously to suppress this sanguinary rite, but the Khond adhered to it with obstinate pertinacity; and wherever force was employed against them, they defended their fastnesses with desperate courage.

The Sauria, who inhabit the southern part of the province, have the same superstitions as the Khond, but are considered even more savage and barbarous; so much so, indeed, that a Sauria is said to have no hesitation in depriving a human being of life for a very trifling consideration, or at the command of his chieftain.

The dense jungles of Orissa afford secure shelter for wild animals of all kinds, and in them are to be found in numbers the elephant, the buffalo, the gayal, a mighty bull, standing eighteen hands or upwards in height, with the nylghau, tigers, bears, hogs, and all such animals as are natural to that lofty range of ghauts. Of its ornithology but little is known, but the dhanesa or rhinoceros bird is common. Venomous snakes are numerous and the boa-constrictor there attains a monstrous size. Motte, a traveller who visited Orissa in 1778, declared that he saw near Sumbulpore a monster snake which was worshipped by the Ooryah as a deity, and was believed by that simple people to be coeval with the world. It was lodged in a cavern under a huge rock, and came out once a week to receive the food which its votaries had placed in readiness, consisting of a kid and some fowls, which were picketed on an open space before its den. The boa after having swallowed these offerings is described as having retired to his stronghold leaving traces in the muddy soil, from which the traveller estimated its diameter at two feet or about the diameter of a nine-gallon cask; so that if its length were at all proportionate to such a bulk, it must have been a monster indeed. The district was visited by Captain Kittoe in 1838, when in search of coal, and he saw in the same spot a monster boa, which he was assured was the identical snake that had been seen by Motte sixty years previously; this, however, seems very problematical.

Gondi.—The large space left between Maharashtra and Orissa is in a great part of the forest tract inhabited by the Gond race. Their language, though quite distinct from the rest, is unwritten and being reckoned a jargon of savage mountaineers, is not counted among the five languages of the Dekhan.

The Juanga are a forest tribe in Orissa.

Bendkar.—A paper in the "Asiatic Researches" of 1842 notices the Bendkar, a people of Keonjur, in the Kolehan district, who form an insulated clan or tribe not exceeding 250 or 300, in number, residing entirely in a range of hills, called the Bendkar Booroo, to the north of Keonjur, and to Jamdapeer, the southern border of the Kolehan district. The country inhabited by this tribe is excedingly wild, being in fact one mass of almost impenetrable jungle; and the social status of the Bendkar tribe is in point of civilization suitable to the wilderness in which they dwell, for they seem to be in the most unreclaimed state of barbarity—indeed far behind the Ho, Khond and Sauria, semi-barbarians as those tribes still are. The Bandkar Booroo jungles are bounded on the north and north-west by the cultivated lands of the Ho in Kotgurh and Burpeed, but their other limits are to this day unexplored, and the deadly insalubrity of the climate may probably prove a bar to those limits being ever correctly ascertained. The first intercourse with the Bendkar tribe occurred in 1842, when the Governor-General's agent, being on one of his tours, accidentally heard of these people, and induced a small party of them to visit his camp; yet though they were kindly treated and loaded with presents by that functionary, every moment of their stay appeared in the highest degree irksome to them and they could not be tempted to return. The party consisted of three men, an old woman, a pretty young girl and a boy, no one of whom had ever beheld a European or even a well-dressed native, or seen money, or heard the word "Sahib." They seemed perfectly amazed and much alarmed at the elephants, horses, sepoys and sowars in the Agents camp; but savage tribes, and especially mountaineers, entertained a particular dread of horsmen. The Bendkar people appeared completely awe-struck at what they saw, and were delighted to get away to their own wilds again. This tribe are passably fair, and of good stature, with rather intelligent countenances. They have no language peculiar to themselves, but speak both the Ho and Oorya dialects. The goddess Kali is worshipped by them, as are other deities. They neither eat beef nor pork, and some of their religious prejudices are peculiar; for though they will drink water from the hand of a Ho, they will not eat with one, or take food cooked by a hindoo, even by a brahmin. In their marriages the bridegroom takes the bride away to his home with the consent of her parents, who contribute to the household stock of the newly married couple. They burn their dead, but do not collect the ashes as the Kol do, nor do they, like that tribe, burn the property of the deceased. These people have never been visited by an epidemic; they acknowledge no chief; but are so peaceful towards their neighbours, and so innocent of crime amongst themselves, as to render the exercise of authority unnecessary. They possess the usual arms of the other tribes, but use them, it is said, alone, for the chase. The dwellings of the Bendkar are constructed of branches and leaves, and covered with jungle grass, and their domestic habits are miserable in the extreme. Unlike the neighbouring tribes they have neither cattle, goats, sheep, or pigs, and few even possess a few head of poultry. Their ordinary food consists of edible roots which they find in the jungle with berries and wild fruits, such diet being varied and improved occasionally by the produce of the chase. Their habits are solitary and unsociable, and their abject poverty almost surpasses belief. Their husbandry is merely scratching up the surface of the ground with an apology for a plough, drawn by a man, as they have no draught cattle. When their scanty crops are ripe, and such are raised in little plots on the hill-sides, near water-courses, they barter their maize, grain, or rice with the lowland villagers; but half their crops are devoured by wild animals ere they attain maturity. The Bendkar live rent-free, but are liable to furnish Begari at the requisition of the Keonjur rajah's dewan, or his people, on their annual pilgrimages to the celebrated shrine of Jagganath.

Urya or Ooriah is the language of Orissa, and the country takes its name from the Or or Ordu tribe who seem to have come from the N. West. In the Orissa district, they appear to have had very narrow limits, viz., along the coast line from the Rasikulia river near Ganjam northwards to the Kans river, near Soro, in lat. 21° 10', but in the process of migration and conquest under the Gangavansa dynasty the limits of Orissa (Ordesa) were extended to Midnapore and Hooghly, on the north, and Rajahmundry, on the Godavery, on the south. The Urya tongue is a tolerably pure dialect of Bengalee. About Ganjam, the first traces of Telugu or Teling occur, though the Urya still prevails forty-five miles south of Ganjam, on the lowlands of the sea-shore, beyond which Telugu begins to predominate. At Chicacole, Telugu is the prevailing language, in Vizianagram, Telugu is only spoken in the open country, and Urya in the mountains runs further down to the south, Telugu is spoken to within 45 miles south of Ganjam, and at Ganjam Telugu ceases. On the coast line Urya continues in the direction of Bengal as far as the Hijli and Tumlook divisions on the Hooghly. On the western side of the Midnapore district, it intermingles with Bengalee near the river Subanreeka. To the westward, the Gond and Urya languages pass into each other, and at Sonepur, half the people speak the one and half the other language. Amongst the Urya race high cheek bones seem to prevail with good features and straight hair. A great many of the Urya brahmins obtain their livelihood as cultivators, they also trade, and follow the occupations of brick-makers, brick-layers, &c. The Pana of the frontier and south of Orissa are a wild predatory tribe. —*Colburn's United Service Magazine and Naval and Military Journal, No.* cccxcv, *October* 1861, *pp.* 232-38; *Thomas' Prinsep's Indian Antiquities, p.* 241; *Wilson's Glossary; Cunningham's Ancient Geog. of India, pp.* 515, 516, 543. See Chalukya, India; Inscriptions, Manu, Mhlecha, Sri-Sampradaya, Telinga.

ORITÆ or Horitæ, amongst the Greeks a barbarous people to the west of Indus called Nesteritæ, by Diodorus. General Cunningham supposes them to be the people on the Aghor river. In the bed of this river there are several jets of liquid mud, which, from time immemorial have been known as Ram-Chandar-ki-kup, or "Ram Chandar's wells." There are also two natural caves, one dedicated to Kali, and the other to Hingulaj or Hingula Devi, that is, the "Red goddess," who is only another form of Kali. But the principal objects of pilgrimage in the Aghor valley are connected with the history of Rama. The pilgrims assemble at the Rambagh, because Rama and Sita are said to have started from this point, and proceed to the Gorakh tank, where Rama halted; and thence to Tonga-bhera, and on to the point where Rama was obliged to turn back in his attempt to reach Hingulaj with an army, General Cunningham identifies Rambagh with the Rambakia of Arrian, Tongabhera with the river Tonberos of Pliny, and the Tomerus of Arrian. At Rambakia, therefore, he thinks we must look for the site of the city founded by Alexander, which Leonatus was left behind to complete. He thinks it probable that this is the city which is described by Stephanus of Byzantium as the "sixteenth Alexandria near the bay of Melane." Nearchus places the western boundary of the Oritæ at a place called Malana, which he takes to be the bay of Malan, to the east of Ras Malan, or Cape Malan of the present day, about twenty miles to the west of the Aghor river. The occurrence of the name of Rambagh at so great a distance to the west of the Indus, and at so early a period as the time of Alexander, shows not only the wide extension of hindoo influence in ancient times, but also the great antiquity of the story of Rama. He deems it highly improbable that such a name, with its attendant pilgrimages, could have been imposed on the place after the decay of hindoo influence. During the flourishing period of buddhism, many of the provinces to the west of the Indus adopted the Indian religion, which must have had a powerful influence on the manners and language of the people. But the expedition of Alexander preceded the extension of buddhism and General Cunningham therefore only attributes the old name of Rambakia to a period anterior to Darius Hystaspes. Hingulaj (Khingalatchi) is mentioned by the Tibetan Taranath, (see 'Vassilief,' French translation, p. 45,) as a Rakshasa in the west of India, beyond Barukacha, or Baroch.—*Cunningham's Ancient Geog. of India, pp.* 309-310.

ORITES CAUDATUS, the Parus caudatus or Long-tailed Tit of Europe, N. Asia, Japan.

ORIUOLI, IT. Watches.

ORJOON, BENG., HIND. Terminalia alata or T. glabra.

ORKANET, Ger. Alkanet.

ORKIS YUNANI, Hind. Eulophia virens, *R. Br.*, *W. Ic.*

ORLEAAN, also Rokoe, Dut. Orlean, Ger. Arnotto.

ORLEBAR, A. B., wrote an account of a visit to the town of Sehwan, in Bom. Geog. Trans., Vol. vi, p. 95.—Account of the lake Loonar, Ibid., Vol. i, p. 9.—Note on the Ram Ghaut, Bom. As. Trans. Vol. i, 119.—On Mahomedan architecture in Cairo, Ibid. Vol. ii, 119.—On the geology of the Egyptian desert, Ibid. 229.—Hygrometric tables, Ibid. 309.—Report on the Bombay Asiatic Society's Museum Ibid. 440.—On the meteorology of Bombay, Observatory Reports 1845, 1846, Bombay 4to., On British Association, 1847; and London Athenæum; and Reports of the Association.—*Dr. Buist.*

ORLONG, a Malay land-measure of 400 square jumba, and equal to 1⅓ acre.—*Simmond's Dict.*

ORME, Author of a History of India; he was a member of the Council of Government of Madras.

ORMESBY, Lieut. I. N. wrote Narrative of a Journey across the Syrian desert in Bom. Geo. Trans., vol. vi, p. 18. Memoir on the rivers of Mesopotamia.—*Ibid.*

ORMOCARPUM SENNOIDES, *Beauv.*,

Hedysarum sennoides, *Roxb.*, *Willde.*	H. Nalla-kashina, *Roxb.*
Kanana, Sans.	Nalla kasana, Tel.

This plant is a native of the northern Circars. Its root is considered tonic and stimulant.—*O'Sh.*, *p.* 317.

ORMUZ, or Hormuz island is the ancient Ogyris, and is situated at the mouth of the Persian Gulf, in lat. 27° 12′ N. and long. 56° 25′ E., and is about twelve miles in circumference. In an ancient history of Persia it is recorded that Ormuz was once on fire; and indeed this island as well as that of Angar, has every appearance indicative of a former volcanic eruption, and it is thought to be an extinct volcano. It was long occupied by the Portuguese. It now pertains to the king of Oman.—*Kinneir's Geographical Memoir*, *pp.* 12, 13; *Palgrave.*

ORMUZ TOWN was for ages the great emporium of trade in the Persian Gulf. It was originally occupied by a colony of Arabs, and the city appears to have enjoyed centuries of peace and commercial prosperity. In A.D. 1290 the Mongols invaded Ormuz, and the inhabitants fled to a barren volcanic island, at the mouth of the Persian Gulf, which was named Ormuz, in memory of the ancient city. The king of this new Ormuz considered it prudent to send tribute to Timur. The city is described by Abdul Razak, the ambassador sent by Shah Rukh to India in 1442, as a place which had not its equal on the surface of the globe. The merchants of Syria, Egypt, Roum, Fars, Khorassan, Irak and Mawur-ul-nahar, as well as the inhabitants of Java, Bengal, Socotra, Tenasserim, Malabar, Guzerat and Arabia all made their way to this port, with rare and precious articles which the sun and the moon, and the rains have combined to bring to perfection. At present a few ruins, scattered amidst wild deserts of salt, on a dreary islet, alone testify to the former wealth of Ormuz.—*Markham's Embassy*, *pp.* 44–45; *India in the fifteenth century, published by the Kakluyt Society; Clavijo*, *p.* 94.

ORMUZD, a name amongst the fire-worshipping Zorastrians for the Omniscient. It is from Ahura masda, the all-knowing Lord, from Ahura, living, and Mazda wize.—*Bunsen, God in History.* See Ahriman.

ORNAMENTAL CRINUM, Crinum ornatum.

ORNAMENTS.

Jewels, jewellery, Eng.	Jauhar; Zewar, Hind. Pers.

Rings for the fingers and toes, rings for the nose and ears, bracelets, armlets, anklets, nose jewels, neck-chains, a piece of gold for the forehead, ear, hair and head jewels, chains and zones of gold and silver for the waist, are ornaments in daily use amongst the men and women of mahomedans and hindoos of British India. Several of these are enumerated in Ezekiel, xvi, 11, 12. 'I decked thee with ornaments, and I put bracelets upon thy hands, and a chain on thy neck: and I put a jewel on thy forehead, and ear-rings in thine ears, &c.,' Solomon also names the jewels in use where in Proverbs, xi, 22, he speaks of a jewel of gold in a swine's snout, a ring in the nose being a very common ornament among the hindoo and mahomedan women.

ORNIS, Greek. A bird.

ORNITHOLOGY, the science which teaches the natural history and arrangement of birds. This term is derived from the Greek words Ορνις, a bird, and λόγος, a discourse; signifying literally 'a discourse upon birds.'

ORNITHOPTERA BROOKEANA, occurs in Borneo. It is one of the most elegant of the butterflies. Ornithoptera crœsus *Wallace*, the bird-winged butterfly, occurs at Batchian. It is 7 inches across the wings which are velvetty-black and fiery orange. For Ornithoptera darsius, see Butterfly. Ornithoptera remus, the largest and most beautiful of all the butterflies, is found in Celebes.—*Wallace*, *Vol.* i, *pp.* 37, 284. See Birds.

ORNITROPHE SERRATA, *Roxb.* Syn. of Schmiedelia serrata, *DC.*

ORNOSPADES, see Greeks of Asia.

ORNUS, Lat. Ash-tree. Fraxinus. O. florifera, syn. of O. florifera. O. rotundifolia, syn. of R. rotundifolia.

ORO, It. Gold.

OROATES, see Fars.

OROBANCHACEÆ, *Lindl.*, an order of plants; comprising 4 gen., 8 species, viz., 3 Orobanche; 1 Phelipæa; 3 Aginetia; 1 Lathræa.

OROBUS FISCHERI, the bitter vetch, readily cultivated from seed in any good soil, colours various.—*Riddell.*

OROBUS-INDICUS, *Burm.* Syn. of Abrus precatorius, *Linn.*

ORODES, see Greeks of Asia.

OROGONA, Uria. Cycas circinalis.

OROL, Beng., Hind. Cajanus indicus.

OROLOGGI, It. Clock.

ORONCHON. The Tunguzian tribes either are nomades keeping herds of reindeer or horses, or they subsist chiefly upon the produce of their fisheries. The reindeer Tunguzians are called Oronchon or Oroke, a word signifying reindeer-keepers, and are met with on the Upper Amur, and on Sakhalin. Among the other tribes, a tradition prevails of their having owned reindeer at some remote period; and there is one tribe along the sea coast called Orochi, or Orochon. The Manyarg and the kindred Birar, and Solon, on the Nonni, who occupy the vast prairies above the Bureya mountains, keep large herds of horses. The Goldi, Olcha, (Mangun), Gilyak, Orochi of the sea-coast, and Aino, are fishermen, but are hunters also; and the Goldi, especially those settled on the Sungari, cultivate the ground to some extent. It is, however, only the Manchu and Chinese, and the Daurian living amongst them on the Middle Amur, who till the ground to a larger extent, the Daurian doing so even at the time the Russians first appeared on the Amur. At that period their settlements extended into Dauria, whilst at the present day they are but rarely found above the Dzeya. The Oronchon of the Upper Amur numbered, in 1856, two hundred and six individuals of both sexes, roving over an area of 28,000 square miles, which would give one hundred and seventy square miles to each individual. Next come the Manyarg; their numbers, including the Birar and the Solon, on the right bank of the Amur, are about 20,000, of whom one-sixth at most are under Russian sway. The agricultural population about Aigun, estimated at from 40,000 to 50,000, is also confined chiefly to the right bank of the river, those on its left bank hardly amounting to 2,000. The Goldi occupy one hundred and fourteen so-called villages on the Amur, with three hundred and twenty houses, and 2,560 inhabitants, the Mangun forty villages, with one hundred and ten houses, and 1,100 inhabitants. The Kile on the Upper Gorin, and Negidalze on the Amgun, do not probably exceed 1,000 souls. The population along the Usuri is estimated by Veniukof at 1,400, of whom about four hundred are on the left bank of the river. The vast tract extending between the Usuri and the sea-coast, from Castries Bay in the north to the frontier of Korea, is very thinly populated, and it is only in the south, where there are several Chinese settlements, that the population is comparatively numerous. Veniukof reckons the population between the Usuri and the coast, north of Port Imperial, at 1,600; and that 2,500 might be the approximate population of the entire coast-region under consideration. The Gilyak on the Amur occupy thirty-nine villages, having one hundred and forty houses, and 1,680 inmates. The population of Southern Sakhalin, up to about 49° of north latitude, was calculated by Mamia Rinso at 2,850, in four hundred and thirty-eight huts, which would allow 2·1 square miles to each inhabitant, if we assume a similar population for the northern (Russian) part of the island. Or, arranging this population according to tribes, we obtain a total of 23,500.

Oronchon of the Upper Amur	260
Manyarg and Birar	3,000
Daurian, &c.	2,000
Goldi on the Amur and Usuri	3,560
Olcha (Mangun) on the Amur	1,100
Negidal and Kile (Samager)	1,000
Orochi of the sea-coast	1,000
Oroke on Sakhalin	1,000
Gilyak on Lower Amur and Sakhalin	8,180
Aino on Northern Sakhalin	1,000
Chinese on the Usuri, &c.	1,400

The banks of the Upper Amur, down to the mouth of the Dzeya, are in the occupation of the Tunguzian tribes of the Oronchon and Manyarg (Monagir, Manegre), the principal difference between whom is, that the chief domestic animal of the former is the reindeer (Oronchon reindeer-keeper), and of the latter the horse. The horses are small, but strong and of great endurance. Before going on a long journey the Manyarg with a view of keeping the horse in working condition, keeps his horse for a day without food, and on his return also the poor beast is made to undergo five or six days' abstinence.

The Oronchon originally lived in the province of Yakutsk, whence they voluntarily emigrated to the banks of the Amur in 1825, and occupied there part of the territory of the Manyarg, whom they compelled to withdraw further down the river. There are two tribes of Oronchon. One of them, the Ninagai, occupies the left bank of the Amur, between the rivers Oldoi and Amazar, and the country up to and beyond the crest of the Stanovoi mountains. In 1856 it mustered sixty-eight males and sixty-six females, and twenty-seven of the former paid annually five shillings and five pence of tribute each, or in lieu thereof twelve squirrel skins, to the officer commanding the post of Gorbitza. The other tribe, the Shologon, occupy the right bank of the Amur, down to the Albazikha rivulet. They number seventy-two individuals of both sexes, including forty males, of whom seventeen had to pay to the commandant of Ust Ŝtrelka a tribute of six shillings and four pence each. They owned eighty-two reindeer. The Manyar, as stated above, occupy the Amur below the Oronchon, but in spring and summer they ascend it for the sake of fishing, to the Ignashina and Sester, leaving their horses below the Albazikha. They also dwell in the valley of the Dzeya, and generally speaking, the whole of the prairie region down to the Bureya mountains, their horses find forage; whilst the Oronchon, on account of their reindeer, are confined to the mountainous districts. The Birar residing along the Bureya river are a sub-tribe of the Manyarg, and the Solon, north of Mergen, are probably related. The Manyarg and Oronchon are rather small and of spare build. Their arms and legs are thin, a feature most striking in their half-naked children, whose bellies are very protruding. The face is flat, but the nose, in many instances, large and pointed. The cheeks are broad, the mouth is large, and the lips are thin; the eyes very small and sleepy-looking, and generally of black or reddish-brown. The hair is black and smooth, the beard short, and the eye-brows very thin. The Manchu features frequently found among the Manyarg are traced by Maack to the officials who annually collect the tribute, and whom their women freely visit. These Tunguzians lead a wandering life. During spring and the beginning of summer, they generally reside on the banks of the river, engaged in fishing, but in the autumn and winter they retire to the interior of the country to pursue the chase. In these migrations the rein-deer or horse carries the scanty property of its owner. The only other domestic animal is the dog. The Solon is a nomadic tribe, allied to, if not identical with, the Manyarg, and occupy the country north of Mergen. They claim to be descendants of the ancient Sushi, by whom was founded the dynasty of the Gin. The word Solon signifies "Shooters." They are indeed expert huntsmen, and even their women mount on horseback and pursue the game. Besides horses, they have dogs for hunting, also sheep, oxen and camels. The Daurian dwelling on the Upper Sungari, in the neighbourhood of Tsitsikar, are well made, especially the women, and dress like the Manchu in China. The secretaries of the Mandarins who are sent to this part, are privileged by a letter from the Khan to select any women or young girls whom they may fancy. Some of the men whose wives had been taken in this manner, still persist in considering it a special favour to have such fine gentlemen as brothers-in-law. Others, though discontented, are compelled to conceal their chagrin from fear of punishment and disgrace.

The Tunguzians of the Lower Amur are the Goldi, Mangun and Orochi tribes, and exhibit a great similarity in outward appearance, customs and manner of life.

The Tunguzian tribes are the Goldi and Mangun, along the Amur, Sungari and Usuri; and the Orochi along the sea-coast from Castries Bay to about 44° N. lat. The Goldi inhabit both banks of the Sungari below the town of Sansin, the Usuri below the Dobikhu and the Amur to the village of Niunguya below the Gorin. Maack calls the Goldi living along the Amur down to Nyungya "Kileng;" and those about the mouth of the Usuri, "Hodseng." Below the Goldi the banks of the Amur are occupied by the Mangun or Olcha as far as the village of Kadema, below the Russian settlement of Irkutskoi. These Tunguzians have the usual Mongol features, prominent cheek-bones, and small oblique eyes. The nose is not in all cases flat. The eyebrows are more defined and arched. The mouth large, the lips thick and of a dull red colour. The complexion is fair and ruddy. The colour of the hair and eyes is black, but occasionally grey eyes are seen. The size of the head is large compared to that of the body.

The Gilyak inhabit the banks of the Lower Amur, below Pul, and the northern portio of Sakhalin, their limits on the island being o the west coast in the village of Pilyavo, 50 10′ N. lat.; and on the east coast 50° 30′ N lat. There are several tribes of these Gilyak those of the mainland, the Smerenkur of th west coast of Sakhalin, and the Tro of the ea coast, but the distinction between them trifling. Nor do they differ much in outwar appearance from their Tunguzian neighbour The features are still Mongol, the nose is rathe flat, the eyes are small, the lips are voluptuou the eyebrows bushy, and the beard is stronge than the Tunguzian. They do not shave th head, but wear the hair tied up into a thick t or in tresses. The Russians describe their wom as frights, but tastes are not always the sam and Rimso, the Japanese, says they are ve comely, and doubly attractive on account their daily ablutions. Their dress does n vary much from that of the Tunguzians. Th wear large boots of seal-skin or sometimes cotto and a blouse of Chinese pattern. The use of fis skins is much more restricted. If we may cred the statement of Rimso (Mamia-Rinso) polyandry prevails among the Smerenkur Gilyak, and the women are treated with the greatest indulgence. Only those however skilled in the use of the needle can expect to get married.—*Klaproth, Asia Polyglotta*; *Maack, Travels on the Amur*; *Tronson (Barracouta Bay)*; *Furet, Letter sur l' Archipel. Japonais (Joncquiere Bay) La Perouse Pfizmaier's Vocabularium der Aino Sprache, Vienna,* 1851 *quoted in Ravenstein's Russians on the Amur, pp.* 338 *to* 391; *Latham.*

OROND SHAH, see Persian kings.

ORONTES, the modern Assey. See Lebanon.

OROPEL, Sp. Orsidue.

OROPHEA, a genus of middle-sized trees of Ceylon, O. coriacea, grows at Dimboola and Raxawa, in the central province, at an elevation of about 3,000 feet; O. obliqua, *Hf. et. T.* in the Galle and Ratnapoora districts, at no great elevation, and O. zeylanica, *Blume,* in the Central province, at an elevation of 2,000 to 3,000 feet; woods unknown.—*Thw. En. Pl. Zeyl., p.* 8.

OROPIMENTI, Sp. Sulphuret of arsenic.

OROTSKO, occupy the interior of Sakhalin and its eastern coast. They are few in number, their language differs from that of the Aino, and according to Schrenck, they are Tungusians. They do not shave the head but allow the hair to fall over the shoulders, or tie it up in a tail which hangs down behind. Their women plait or curl the hair, and according to Mamia Rinso, the Japanese traveller are very good looking. They moreover possess the art of making themselves agreeable to the male sex, wash the face and body, and comb the hair. They wear large ear-rings. The Orotsko have no permanent habitations, but dwell in urts like the Orochon of the Upper Amur. Their store-houses are also similar, and are left anding when the owner removes. The only omestic animal of this tribe is the reindeer, d a man owning twelve of them is considered ll off. Reindeer carry burthens or draw the dge.—*Ravenstein's Russians on the Amur,* p. 398–99.

ORPELIO, It. Orisiduc.

ORPHEUS, see Yavana.

ORPIMENT, Eng., Fr.

e-hwang,	Chin.	Operment,	Germ.
-sulphuret of Arsenic,		Ranseh-gelb,	„
llow sulphuret of	„	Hartal,	Hind.
-sulphide of	„	Orpimento,	It.
pimente,	Sp.	Auri-pigmentum,	Lat.

This is of a heavy liver-yellow colour. It is ainable in all the bazars of India and is nd in the Chinese provinces of Honan, nnan and Kansu, also in Cambodia. It is d as a paint, also in medicine.

ORR, Charles Adam, an officer of the Madras, erwards of the Royal, Engineers who built the great dams or anicuts across the rivers Godavery and Kistnah. On quitting India the following order was issued in the Public Works Department, April 25, 1871. The Right Honorable the Governor in Council desires to place on record an expression of the high value attached by Government to the services rendered to the State by Colonel Orr during an honorable career of about 40 years' duration, and especially in the Public Works Department, as a talented projector and able and energetic executive officer, and for the last seven years as the confidential adviser and organ of Government in the important branch of the public service to which he has been attached. As a principal executive officer on the Irrigation Works in the Godavery delta, and as the designer and constructor of the similar works in the Kistna delta, Colonel Orr has perpetuated the memory of his professional ability.

ORRIS ROOT.

Ussul-us-sosun,	Ar.	Iris de florence,	Fr.
Ussul-ul-manjunie,	„	Violen wurzel,	Ger.
Isra,	„	Kewra-ki-jar,	Hind.
Peh-chi,	Chin.	Beg-banafsha,	Hind.
Florentine iris,	Eng.	Ireos,	It.

In India, an excellent kind of orris root is sold in the bazars under the name of Beg-banafsha, literally, violet root. In Europe, this is the root or rhizome of the Iris florentina: and of the German and pale Turkey iris obtained from the south of Europe and Asia Minor. It is tuberous, oblong, about an inch thick, white, odour like that of violets, taste when dry, bitter. An inferior description of orris root is imported into Bombay from the Persian Gulf, which is procurable in most bazars. An Iris is cultivated in India, the root of which are used as the orris root. Orris root is used by perfumers, and in medicine.—*O'Shaughnessy,* 655.

ORSEDUE.

Khater goud,	Du.	Oliquant,	Fr.
Orsidue,	Eng.	Fittergold,	Ger.
Manheim gold,	„	Orpello,	It.
Dutch gold,	„	Oropel,	Sp.
Oripeau,	Fr.		

An article resembling gold leaf, made of copper and zinc, and largely used in tinselling dolls, toys, images, &c. It is made up into books, and in this state is packed in casks and cases for exportation from Manheim in Germany, where it is chiefly manufactured.—*Faulkner.*

ORSEILLE, Fr., Ger. Orchilla weed.

ORTHANTHERA VIMINEA, *Wight.*

Apocynea viminea, *Wall.*

Matti,	Beas.	Lanebar,	Tr. Indus.
Mowa,	Tr. Indus.	Khip, Kip,	Sind.

A twiggy leafless plant, one of the Asclepiadeæ, not uncommon about Delhi, and some other parts Cis-Indus, occasionally in the Sivalik tract and Trans-Indus. Dr. Royle found it growing at the foot of the Himalayan mountains. It attains a height of ten feet, and is remarkable for the length and tenacity of its fibres. It grows luxuriantly along the foot of the mountains; and its long, straight, leafless, slender, and wand-like stems, point it out as seemingly well-suited for rope-making. The fibres are well fitted for cordage, near Delhi, after four or five days steeping, its fibre is extracted for making rope. In Sind, also, it appears to be this plant of which unsteeped stalks are made into ropes for Persian wheels, which are said to be very durable, as they do not readily rot from moisture.—*Royle Himalayan Botany, p.* 274; *Royle's Fib. pl. p.* 1306; *Dr. J. L. Stewart,* M.D., *Panjab Plants.*

ORTHOCERAS, a genus of molluscs: mineralized Orthoceratites, under the name of Saligramma, are worshipped by the hindoos. See Saligramma.

ORTHOMASDES, see Greeks of Asia.

ORTHOPTERA, *Linn.*, an order of insects, grass-hoppers, crickets, &c. The families of this order of insects seem to have been differently arranged by authors:

Fam. Forficulidæ,	*Steph.*	Harpax,	*Serv.*
Forficula,	*Linn.*	Schizocephala,	*Serv.*
Fam. Blattidæ,	*Steph.*	Mantis,	*Linn.*
Panesthia,	*Serv.*	*Fam.* Phasmidæ,	*Serv.*
Polyzosteria,	*Burm.*	Acrophylla,	*Gray.*
Corydia,	*Serv.*	Phasma,	*Licht.*
Fam. Mantidæ,	*Leach.*	Ambulatoria.	
Empusa,	*Illig.*		

Fam. Phasmidæ, Phasma semiarmata, *Westw.* Himalaya, 2 inches; wingless, dirty brown colour.

P. bicoronata, *Westw.* Himalaya, 2 inches; rusty brown colour.

P. graciosa, *Westw.* Penang, 3¾ inches; head conical above crowned with long spines.

Bacteria sarmentosa, *Westw.* Sylhet, 10¼ inches; dirty brown.

B. virgea, *Westw.* Sylhet, 6 inches; reddish brown.

Phasma hilare, *Westw.* Assam, 2¼ inches; of a fine green colour.

P. maculicollis, *Westw.* Assam, Sylhet, male 1½ inches; female nearly 3 inches.

P. bufo, *Westw.* Philippines; wingless, brown.

P. mesoplatum, *Westw.* Philippines, 2¼ inches; wingless, brown granulose and spined.

P. draconium, *Westw.* Philippines, male 1½ inches; female 2¼ inches.

P. deplanatum, *Westw.* Philippines, 2½ inches; wingless.

P. luteo viride, *Westw.* Assam, 3 inches; wingless luteous green.

P. curtipes, *Westw.* Penang, 4 inches; buff-brown.

P. filum, *Westw.* Penang, 2¾ inches; filiform.

P. uniforme, *Westw.* Penang, 3¾ inches; wingless, cylindrical.

P. geniculosum, *Westw.* Penang, 3⅓ inches; elongated, cylindrical, wingless.

P. despectum, *Westw.* Sylhet, 4¼ inches.

P. lacertinum, *Westw.* Assam, 3⅚ inches.

Sec Saltatoriæ.

Fam. Gryllidæ, *Leach,* Locustariæ *Latreille.*

Phaneoptera perlaria, *Westw.* Penang, 4 inches; dull luteous grey.

Magalodon ensifer, *Brulle.* Sumatra, 3-3⅓ inches; fulvous red.

Pseudophyllus, 4 tuberculatus, *Westw.* Penan 4½ inches; opaque brown.

Acanthodis imperialis, *White.* Assam, Sylhet, 4½ inches; body black.

Acanthodis donovani, *Donov.* East Indies, male 2⅛ female 3¾ inches; brown.

Phylloptera sanguinolenta, *Westw.* Sumatra, male expansion 1½ inch, fem. 2¼ inch.

P. 8. maculata, *Westw.* Sumatra, expanded wings 4¾ inches.

Phyllium	*Illig.*
Fam. Gryllidæ	*Steph.*
Acheta	*Linn.*
Platydactylus	*Brall.*
Steirodon	*Serv.*
Phyllophora	*Thunb.*
Acanthodis	*Serv.*
Phaneroptera	*Serv.*
Phymateus	*Thunb.*
Truxalis	*Linn.*
Acridium	*Geoffr.*

Another arrangement is

ORDER III—Orthoptera, *Oliver.*
Section i—Cursoria.
FAMILY 1—Blattidæ, *Stephens.*
Genera—Ectobia, *Blatta.*
Section ii—Raptoria (Family 2, *Mantidæ.*)
Section iii—Ambulatoria (Family 3, *Phasmidæ.*)
Section iv—Saltatoria.
FAMILY 4—Achetidæ, *Leach.*
Genera—Gryllotalpa, *Acheta.*
FAMILY 5—Gryllidæ, *Leach.*
Genera—Ephippiger, Micropteryx, Xiphidio, Meconema, Phasgonura, Decticus.
FAMILY 6—Locustidæ, *Leach.*
Genera—Locusta, Podisma, Gomphocer, Tetrix.

Deroplatys angustata	Java.
„ arida	Malacca, Sumatra.
„ desiccata	Malacca.
Mantis metallica	Sylhet, East Indies.
Mastax apicalis	Sumatra.
„ guttata	„ Philippines.
„ vitrea	Java.
Systella Hopei	China.
„ Rafflesii	Sumatra.

ORTHOTOMUS LONGICAUDA, *Gmel*, the tailor-bird, in its curiously fashioned ne displays marvellous skill and care, it is plentif in the groves and gardens of India. The ma is larger and has a longer tail than the femal but both are yellowish white below and olive-green above. The call of the male is a fre quent repetition of whee-u, and the male bir in a garden vie with each other.

ORTOLAN.

Emberiza hortulana, *Linn.*	Miliaria pinguescens, *Frisc*
„ buchanani, *Blyth.*	
Hortulanus, *Gesner.*	

Green headed Bunting,	ENG.	Ortolano,	I
Garten-ammer,	GER.	Gerste-kneu,	Netherlan
Fell-ammer,	„	Tordino berluccio,	Venic
Jam-johara,	HIND.		

The ortolan of Europe is occasionally see in the west of India. In Europe they ar caught in great numbers, are fattened for th table and are considered a great delicacy. I India, the social lark, Calandrella brachydac tyla, and the Pyrrhulauda grisea are popularl called ortolans. A kind of lark called an ortolan was found by Dr. Hooker abundant in the Parwah district. He says this is not, however, the European delicacy of that name, though a migratory bird; the flocks are large, and the birds so fat, that they make excellent table game. At this time they were rapidly disappearing, to return from the north in September.—*Hooker's Him. Jour.*, *Vol.* i, *p.* 998.

ORTOSPANA, the Sanscrit Urddhasthana, identified with the Bala Hisar of Kabul.

ORTOUS, a Tartar people occupying a poor and wretched country. Although the Tartars are perpetually moving from one place to another, they are obliged to remain within the limits of their own kingdom, and in dependence on their own master, for slavery still exists among the Mongol tribes, although in a very mild form. Mongolia is divided into several sovereignties, the chiefs of which are tributary to the emperor of China, though their relations with him are rather uncertain and fluctuating. Sometimes it appears as if he had no right to displace any reigning chief or king; at others, as if his will were all-powerful; but in case of dispute the matter is, in fact, settled only by force. In the several states, the families that are connected by any ties of kindred with the sovereign constitute a kind of nobility. They are called Tai-tsi and are distinguished by wearing a blue ball on their caps, and it is from amongst them that the chiefs choose their ministers. These are only three in number, and are called Toutzelaktsi, that is to say, "men who held," and, as a symbol of this dignity, they wear a red ball. All Tartars who do not belong, within any degree, to the princely family, are in fact slaves—that is, they are absolutely dependent on the will of their masters, but their mode of life is precisely the same, and if the slave enters the tent of the master, he never fails to offer him the customary courtesies of milk, tea, and pipes. The Mongols marry very early, under the absolute authority of the parents, and the affair is settled without the slightest reference to the wishes of the persons principally concerned. The girl has no portion; on the contrary, it is the young man who must take the wedding gift to the family of his future wife; wedding gift, indeed, it can scarcely be called; it is simply the price of the wife, and this expression is constantly used in speaking of the transaction: "We have sold our daughter to such a family," they will say, and when the contract is being drawn up, they will bargain and haggle and raise or lower the price, just as they would in any other purchase. When it has been agreed how many horses, oxen, sheep, pounds of butter, pieces of stuff, skins of brandy, &c., they will give, the terms are written down before witnesses, and the girl becomes the property of her purchaser. A plurality of wives is not opposed either to the laws, the religious faith, or the customs of the country; but the first wife is always most respected, and remains mistress of the household. Perhaps, in the present state of the country, this practice so opposed to the true happiness of families, may present a kind of barrier to excessive corruption; for, as there are immense numbers of the Lamas on whom celibacy is imposed, many disorders would otherwise result from the multiplicity of young girls that would be left without support. Divorce is very frequent among the Tartars, and the husband is not required to assign any cause to justify his putting away his wife, but simply takes her back to her parents. As he forfeits of course, in such a case, the price he has paid, it sometimes happens that the parents are able to make a profit by the transaction, by selling the same article twice over. The women in Tartary are not kept in a kind of imprisonment as they are amongst most Asiatic nations; but they go and come as they please, take rides on horseback, and pay visits freely from tent to tent. They have nothing of the soft and languishing manners of the Chinese women; on the contrary, there is an appearance of vigour and independence about them, which harmonizes well with their active habits and nomadic life; and this effect is perhaps assisted by the simple, and somewhat masculine character of their dress—a long green or violet robe, confined at the waist by a girdle, a sort of jacket or waistcoat over it, and large leather boots. But they wear also on their hair and girdles ornaments of silver, coral or beads.—*Huc's Recollections of Journey*, *p.* 113.

ORTYGIS, the little bastard quail.

ORUKZYE. Their country extends from the Sepah tract (which adjoins the Afreedee hills) round the north-western corner of the Kohat district, and then nearly onward to the top of the Meeranzye valley (which belongs to Kohat) till it joins the country of the Zymoosht Affghans. The tribe is one of the largest on the N. W. frontier, and numbers 20,000 fighting-men, most of whom are good hill soldiers. The Orukzye hills stretch a long distance to the west. In the interior of these hills, there is the cool table-land of Terah, where the clansmen resort in the summer with their cattle, and in the winter return to the pasturage grounds of the lower ranges near the British frontier. The sections of the tribe that have come in contact with the British are the Shekhan, the Mishtee, and the Raabeuhkhel. The portions of the Kohat district adjoining the Orukzye hills are the sub-divisions of Samilzye, Hungoo and Meeranzye. Up to the year 1855, this tribe, though occasionally committing petty depredations, and known to be capable of mischief, if so inclined, gave no positive trouble. The Zymoosht Affghans are a small, but brave tribe, numbering about 5,000 fighting-men, some of whom are well-mounted. They inhabit a valley leading from western Meeranzye onward, towards the crest of a range called the "Powar Kothul." Their country of right belongs to the Cabul kingdom. They were usually ready to combine for mischief with the Tooree and Orukzye, and to threaten Meeranzye; they hold some land in the plains, which holding affords some pledge for their good behaviour. See Khyber.

ORUPU-LINGI MARAM, MALEAL. A Malabar tree that grows to about twelve feet high, and ten inches in diameter: it is very close-grained and durable.—*Edye, Forests of Malabar and Canara.*

ORUS, see Osiris, Kartikeya.

ORYZA SATIVA, *L.* In husk or growing.

Dhan,	BENG.	Padi, in the straw,	MALAY.
Sa-ba,	BURM.	Gabah in husk,	"
Tau,	CHIN.	Paiera,	MALEAL.
Chawul,	DUK.	Nellu, Arisi,	TAM.
Rice plant,	ENG.	Bium,	TEL.
Chawul,	HIND.	Nivari dhanyamu, uri,	TIB.

Its grain in husk.

Dhan,	BENG., DUK., HIND.	Ch'hona,	PANJAB.
Padi,	HIND.	Nellu,	TAM.
Gabah,	MALAY.	Udlu, Urlu,	TEL.

The grain husked.

Azur,	AR.	Varieties,	RAKH.
Pusnee,	BENG.	Tanneola,	SANS.
Sa-ba,	BURM.	Arunya,	"
Bhatta,	CAN.	Dhanya,	"
Kang-mi, Mi,	CHIN.	Unnoo,	"
Chawal,	DUK., HIND.	Ashoovrihi,	"
Aroos, Rooz,	EGYPT.	Sari,	SIND.
Rice,	ENG.	Wee,	SINGH.
Tai,	JHELUM.	Arisi, Nelloo,	TAM.
Dein,	KASH.	Biyam,	TEL.
Tani,	"	Cheni,	"
Bras,	MALAY.	Oori,	"
Ari, Arisi,	MALEAL.	Oorloo,	"
Payera,	"	Mattakarulu,	"
Birinj; Shali,	PERS.	Nevari-dhanyamu,	"

The Oryza genus of plants belongs to the natural order of Grasses. It is the name by which rice was known to the Greeks and Romans, and which has been adopted by botanists as the generic name of the plant yielding that valuable grain. The Greek name would appear to be derived from the Arabic Aruz, and this is allied to Uri, the Telinga name of cultivated sorts; but the Sanscrit names are Unoo, Dhanya, and Vrihi; the wild kind being called Nivara, while that of the great tanks is called Arizee in the Tamil language. The European names are evidently all derived from the same sources, but the name Paddy is applied to the rice in its natural state, or before being separated from the husk. The natives of India call it Dhan in this state, as well as the plant, and the rice itself is called Chauwul. The genus Oryza has two glumes to a single flower; paleæ two, nearly equal, adhering to the seed; stamens six, and styles two. Dr. Roxburgh describes two species; one, O. sativa, distinguished by its diffuse panicle; the other, O. coarctata, has the panicle contracted, the valvulets of the calyx subulate, and the leaves culm-clasping. This species is a native of the delta of the Ganges, and was first discovered there by Dr. Buchanan in 1796, but was not found to be applied to any use. The common rice, O. sativa, unlike many long cultivated grains, is still found in a wild state in and about the borders of lakes in the Rajahmundry Circars of the peninsula, though never cultivated, because the produce is said to be small compared with that of the varieties in cultivation. The composition per 100 parts of several rices was as under:

	Pegu.	Bombay bazaar.	Broach.	Barielly.	Malacca.
Moisture,	13·50	13·00	13·10	12·80	12·90
Nitrogenous matter,	7·41	7·44	7·12	8·24	7·24
Starchy matter,	78·10	77·63	78·70	77·80	78·56
Fatty or oily matter,	0·40	0·70	0·49	0·64	0·60
Mineral constituents, (ash.)	0·59	1·23	0·66	0·52	0·70

In the East Indies, rice is used for food for man, beast, and bird; for the manufacture of starch, and the distillation of spirits, &c. Its varieties are as numerous as its uses. There are in several provinces three distinct crops; the first, grown on somewhat high ground, is the early crop, sown for the most part in June and reaped in August and September. The Burmese recognize nearly a hundred varieties of rice, but their principal distinctions between the different kinds are, the hard grain rice, soft grain rice, glutinous rice.

The 'Natsung' rice of Burmah is the hardest grain, and is the rice principally exported to Europe. The 'Meedo' is the chief of the soft grain varieties. It is much preferred by the Burmese to the hard-grained sorts, and it is certainly superior in taste when cooked; but the hard-grained rice is chiefly purchased by the merchants for export, as it keeps better, and the soft-grained rice is too much broken by European machinery in cleaning. Latterly, on the Continent of Europe this last objection appears to have been overcome, and a greater demand is consequently springing up for the 'Meedo' rice for the markets of foreign Europe.

The 'Koung-nyeen,' or hill rice, is called 'glutinous' rice by Europeans, from the property it possesses, when cooked, of the grains all adhering in a thick glutinous mass. It is the chief article of food with the Karen and other hill tribes, but is not much eaten by the inhabitants of the low swampy plains, where the common rice is grown.

Very many varieties of rice are grown in Oudh. A heavy soil and plenty of water suits them best. There are five kinds which are considered among the best. 'Mihee' and 'Basee' are foremost. The peculiarity in the cultivation of these two kinds is, that they are transplanted and placed about 5 inches apart. And, by this method, if the soil is good, they grow to the height of an ordinary-sized man, and produce a much larger quantity than if otherwise treated. The odour and flavour of these two kinds, when cooked, are superior to those of any other kind. They are only used by those who can afford to buy them. As the labour in cultivating them, is dearer than the other sorts, the three other varieties which are considered good are the 'Bateesa,' the '———' and the 'Phool-birinj.' They are sown broad-cast in June, and left so, and they are the kinds mostly used by natives. The first two mentioned, when new, sell for 10 or 12 seers per rupee, and become dearer according as they become older. The other three kinds sell for about 19 seers per rupee, and are dearer if older. Some consider 'Phool-birinj' the best, as it swells in boiling, and has an agreeable odour.

Where the soil is low and good, and water abundant, throughout the Panjab, especially in the upper part of the Jullundur Doab rice is grown. It is also abundantly grown throughout the Siwalik tract and up the valleys to an elevation in places of 6,000, or even nearly 7,000 feet. In Peshawur the varieties of rices are called doaba, shugha, zafrani, jyotshi, kaneri, and lukh, or coarse rice. The chief varieties grown may however be stated. Rice without the husk is called brinj or chawal; whilst paddy or unhusked rice is called chhona (Panjabi), or dhan (Hindustani). In the plain districts the coarse rice commonly grown is called munji; other rices met with in the bazaar, of second and third quality, are begami and samoja also sohn pat: a fourth class, is the red-skinned wheat called sathi, also "sharbati" and chinwa lal; this is inferior.

In Mysore, rice is extensively grown in the wet lands irrigated by the canals of the rivers Cauvery, Capila, Hemavety, Lutchman Terta, and Penaar—of Talapirige or fountain heads—and under tanks. Naggur and Astagram divisions have proportionally the largest produce of paddy. It is exported from one part of Mysore to another; but except to the Neilgherries, and a portion to the western coast from Nuggur and North Astagram, little goes out of the territories. There are many varieties of paddy, as 1 Dodda Bhaira, 2 Chik-ka Bhaira, 3 Karoo, 4 Doddi, 5 Kembat-ti, 6 Put Rajanna, 7 Marabe Kanti, 8 Muragi Jel-li, 9 Krishna nila, 10 Kapile San-na, 11 Jeerige Semba, 12 Sittabbogam, 13 Sukhadass, 14 Yalak-ki Rajana, and different others. Indeed almost every village in India has a variety of this grain peculiar to the locality. The ryots do not try to preserve paddy for a length of time, as it rapidly loses in weight.

The ardent spirits prepared from rice are called

Arrak,	BATAVIA.	Rij,	JAV.
Ayet,	BURM.	Tanpo,	"
Mandrin,	CHIN.	Sichew,	"
Paniz,	COREA.	Phaur,	NEPAL.
Saki,	JAPAN.	Lau,	SIAM.

The No or glutinous rice of China contains much dextrine and is rounder in the grain: the best of the Chinese glutinous rice of China is from Kiang-su: it is preferred for making congee, dumplings, wine, but is not so digestible as common rice. Rice is the food of the greatest number of the human race. The inhabitants of N. and S. America, on the S. of Europe, of N. Africa, of the south and east of Asia, all largely use it. It is the most easily digestible of all vegetable substances, but its bulk is objectionable.—*Smith, Ainslie, p.* 217; *Dr. J. L. Stewart, Panjab Plants, p.* 257; *Powell's Hand-book, pp.* 250-51; *Madras Exhibition Juries Reports; Catalogue Exhibition of* 1862; *Simmonds.* See Rice.

OSA, TEL. A medicinal herb, probably Vasa or Acorus calamus.—*Br.*, 149.

OSACCA, see Kio.

OSARA REWAND. In Tibet, extract of Rhurbarb, *i. e., Lit.* Rhubarb juice. In India, Gamboge.

OSBECKIA. A pretty species of osbeckia having the stamens all of equal length, is in flower on the Maulmain hills in August. Dr. Wight gives O. aspera, *Blume*, O. gardnerina, O. hispidissima, O. leschenaultiana, O. truncata, O. virgata, O. wightiana.

OSBECKIA ASPERA, *Blume.*

Osbeckia glauca, *Benth.*	Melastoma asperum, *Linn., Rhein.*

Choto-phutika,	BENG.	Kaat katali,	MALEAL.

OSBECKIA GLAUCA, *Benth.* Syn. of Osbeckia aspera, *Blume.*

OSCAN, see India.

OSCILLATORIA RUBESCENS, M. Ehrenberg, while navigating the Red Sea, observed that the occasional red colour of its waters was owing to enormous quantities of a new animal, which has received the name of Oscillatoria rubescens, and which seems to be the same with what Haller has described as a purple conferva swimming in water; Dr. Bonar, in his work entitled "The Desert of Sinai," records:—"Blue I have called the sea; yet not strictly so, save in the far distance. It is neither a red nor a blue sea, but emphatically green,—yes, green of the most brilliant kind I ever saw. This, he adds, is produced by the immense tracts of shallow water, with yellow sand beneath, which always gives this green colour to the sea, even in the absence of verdure on the shore or sea-weeds beneath. The blue of the sky and the yellow of the sands meeting and intermingling in the water, form the green of the sea; the water being the medium in which the mixing or fusing of the colours takes place." It is, however, also supposed to be from the Trichodesmium erythræum, a filamentous alga, that the Red Sea is imagined to have obtained its name. It is described as of a blood-red colour, often covers large areas, and appears and disappears somewhat capriciously. It has as synonym T. ehrenbergii. T. hindsii, also of a blood-red colour, has been found off the west coast of South America under the microscope. The Trichodesmium seems like sheaves of minute fibres. Dr. Collingwood however mentions that he had never seen red Trichodesmium, or any tint of red. He had seen it yellowish brown. He had seen the Indian ocean red from myriads of minute red crustacea, and in the Formosa channel from red gelatinous worms, but never by Trichodesmium.—*Collingwood, Naturalist.*

OSEILLE of Mauritius, Hibiscus sabdariffa, *Linn.*

O-SE-TA-OUR-HAN, see Kazan.

OSHA, HIND. Sterculia villosa.

OSHAK, PERS. Dorema ammoniacum.

O'SHAUGHNESSY, Sir William, M.D., a medical officer of the Bengal Army, who introduced the electric telegraph into India. Author of the Bengal Dispensatory, Calcutta, 1842. Explosion of gunpowder under water by galvanic battery, in Bl. As. Trans., 1839, vol. viii, p. 851. Preparation of Ganja, &c.; Ibid, 732, 838. Communication of telegraphic signals, &c. Ibid, 714. Effects of sea-water on iron. Ibid, 1843, vol. xii, part 2, Report on the establishment of the electric telegraph, Pamphlet, Calcutta, 1852, published by Government. It is to his high intellect alone that we are indebted for the introduction into India of telegraphic communication.

OSHEK NAPU, MALAY. Tragulus javanicus, *Pallas.*

OSHOKO, URIA. A tree of Ganjam and Gumsur of extreme height 50 feet, circumference 3 feet, and height from the ground to the intersection of the first branch, 8 feet. Scarce in Gumsur, but abounds in Bodogoda, where it is burnt for firewood. The flowers are offered at the shrines of the hindoo divinities. The bark is used medicinally, in diarrhœa.—*Captain Macdonald.*

OSHTERANEE. South of the Sheoranee hills, on the conterminous of the Dehra Ishmael Khan and Dehra Ghazee Khan districts, there dwell the small Pathan tribe of Oshteranee, mustering about 1,000 fighting-men. They are brave and pugnacious, but not predatory. They dwell chiefly in the hills, and are so far independent; but many of them possess and cultivate lands in the plains at the foot of the hills, and consequently within British territory. Before annexation they used to be quite as violent as their neighbours, especially during the continuance of a deadly feud with the Kusranee. The quarrel was, however, composed by Major Edwardes before annexation. But subsequently they never signalized themselves by attacks on British subjects, or raids on property, and have evinced a good and friendly disposition. On the border of the Oshteranee hills, and nearly opposite to Dehra Futteh Khan, is the Vooch or Korah pass, faced by the British out-posts of Doulalwalla and Vehoa. This point is of some topographical importance, as constituting the boundary line between the Pathan and Belooch tribes. The Belooch tribes extend along the lower half of the Derajat frontier. They are less warlike and interesting, but even more predatory. The Pathans are almost entirely independent; few of them are British subjects. The head-quarters of Belooch tribes and the majority of the clansmen are generally in the independent hills, beyond the British territory, the boundary line of which runs along the base; but a large number of each tribe also hold lands in the plain and are British subjects. All the tribes are at feud with each other; they not only fight in the hills, but they carry their contests into the plains; they attack all villages in the plains, except those belonging to their own tribe. The men of the plains usually resist the attacks with spirit at the time, but they are not allowed to retaliate afterwards, as they used to do under the Sikh rule, and as they would do still, were they not prevented by the British government. It is to guard British villages and people from their constant aggression that the strong cordon of military posts has been fixed along the base of the Suleemanee range. Raids and forays are not, however, entirely repressed, and even the posts are sometimes attacked. The marauding parties were 50, 100, 200, 300, occasionally even 500 strong. They are often mounted and will fly if hotly pursued for 15, 20 and even 30 miles. Many of the villages and much of the cultivation is close to the hills and in front of the posts, so that the plunderers can, in the shortest time, carry off their booty to the hills before the detachment comes.—*Records of Government of India.*

OSHADEESHA, SANS., from oshudhee, medicine, and eesha, a lord.

OSHUM, see Kattywar.

OSIR, BENG., HIND. Andropogon muricatum

OSIRIS, a god of the ancient Egyptians. According to some authors, Amun, the king;

Neph, the divine spirit; Phthali, the creative power: Khem, the reproductive power; Thoth, the divine intellect, and Osiris, the Goodness of God, were all one and the same being. Osiris worship was the oldest and most sacred part of the Egyptian religion. Osiris was the essential personification of divine goodness. The black Osiris of the Egyptians was also styled Seirius, also Sirius, also Bacchus. Every good man, when dead, in some manner took upon himself the character of Osiris. Many cities claimed the honour of being his burial-place, particularly Philæ, Sais, Busiris, and Taposiris. At Memphis he became united to Pthah, and was called Pthah-sokar-osiris; and also to the bull Apis, and then became Osiris-apis or Serapis, who was afterwards the chief god of Egypt. Isis, his queen and sister, held rank before him, and was the favourite divinity of the country. She had the characters of all goddesses in turn. She was sometimes the mother, sometimes the queen of heaven, sometimes Hecate, the goddess of enchantments. Horus their son had a hawk's head and wears the crown. He was the avenger of his father's death. But he sometimes appears with the sun on his head, as Horus-Ra, or Aroeris, the elder Horus, and he is not then the son of Isis. They had another son Arrubis, with a jackal's head, whose office was to lay out the dead body and to make it into a mummy. He was worshipped particularly by Ombos. The wicked god Tymphon is in form of a she-bear or hippopotamus, walking on its hind legs. He was the author of evil, and he killed his brother Osiris. Nephthys was the sister and companion of Isis. Of this family the trinity is sometimes Isis, Osiris, and Nephthys.

The early religion of the Egyptians was, no doubt, sun-worship. This symbol they personified and worshipped, and endowed with the divine attributes of a deity, possessing, at the same time, the sensual appetites of humanity. Thus another personification was necessarily introduced and worshipped, as the goddess, or female nature, from whom, by the fecundizing power of the solar orb, everything possessing either animal or vegetable life was produced. This caused a third personified deity, typical of the essence of the power and energy of both. Thus Osiris, the great emblem of the solar body; Isis, the symbol of æther, the natural parent and spirit of the universe, comprehending and pervading the whole creation; and Orus or Horus, the symbol of light (usually described as a winged boy standing between Osiris and Isis), are the three great deities of the Egyptian mythology, who have radiated, like the hindoo triad, into a multiplicity of forms and names, either as their various attributes were displayed, or according to the motions of the two great luminaries, of which Osiris and Isis, (in one of her forms) were the personified representations. Plutarch makes Osiris to signify the active principle or the most holy Being; Isis, the wisdom or rule of his operation; Orus, the first production of his power, the model or plan by which he produced every thing, or the archetype of the world. The attributes of Osiris, under his several forms, correspond with those of Jupiter, Sol, Bacchus, Pluto, Oceanus, &c. He will accordingly assimilate with the hindoo god Siva in his majestic and vindictive characters, as well as with Yama, with Indra, Rama, and Varuna. The goddess Isis (called also Isha, the woman) is termed the mother of the gods, and like the hindoo Parvati (Bhavani or Durga), the goddess of a thousand names. The Greek and Roman writers make her the same as Juno, Minerva, Diana, Proserpine, Venus, Ceres, Hecate, &c., &c. She thus corresponds with the three great sacti of the hindoo triad. As the unarmed Minerva, she is the goddess Suraswati; as Ceres and Venus she is the hindoo Lakshmi, the goddess of fecundity and beauty; as the Olympian Juno, she is the mountain-born goddess, Parvati; as Vesta or Cybele, she is Bhavani, as Bellona, Durga, and as Hecate and Prosperine, the terrific and sanguinary Kali, under her numerous vindictive and destructive forms. Orus, or Horus, is the emblem of light, whose parent is the solar orb. He is thus the son of Osiris; and, as light, flows through all ether or space of Isis. He is the Roman Cupid, and, as such, may be compared with the beauteous Camadeva, the hindoo god of love.

Osiris was identified with the sun and Isis with the moon. The conquests of the Hercules Belus of Cicero, who is supposed to be the Osiris that invaded India, extended only up to the Indus.—*Fraser's Magazine, June* 1868; *Sharpe's History of Egypt, Vol.* i, *p.* 101; *Upper and Lower Egypt*; *Cole's Myth. Hind., p.* 255. See Baal, Bacchus, India, Kali, Puranas.

OSMAN-KHEYL. Towards the lower extremity of the Swat valley, a formidable range of hills bounding the valley runs for many miles from east to west, nearly parallel to the British frontier; and at the eastern extremity of this range stands the Mora mountain. Between this range and the frontier, however, intervene two tracts, named Raneezye and lower Osman-kheyl, both quasi dependencies of Swat. The best of the passes leading into Swat is one named Mullakund, which opens from Raneezye. A little further to the eastward of Raneezye, also, there are some passes, leading into the Loondkhor valley, which belongs to British Eusufzye. These latter passes are not available for passage from Swat to British territory, because leading into Loondkhor, they can be stopped by any party holding that valley. The passes viâ Raneezye and Osman-kheyl, if the people of those tracts accord a passage, lead straight on to the British plains of Hushtnuggur. Above the Loondkhor valley, just beyond the British frontier, is the strong village of Pullee. The sub-divisions of the Peshawar district, adjoining the tribes above described, are Loondkhor or north-west corner of Eusufzye, and then Hushtnuggur. Rañeezye and Lower Osman-kheyl tribes, are subordinate to Swat.

OSMAN, see Kajar, Othman.

OSMANLI TURKS, see Mesopotamia.

OSMELIA gardneri, *Thw.*

Casearia paniculata, *Gardner's MSS.*

A moderate-sized tree of the Central Province of Ceylon, at an elevation of about 3,000 feet.—*Thwaites' Enumeratio Plantarum Zeylanicæ, Part* i, *p.* 20.

OSMETICTIS FUSCA, *Gray.* Urva cancrivora, *Hod., Bly.*

OSMUNDACEÆ, *R. Br.* An order of plants comprising 1, gen., 4. sp., viz. 4, Lygodium.

OSPANAH, HIND., PUSHTU, Iron.

OSPREY, Pandion haliaetus, of universal distribution; the Australian only differing but slightly. Common in India and migratory in the far north.

OSPHROMENUS OLFAX, *Commerson.* Both at Pinang and at Malacca, this fish has been successfully naturalised though in the former place it is not numerous, but confined to a few ponds. They become tame so as to appear on the approach of their feeder, and will rise to flies, beetles, and certain flowers, particularly a large Hibiscus. Among themselves they are pugnacious. Many years ago several living ones were imported, and placed in a tank in the Calcutta Botanical Gardens, where they appeared to thrive. Little care, however, having been bestowed on their preservation, but a solitary one survived in 1841.

OSRHOENE of the Romans, see Orfa, Sarug or Serug.

OSSARA REWUND, ARAB., PERS. Gamboge.

OSSETES, see India.

OSSETONG, BUR. Alkanet.

OSTEOCOLLA. An inferior kind of glue, manufactured from bones. In Gurief, a fine boiled fish-glue is prepared, perfectly transparent, having the colour of amber, which is cast into slabs and plates. The Ostiaks also boil their fish-glue in a kettle.

OSTEO-GENEIOUS, *Bleeker.* Syn. of Arius militaris, *Linn.*

OSTERANI, see Bozdar, Oshteranee.

OSTIAK. On the river Ket, is a tribe called by the Tongusians Gosetiyasek or Ostiak, who possess a number of scattered habitations in the woods on each side of the Ket. They hunt the tiao, and pay a fixed tribute of the skins of this animal. The Ostiak regard it as a crime to marry a woman of the same family or even of the same name. The same custom prevails among the Circassians and the Samoyeds.—*Staunton's Narrative, pp.* 74-75; *Pallas, Vol.* iv, *p.* 96; *Lubbock's Origin. of Civil., p.* 97.

OSTRAS, SP. Oyster.

OSTREA, see Pecten spondyloideum.

OSTREÆ, LAT. Oysters.

OSTRICH.

Thar-ud-jamal,	AR.	Struthio camelus, *Linn.*,	LAT.
Autruche,	FR.	Shutr-murgh,	PERS.

This is the only species of the genus Struthio: it inhabits Central and Southern Africa. It runs with great speed, aided by its wings which are not sufficiently developed for flight. The length between each stride, when at full speed is not unfrequently from 12 to 14 feet, moving with a velocity that puts the horses swiftness to nothing. They feed on the sprouts of the Acacia mimosa and on the pulp of the Naras. When hunted by horsemen, the latter surround the troop of Ostriches and drive them from one to another gradually narrowing their circle. In the height of the hot weather, the Ostrich makes but little effort and a single horseman suffices to catch them. The Ostrich imitates the lap-wing and Oyster catcher in its stratagems to mislead those who approach its nest or its young. It hatches its own eggs but reserves a few for the food of its young. Its usual cry is a short roar, but when at bay it hisses like a gander. Their long wing feathers are sold at from £ 1 to £12 the pound, from 70 to 90 feathers go to the pound; the thinner the quill and the longer and more wavy the barbs, the more it is prized.—*Hartwig.*

OSTRICH or Estridge.

Duvet d'autruche,	FR.	Struthionum plumæ molliores,	LAT.
Penna matta di strozzo,	IT.	Plumazo de avestrux,	SP.

Fine soft down under the feathers of the Ostrich.—*Faulkner; Macculloch.*

OSTRICHE, IT. Oyster.

OSURAMMA, see hindoo.

OSYRIS PELTATA, *Roxb., W. Ic.*

Macaranga roxburghii, *Wall.*		Pha-oun,	BURM.

This is found in Tavoy.—*Wall.*

OSYRIS WIGHTIANA, one of the Santalaceæ, the Lotul, a small tree with twiggy erect growing branches; in flower and fruit most of the year. The fruit when ripe is of the size of a small sloe, of a yellow colour, with a mark on the top like a "blaeberry." It is sweet and very pleasant when tasted, and is deservedly ranked amongst the wild fruits by Col. Sykes.—*Riddell.* See Lotul.

OTAHEITE GOOSEBERRY, Cicca disticha.

OTAHEITE SUGAR-CANE, Eng. Saccharum violaceum.

OTARIA JUBATA, the maned Sea Lion, is 11 feet long, has an erect curly hair tuft at its neck, with a mane flowing completely round its breast, but other parts of its body have only smooth hair or bristles.—*Hartwig.*

OTHELAPH, Heb. Bat.

OTHMAN. Usman or Osman, the 3rd kalif.

OTHMAN, the founder of the Turkish empire, from his activity in warfare, he was named Ilderim or Yelderm signifying "lightning." He opposed Timur who, in 1403, defeated him at Angora, took him prisoner, and, according to report, confined him in an iron cage. He died soon after. The Turkish race, from Ertoghrul's son, Othman, has been called the nation of the Ottoman Turks and the Osmanli. See Ertoghrul, India, Turkey.

OTHMAN-KHEIL, see Affghan.

OTHMANZYE, see Affghan, Waziri.

OTIDIDÆ, the bustard family of birds, comprise the genus Otis and three sub-genera, also species of Houbara, Eupodotis, and Sypheotides.

Eupodotus Edwardsii, *Gray*, Indian bustard.

Otis nigriceps, *Vigors*, *Gould*, *Sykes*, *Jerdon*.	O. lucionensis, *Viellot*.

Tokdar, sohun;	Hind.	Burra chirath,	Hind.
Guganbher,	„	Batt-meka,	Tel.
Hookna, Gurayin,	„	Batt-myaka,	„

Length $4\frac{1}{2}$ to 5 feet, weight 26 to 28 lbs. Not found in the valley of the Ganges, Bengal, Bahar or the Malabar Coast, but is spread over other parts of India. Eupodotis nuba, *Ruppell*, E. ludwigi, *Ruppell*, E. caffra, *Licht.*, E. denhami, *Children*, E. arabs, *Linn.*, and E. kori, *Burchell*, occur in Africa.

Houbara macqueenii, *Gray*, *Hardw.*, *Gould*.
O. marmorata, *Gray*, *Hardw.*

Tilaor, female,	Hind.	Obarra,	Hind.

The Indian houbara bustard is 25 to 30 inches long; and weighs $3\frac{1}{4}$ to $3\frac{1}{2}$ lbs. It is found throughout the plains of the Panjab and upper Sind, occasionally crossing the Sutlej and the Indus lower down, but it does not occur east of Delhi. It is much hawked both in the Panjab and Sind, the falcon used being the charragh or Falco sacer.

Sypheotides bengalensis, *Gmelin*. Bengal florikin.

O. deliciosa, *Gray*, *Hard.*		O. himalayana, *Vigors*.
Charras, choraj,	Hind.	Dubar of Nepal.
Charaz,	„	

Length 24 to 27 inches, weight $3\frac{1}{4}$ lbs. It occurs in all the north of India from Calcutta to the Himalaya.

Sypheotides auritus, *Lath.*, Lesser, common or black florikin.

Otis auritus, *Latham*, *Jard.*, *Jerd.*, *Blyth*.	O. fulva, *Sykes*.

Kan-noul,	Can.	Ghas-ki-murgi,	Hind.
Charas, charaz,	Hind.	Tan-mor,	Mahr.
Chulla charz,	„	Waragoo-koli,	Tam.
Likh,	„	Niala-nimili,	Tel.
Khar-titar,	„		

Length 18 to 19 inches, weight 16 to 18 oz.; found throughout India.

Otis tetrax, *Linn.*, the Tetrax campestris, the small bustard of Europe is said to have been found in the Peshawar valley and occurs in Central and Western Asia and N. Africa.

The following are bustards of Africa, some of which spread into Arabia, viz.:—O. rhaad, *Shaw.*; O. cœrulescens, *Viell.*; O. scolopacea, *Temm.*; O. afra, *L.*: O. afroides, *S.*; O. senegalensis, *Viell.*; O. melanogaster, *Ralph.*

Otis deliciosa, *Gray*. O. Himalayana, *Vig.* Syns. of Sypheotides bengalensis, *Gmel.*

Otis marmorata, *Gray*. Syn. of Houbara macqueenii, *Gray*.

Otis tarda, *Linn.* Great bustard.
Avis tarda, *Belon*.

Kodan, Jurz, Asford,	Ar.	Starda,	It.
Battmiaka,	Can., Tel.	Starda commune,	„
Ostarde, houtrade,	Fr.	Ahu bura,	Pers.
Bistarde,	„	Cowdun, jerz,	„
Trapp, trapp-gans,	Ger.	Gustard,	Scotch.
Grossetrappa,	„	Abu-tarda,	Sp.
Acken-trapp,	„	Nil-naray,	Tam.
Jungli-kabut,	Hind.	Batt-miaka,	Tel.

Various species of this genus of birds are to be met with in many parts of India, but the O. tarda is more rarely seen, in the lower and southern tracts of the peninsula, than in the more northern regions. In Mysore, which, from its great elevation, is much colder than other countries of the same latitude, the bustard is still common. The bustards live generally in open countries, preferring plains or widespreading extensive downs dotted with low bushes and underwood-localities which give them an opportunity of descrying their enemy from afar.—The bustards are found in Europe, Asia, and Africa; but not in America.—*Ainslie's Mat. Med., p.* 296; *Eng. Cyc., pp.* 697, 701; *Jerdon's Birds of India, Vol.* iii, *p.* 606.

OTOLITHUS. On the Malabar Coast, excellent isinglass is obtained from two species of Otolithus. One, perhaps the O. biauritus, *Cantor*, is named in Malayalim "Sille korra," it grows to a large size and is highly prized for the isinglass it yields; the O. ruber, also yields good isinglass. Otolithus versicolor, *Cuv.* and O. ruber, *Cuv.*, the perche pierre of Pondicherry, called there "panan," is fifteen inches long, and caught in abundance all the year, being esteemed as food. The isinglass obtained from North America in the form of long ribbons, is produced, according to Dr. Mitchill, by Labrus squeateague, at New York, called weak fish, which is about fifteen inches in length, and above six pounds in weight, forming one of their most abundant fish and furnishing the supply for their tables. One author states that its thick silvery swimming bladders are pressed, and another that the sounds of the Hake (Merlucius vulgaris) are also pressed between iron or wooden rollers to form thin isinglass. The Labrus squeateague is Otolithus regalis of Cuvier (the Johnius regalis of Block,) of the tribe Sciænoides. These are allied to the Perches, but have more variety and a more complicated structure in their natatory bladders; almost all are good for eating, and many of superior flavour.

Otolithus, sp., perhaps O. biauritus of Cantor.

Sille-kora. MALAYALUM.

This fish grows to a large size. It is found on the Malabar Coast, and is highly prized for the isinglass it yields.

Otolithus biauritus, Cantor. Total length, 3 feet. Inhabits Sea of Penang, Malayan peninsula, Singapore, Lancavy, Tenasserim Provinces and according to Jerdon, the Malabar Coast, where it is called Sille-kora, in Malayalim. The air-vessel is nearly one-half of the total length, and in shape might be compared with an elongated antique urn with two handles. From the anterior part of each of the latter proceed five branches, four of which give off smaller ones to each side, and the fifth is tortuous and smaller than the rest. It yields a large quantity of isinglass, which in the Chinese market is considered to be of the best quality, and fetches 40 to 50 Spanish dollars per pecul.

Otolithus ruber, Bloch and Schneider.

Jaran-gigi, MALAYALUM.

The total length of this fish is 2 feet 6 inches.

Otolithus versicolor, Cuv. and Val. The total length of this fish is only 6⅛ inches. It inhabits the Sea of Penang. Its air-vessel is ¼ of the total length.

Otolithus versicolor, Cuv. and Valen: Russell 109.

Panna, TAM,

Jerdon says this fish is one foot long and very common at Madras.—*Cantor, p.* 1046.

OTONO, a city alderman of Japan. In Japan, a city is divided into wards. For the ten wards there is one Lord Mayor, who every morning receives the Otono or Alderman, hears the cases of minor importance, and decides upon them with the alderman summarily. The Otono post up the public notices in their quarters, and take care of all the poor and sick in their wards.—*Hodgson's Nagasaki, p.* 228.

OTTAGAM, TAM. Camel. Ottagam mi-ir, TAM. Camel's hair.

OTTO OF ROSES.

Atr,	AR.; GUZ.	Atr-i-Gul,	PERS.
Gulab-ka-atr,	HIND.		

Otto of Roses, is a perfume obtained by the distillation of rose leaves. It is manufactured in France and in Turkey, and from the latter is largely imported into British India. It is also largely made in Hindustan. Dr. Jackson mentioned that in the early part of the 19th century around the station at Ghazeepore there were about 300 beegahs, or about 150 acres of ground laid out in small detached fields as rose gardens, most carefully protected on all sides by high mud walls and prickly pear fences, to keep out the cattle. These lands, which belong to zemindars, are planted with rose trees, and are annually let out at so much per beegah for the ground, and so much additional for the rose plants—generally five rupees per beegah, and twenty-five rupees for the rose trees, of which there are 1,000 in each beegah. The additional expense for cultivation would be about 8-8; so that for rupees 30-8 you have for the season per beegah of 1,000 rose trees. If the season is good this beegah of 1,000 rose trees should yield one lac of roses. Purchases for roses are always made at so much per lac. The price of course varies according to the year, and will average from 40 to 70 rupees. As soon as the roses come into flower the zemindar and cultivators of the rose gardens, as well as intending purchasers, meet in the city, and according to the demand and expected produce, a nerick or market rate is established, and purchasers then enter into agreement with the cultivators for so many lacs of roses at such a price. This agreement is considered binding, and the cultivator is obliged to deliver the quantity at the contract rate; when that is completed another can be made, but this latter is always at a much higher rate. The rose trees come into flower at the beginning of March and continue so through April. In the morning early the flowers are plucked by numbers of men, women, and children, and are conveyed in large bags to the several contracting parties for distillation. The cultivators themselves very rarely manufacture. The native apparatus for distilling the rose-water is of the simplest construction; it consists of a large copper or iron boiler well tinned, capable of holding from eight to twelve gallons, (shaped like the earthen hoondahs in which the gomastahs send in their opium) having a large body with a rather narrow neck, and a mouth about eight inches in diameter; on the top of this is fixed the head of the still, which is nothing more than an old deghchee, or cooking vessel, with a hole in the centre to receive the tube or worm. This tube is composed of two pieces of bamboo, fastened at an acute angle, and it is covered the whole length with a strong binding of corded string, over which is a luting of earth to prevent the vapour from escaping. The small end, about two feet long, is fixed into the hole in the centre of the head, where it is well-luted with flour and water. The lower arm or end of the tube is carried down into a long-necked vessel or receiver, called a bhubka. This is placed in a hundee of water which as it gets hot is changed. The head of the still is luted on to the body, and the long arm of the tube in the bhubka is also well-provided with a cushion of cloth, so as to keep in all vapour. The boiler is let into an earthen furnace, and the whole is ready for operation.

There is such a variety of rose-water manufactured in the bazaar, and so much that bears the name, which is nothing more than a mixture of sandal oil, that it is impossible to lay down the plan which is adopted. The best rose-water, however, in the bazaar may be computed as bearing the proportion of one thousand roses to a seer of water; this perhaps may be considered as the best procurable. From one thousand roses most generally a seer and a half of rose-water is distilled, and perhaps from this even the attar has been removed. The boiler of the still will hold from eight to twelve or sixteen thousand roses. On eight thousand roses from ten to eleven seers of water will be placed, and eight seers of rose-water will be distilled. This, after distillation, is placed in a carboy of glass, and is exposed to the sun for several days to become puckah or ripen, it is then stopped with cotton, and has a covering of moist clay put over it; this becoming hard effectually prevents the scent from escaping. The price of this will be from twelve to sixteen rupees. This is the best that can be procured.

To procure the attar or otto, the roses are put into the still, and the water passes over gradually as in the rose-water process; after the whole has come over, the rose-water is placed in a large metal basin, which is covered with wetted muslin tied over to prevent insects or dust getting into it; this vessel is let into the ground about two feet, which has been previously wetted with water, and it is allowed to remain quiet during the whole night. The attar is always made at the beginning of the season when the nights are cool; in the morning early the little film of attar which is formed upon the surface of the rose-water during the night is removed by means of a feather, and it is then carefully placed in a small phial; and day after day as the collection is made it is placed for a short period in the sun, and after a sufficient quantity has been procured it is poured off clear, and of the colour of amber, into small phials. Pure attar, when it has been removed only three or four days, has a pale greenish hue, by keeping it loses this and in a few weeks' time it becomes of a pale yellow. The first few days' distillation does not produce such fine attar as comes off afterwards, in consequence of the dust or little particles of dirt in the still and the tube being mixed with it. This is readily separated from its sinking to the bottom of the attar, which melts at a temperature of 84°. From one lac of roses it is generally calculated that 180 grains, or one tolah, of attar can be procured; more than this can be obtained if the roses are full-sized, and the nights cold to allow of the congelation. The attar purchased in the bazaar is generally adulterated, mixed with sandal oil or sweet oil; not even the richest native will give the price at which the purest attar alone can be obtained, and the purest attar that is made is sold only to Europeans. It sells at from 50 to 90 rupees the tolah. Native stills are let out at so much per day or week, and it frequently occurs that the residents prepare some rose-water for their own use as a present to their friends, to secure their being provided with that which is the best. The natives never remove the calices of the rose flowers, but place the whole into the still as it comes from the gardens. The best plan appears to be to have the calices removed, as by this means the rose water may be preserved a longer time, and is not spoiled by the acid smell occasionally met with in the native rose-water. It is usual to calculate 100 bottles to one lac of roses. The rose-water should always be twice distilled; over ten thousand roses, water may be put to allow of sixteen or twenty bottles coming out; the following day these twenty bottles are placed over eight thousand more roses, and about eighteen bottles of rose-water are distilled. This may be considered the best to be met with. The attar is so much lighter than the rose-water, that previous to use it is better to expose the rose-water to the sun for a few days, to allow of its being well-mixed, and rose-water that has been kept six months is always better than that which has recently been made.

At the commencement of the rose season, people from all parts come to make their purchases. There are about thirty-six places in the city of Ghazeepore where rose-water is distilled. The distillers generally put a large quantity of sandal oil into the receiver, the oil is afterwards carefully removed and sold as sandal attar, and the water put into carboys and disposed of as rose-water. At the time of sale a few drops of sandal oil are placed on the neck of the carboy to give it a fresh scent, and to many of the natives it appears perfectly immaterial whether the scent arise solely from the sandal oil or from the roses; large quantities of sandal oil are every year brought up from the south and expended in this way. The chief use the natives appear to make of the rose-water, or the Sandal Attar as they term it, is on the occasion of their festivals and weddings. It is then distributed largely to the guests as they arrive, and sprinkled in profusion in the apartments. A large quantity of rose-water is sold at Benares, and many of the native rajahs send over to Ghazeepore for its purchase. Most of the rose-water as soon as distilled is taken away, and after six months from the termination of the manufacture there are not more than four or five places where it is to be met with.

The value of the roses sold for the manufacture of rose-water may be estimated at 15,000 rupees a year, and from this to 20,000, and from the usual price asked for the rose-water and for which it is sold, it is estimated there is a profit of 40,000 rupees. The natives are very fond of using the rose-water as medicine, or as a vehicle for other mixtures, and they consume a good deal of the petals for the conserve of roses, or Goolcund, as it is called.

Other perfumed oils are manufactured without resorting to distillation. The layers of the jasmine, or other flowers, four inches thick and two inches square, are laid on the ground and covered over with layers of sesamum or any other oil-yielding seed. These are laid about the same thickness as the flowers, over which a second layer of flowers like the first is placed. The seed is wetted with water, and the whole mass covered with a sheet held down at the end and sides by weights, and allowed to remain for eighteen hours in this form: it is now fit for the mill, unless the perfume is desired to be very strong, when the faded flowers are removed and fresh ones put in their place. The seeds thus impregnated are ground in the usual way in the mill, and the oil expressed having the scent of the flower. At Ghazeepore, the jasmine and bela are chiefly employed: the oil is kept in dubbers, and sold for about Rs. 2 a seer. The newest oils afford the finest perfumes. The process here described is the same as that pursued at Bombay. In Europe, a fixed oil, usually that of the bean or morunga nut, is employed. Cotton is soaked in this and laid over layers of flowers, the oil being squeezed out so soon as impregnated with perfume.—*Monthly Bombay Times*, *25th Nov. to 24th June* 1850. See Ak.

OTTAWA, see Hindoo.

OTTER, a name for two distinct animals, the land-otters, Lutra vulgaris, Lutra nair, Lutra leptonyx, and L. canadensis, and the sea-otter, Enhydra marina. Both are caught for their fur: of the former, Great Britain receives about 20,000 skins a year. The latter, more like the seal in its habits, is obtained in much smaller numbers, but being the royal fur of China is highly valued there and in Russia. The otter, the crocodile, the kingfisher and the cormorant, share with man the produce of the waters.

Lutra leptonyx *Horsf*., *Blyth*. Clawless otter.

Aonyx horsfieldii, *Gray*.
„ sikimensis, *Hodg*.
Chusam, *Bhot*.
L. indigitata, *Hodgson*.
Suriam, *Lepch*.

This otter is found throughout all the Himalaya, south and east to Calcutta, Arrakan and the E. Archipelago. Length of head and body 24 inches, tail 13 inches.

Lutra nair. *F. Cuv*.. Common Indian otter.

L. chinensis, *Gray*.
L. indica, „
Nir-nai, CAN.
Ud; Hud; Ud-nai; HIND.
Ud-billai, „
Pani kutta, „
Udur, KASHMIR.
Anjing-ayer, MALAY.
L. tarayensis, *Hodgson*, *Ell*., *Bly*.
Jal-marjar: MAHR.
Jal-manjer, „
Saglahu, ? ? ? PANJ.
Sag-i-abi, PERS.
Neeru-kuka, TEL.

Found from the Indus to the E. Archipelago. Length 46 inches, of which tail is 17. It frequents marine lagoons and rivers. It is very easily domesticated, and in Bengal it is trained to drive fish into the nets. In the Panjab and N. W. Himalaya the skins of the Lutra nair are used for fur caps and posteens. It is extensively tamed and trained along the course of the Brahmaputra, as cormorants are trained in China.

Lutra vulgaris, *Erxleben*, *Blyth*. Hill otter.
L. monticala, *Hodgson*.

This is the common otter of Europe and is found in the interior of the Himalaya. Length, head and body 20—22 in., tail 12 to 13 in.

Lutra auro-brunnea, *Hodgson*. A small sized otter of the Himalaya.

Lutra barang, *Raffles*. An otter of the Malay peninsula.

Lutra simung, *Raffles*. An otter of Sumatra and Borneo.

In the museum of the Bengal Asiatic Society there is a specimen of an otter from Algeria, which (externally at least) is undistinguishable from the common otter of Bengal.—*Jerdon's Mammals*, *pp*. 86—89; *Horsfield's Cat*., *pp*. 115—120; *Powell's Hand-book*; *Blyth*.

OTTONE, IT. Brass.

OU, HIND. Hordeum ægiceras.

OUBA-CHAMPA, BENG. Sphenocarpus grandiflorus.

OUCHI, see Kirghis.

OUCHTERLONY, Captain, Madras Engineers; wrote report on Nellore, Cuddapah and Guntoor—Madras, 1841. Statistical and Meteorological report of the Neilgherry Hills, 1848.—Bombay Almanac, 1850. Account of Chinese war, &c.—Lond., 1844.

OUCHTERLONY, Sir David, a general officer of the Bengal army, who, for eight days, defended Delhi against the Mahratta Jeswunt Rao Holkar, repulsing repeated assaults though with open breaches, till on the night of the 15th October 1804 on the approach of Lord Lake, Holkar withdrew. From that time, the Moghul emperor of Delhi became a stipendiary of the British. The Nepaul war which ended on the 12th March 1816, was successfully conducted by Sir David Ouchterlony, but there fell General Gillespie who relieved Vellore when it was seized by rebels in 1808, and who had distinguished himself in Java in August and September 1811. Several tracts in the mountain valleys of the Himalaya were then ceded to the Indian government. Sir David Ouchterlony lives in the memory of the people of Northern India, as one of the greatest of the English conquering chiefs, and he was the very last of the British leaders who endeared himself, both to the army which followed him and to the princes who bowed before the colossal power of his race. He was long employed in conducting negociations with Runjit Singh.

OUDEYPUR or Oudeypore, is the capital of Mewar, and is often used to designate the Mewar country. The Oudeypore family is the highest in rank and dignity among the Rajpoot chiefs of India. The ruling chief is considered by hindoos to be the representative of Rama, the ancient king of Ayodhia, by one of whose descendants, Kanaksen, the present dynasty was founded about A. D. 144. The States of Doongurpore, Sirohi, and Pertabgurh are offshoots from it. Sivajee, the founder of the Mahratta power, and the Bhonsla family also claimed to be descended from the house of Oudeypore. No state in India made a more noble and a more desperate resistance to the mahomedans. It is the boast of the family that they never gave a daughter in marriage to any of the mahomedan emperors, and they for many years ceased to intermarry with the other Rajpoot families who had made such alliances. The rana Umra, who succeeded to the State in A. D. 1700 formed an alliance with the rajahs of Jeypore and Jodhpore for mutual protection against the mahomedans. It was one of the conditions of this tripartite alliance that these chiefs should regain the privilege of marriage with the Oudeypore family on condition that the sons of the Oudeypore princesses should succeed in preference to children by other wives. The quarrels to which this stipulation gave rise, led to the conquest of the country by the Mahrattas, at whose hands Mewar suffered more cruel devastations than it had ever been subjected to by the mahomedans. The rana Umra was succeeded in 1716 by Sangram Sing II, who was followed in 1734 by Juggut Sing II. On the departure of Nadir Shah, the peishwa having received from Mahomed Shah the cession of the chouth or fourth part of the revenues of the empire, he demanded this tribute from Oudeypore in common with the other states which had been tributary to the emperor; and, in 1736, Bajee Rao peishwa concluded a treaty with Juggut Sing II, by which the rana agreed to pay annually Rs. 1,60,000 on account of chouth. It became thereafter the custom for the redress of any real or supposed wrong, to call in the aid of the Mahrattas, who thus obtained a firm footing in Mewar, became the referees in all disputes and the virtual rulers of the country. On the withdrawal of the British influence from Rajpootana in 1806, under the policy of non-interference which had been introduced by Lord Cornwallis, Oudeypore was laid waste by the armies of Sindia, Holkar, and Ameer Khan, and by many hordes of pindaree plunderers. To such distress was the maharana reduced, that he was dependent on the bounty of Zalim Sing, the regent of Kotah, who gave him an allowance of Rs. 1,000 a month, and was exposed to the insults of his own feudatories, the more powerful of whom had retired to their forts and were bent only on their own preservation. In this state of degradation maharana Bheem Sing was found in 1817, when the British government entered on its general scheme of alliances for the suppression of the pindarees. By the treaty the British government agreed to protect the territory of Oudeypore, and to use its best exertions for the restoration of the territories it had lost when this could be done with propriety. This clause has furnished the Oudeypore state with never-failing cause of complaint particularly with respect to the district of Neembhera. The hill districts of Oudeypore to the south and south-west are inhabited by wild and turbulent tribes of the Bheel and the Grassia under Rajpoot chiefs owning a nominal allegiance to Oudeypore, holding the right of property in the land over which the maharana has no power, and levying black mail on neighbouring villages and a tax on the passage of goods and travellers, for whose safety they are considered responsible. Various injudicious attempts to interfere with the prescriptive rights of these tribes drove them to revolt, and necessitated the employment of British troops for their coercion. It was found that without the constant supervision of British officers permanent peace could not be restored. Accordingly it was proposed in 1838 to raise a Bheel corps to be stationed in these districts. Since the formation of the corps the outbreaks of the Bheels have been suppressed; but there has been a constant struggle between the native government seeking to oppress the Bheels and the superintendent of Kherwarra to protect them. In 1861 the cost of the corps was reduced to about Rs. 98,000.—*Captain Brooke's History of Mewar ; Aitcheson's Treaties, Engagements and Sunnuds, Vol.* iv, *pp.* 4 *to* 7. See India, Mewar, Odeypore, Rajputanah.

OUDH, a province of British India, the capital of which is Lucknow: Until the 6th May 1856, it was ruled over by a king the titular vizir of the Moghul empire, but the last king was then dethroned during the administration of Lord Dalhousie. Oudh lies between Nepaul and the N. W. Provinces of British India. It contains no mountains. In the Gondah district, the boundary is on the ridge of the first range of low but abrupt hills of the Himalaya; elsewhere it is in the plains and is a part of the alluvial valley of the Ganges and of some of its tributaries. It consists of 12 revenue districts, in 4 divisions, with an area of 24,060 square miles and a population of 11,232,368. The higher castes of mahomedans are thus classified:—

Sayed	51,679	Pathan, Khandan, Rohilla ...	191,880
Shaikh, Milki, Malik, Kuraishi	166,561	Mogul ...	26,672

The following are mahomedan converts from higher castes:—

Bhale Sultan ...	1,699	Rajpoot	6,775
Khanzada ...	2,093	Mewatee	2,140

The higher castes of hindoos are thus given:—

Brahmin ...	1,397,880	Kashmiri ...	219
Bengali ...	128	Marwari ...	74
Jat ...	10,845	Punjabi ...	93
Jain ...	56	Sikh ...	4,752
Kshatriya ...	662,946	Saraok ...	4
Kyath ...	148,923	Vaishya ...	241,466
Khatri ...	13,374		

Of the lower hindoo castes the most numerous are these:—

Aheer ...	1,167,499	Kahar ...	288,263
Bhunya ...	143,362	Koree ...	360,178
Bhat ...	63,200	Kurmee ...	764,422
Barheire ...	134,844	Lohar ...	122,573
Chumar ...	1,030,467	Lodha ...	350 907
Dhobee ...	161,004	Malee ...	107,732
Parsee ...	649,741	Murao ...	406,868
Telee ...	213,999	Nao ...	220,759

Aborigines.

Dom	14,925	Paharia & other ...	30
Nat	13,093		

There are thirty orders of religious mendicants, amongst whom are,

Gosain	40,999	Byragi	6,230
Jogi	8,642	Sad'hu	9,923

There were 3 Arabs, 90 Abyssinian Negroes, 150 Iraki (Turkish Arabia), 185 Jews, 29 Persians, and 10 Turks. Eleven aboriginal castes are entered varying from 14,925 Dome and 13,093 Nat to 30 Pahare and others. Thirty orders of religious mendicants are given.

The Oudh province is a part of the alluvial valley of the Ganges and some of its tributaries. The rivers descend from the hills first in a southerly direction and then turn eastwards. The belts of forest come down between them, and are situated on the higher land between the streams. The Turrai stretches all along the frontier of the province immediately below the forest, and is low and moist. It is more or less settled and cultivated, but the crops are poor and the country is unhealthy, at the first, and there are great difficulties in the way of bringing the soil under cultivation. Throughout this district there are large grassy plains where numerous herds of cattle are kept, and it is interspersed with old water-courses, the former beds of the rivers now forming jheels and swarming with alligators. In the Baraich and Kheree districts, where the turrai fades into the drier land, are two tracts, known as Dhowrera and Nanpara, which have an excellent breed of draught cattle. In the centre of this tract there are a few jheels, especially in the lower part of Seetapoor, in Lucknow, and Barabunkee, where the soil is more clayey and the crops more irrigated and finer, but its general character is as described. The Oudh forests are in three divisions. The 1st, or Khairigarh division, lies between the rivers Soheli and Mohana. The trees which are reserved in the Oudh forests are Shorea robusta, Dalbergia sissoo, Cedrela toona, Ebony, Diospyros melanoxylon, Conocarpus latifolia, Terminalia tomentosa, Acacia catechu, and Nauclea cordifolia. Of these, Shorea, Cedrela, Ebony, Conocarpus and Terminalia are found in the higher forest, called Bhabar or, locally, Domar. The other trees are found on the lower ground or turrai. There is a very small tract under sissu reserved for the use of the gun carriage agency at Futtehgurh. The principal rivers of Oudh are the Rapti, the Babai, the Girwa, the Kauriali, the Mohana, the Soheli, the Sarda, the Ul, the Katna, the Gumti, the Sai and the Ganges. Of these all, except the Ul, Katna, Gumti and Sai, are hill streams descending from the Himalaya and subject to the sudden freshes which characterize the hill streams. The Rapti is a rapid river navigable for boats up to Bhinga. It is used for rafting timber in the rains. It is a second class river, and swarms with crocodiles. The Babai is rapid and shallow in its upper course, and useless for navigation and for rafting. The Girwa where it enters British territory, is a mountain stream with a great fall, rushing in rapids and pools over a stony and sandy bed. It is useless for navigation. It is a branch of the Kauriali, from which it issues by percolation, and to which it is re-united lower down. The Kauriali, is the largest of the affluents of the Ganges. Its discharge is 13,082 cubic feet per second. It is more than twice the size of the Ganges where it leaves the hills, and is navigable for boats throughout the year within British territory. This is the river which is called Karnali in the hills: Kauriali, after it enters the plains to its confluence with the Sarju a little below Bhartapur; Gogra thence to Fyzabad; Sarju, about Adjudia; and Dewa or Gogra again below this down to its confluence with the Ganges at Revelganj near Chupra. The Mohana is the boundary of the British territory from Gwari Ghat to its confluence with the Kauriali, rather more than half its course in the plains. It is a shallow and rapid stream, not navigable, but timber is floated down it in the rains to the Kauriali. This river swarms with crocodiles, both the magar or broad-nosed, and the gurial or long-nosed species. The Sarda is a river about the size of the Ganges where it leaves the hills; nine miles below, its discharge is 6,416 cubic feet per second. It is the boundary between British territory and Nepal out of Oudh. It has lost the character of a hill stream and flows in a sandy bed. The Gumti is a river rising in some rice fields, from which its head waters appear to trickle. Its water is sweet and its banks are cultivated throughout the province. It is navigable throughout the greater part of its course in Oudh; but it is extremely tortuous, and the navigation is impeded at Sultanpoor by rocks. There are no lakes, though some of the Jheels are very extensive sheets of water. The country between the Gumti and the Ganges is well supplied with them. They lie in two parallel elevated hollows, on either side of the Sadi, and about midway between that river and the Gumti and Ganges respectively. They are drained by lateral nale, or branches which fall mainly into the Sai, and which cause the occasional floods in that river after heavy rain. They are a striking feature of the country, stretching in a continuous series, on both sides of the Sai, from the Shahjehanpoor boundary to that of Jounpoor and Allahabad, and often connected when the rain has been heavy. The Oudh jheels are covered with all kinds of wild fowl and some of them are fairly stocked with snipe. In the turrai, marshes are numerous. They are covered with long grasses and are the favourite lair of tigers after the hot weather has set in. In density of population Oudh stands at the head of all the provinces of India. It contains 474 to the square mile, or 514 if the more barren part of its area be left out. The proportion of mahomedans to hindoos is 10·7 per cent. to 89·3. The mahomedans are the most numerous and powerful in the central districts of Lucknow and Barabunkee. Their settlements there were mostly effected in the 13th, 14th and 15th centuries, and they have generally continued to hold the lands they first acquired. Of the 55 talukdars of these two districts, 34 are mahomedans; 23 belong to Barabunkee and 11 to Lucknow. The first mahomedan invasion of this province took place in the 11th century of the christian era when Sayad Salar Masa'ud, a relative of the great Mahmud of Ghuzni, fought his way into Oudh at the head of a large army. The history of his invasion, his first success and his final defeat and death at Bariach are told in the Mirat-Masa'udi. Of the whole native population of 11,198,095, so many as 6,542,870, or 58·4 per cent., are agricultural and 4,655,225, or 41·6 per cent., non-agricultural. Native christians and eurasians generally return themselves as Europeans. As in every other province where the people have been carefully numbered, the population of Oudh has proved to be far more than the official estimate. It was taken at six millions on annexation, in 1855, it was estimated at eight millions up to the year 1872 and then it proved to be 11,220,747, or 465 to the square mile, making Oudh the most thickly inhabited of the ten provinces of India. As there are 1,774,355 inhabited houses, of which only 21,902 are of masonry, this gives more than six inhabitants to each. But Oudh is a far more fertile country than the North-West which has 359 to the square mile, and if the number to each house can be explained there is every reason why 465 per mile should be correct. The following shows the population according to sex and age in each of the twelve districts :—

District.	Men.	Women.	Children under twelve years.		Total.
			Male.	Female.	
Lucknow ..	347,667	319,175	170,462	144,974	982,378
Barabunkee..	283,364	283,512	166,857	141,854	875,587
Oonao ..	236,511	234,199	136,207	118,237	725,154
Roy Bareilly.	286,132	260,892	153,567	132,655	783,246
Sultanpore ..	281,647	312,794	184,895	151,327	930,663
Pertabgurh ..	286,944	301,664	188,477	159,178	936,263
Fyzabad ..	456,382	466,859	283,681	235,106	1,441.228
Gondah ..	354,414	354,627	250,210	209,211	1,168,462
Baraich ..	256,146	237,337	150,779	130,378	774,640
Seetapoor ..	317,113	282,676	180,372	153.284	933.445
Hurdui ..	316,210	278,859	184,744	151,564	931,377
Kheree ..	263,803	222,952	136,079	115.770	738,604
Total..	3636,333	3654,546	2186,330	1843,538	11,220,747

Lucknow is the most populous, and Barabunkee and Fyzabad come next. Kheree and Baraitch stands lowest, for there waste lands abound. The following are the results according to the respective creeds,

Christians.
European (non-military)..... 5,446
Mixed and Native „ 985 6,431
Mussulmans... 1,195,879
Hindoos, Buddhists, Jains and
Aborigines ... .10,002,731

There are no Parsees in Oudh. As in every previous census, we learn, from this, how comparatively few the mahomedans are, and that too, in a province long ruled by a mussulman family. Christianity has evidently much to do in Oudh, where, indeed, it had not been regularly preached during more than ten years. As to the occupation of the people 6,543,296 are agriculturists and 4,677,451 non-agriculturists. The proportion of the latter is large but doubtless it includes all labourers. Oudh province has several revenue divisions, Lucknow, Khyrabad, Banswara and Bairaitch.

Kheree is the extreme district of Oudh at the foot of the hills on the Nepaul border.

Tharoo, are inhabitants of the forests, a wild, uncultivated, and extremely superstitious race, and assign to themselves a mythological beginning. Their villages are divided into certain circuits, marked off by the Bhurra of Bheonhar, a self-created superior, whom these people believe to be inspired by Bhowanee, and to whom they submit in every occurrence of their domestic lives. A Bhurra is indispensable at every birth, marriage and death, directs all religious ceremonies, and has supreme influence in the circuit to which he belongs. He has, however, to prove his inspiration before the assembled villagers by one of two methods, either by drawing seven times the flame from a lighted to an unlighted wick without bringing the two in contact, or by calling upon Bhowanee, who is supposed to descend upon him, when the Bhurra begins to dance and jump about violently, and convinces the assembled crowds of superhuman powers by his movements and gesticulations. The bodies of the Tharoo that die in advanced years are burned, but those of the young are buried; also, though their widows are allowed to re-marry, a man may not marry the widow of his younger brother.

The woods of Oudh are as under :—

Neem (Melia azedirachta), plentiful.

Peepul, (Ficus religiosa), in various parts.

Mulseree, (Mimusops elengi), in various parts.

Toon, (Cedrela toona), Lucknow. Spontaneously in the northern parts of Oudh. It is the best for furniture of a high polish.

Bahera, (Terminalia bellerica), grows spontaneously in the Terai. Not a very large tree : used for all purposes. From its fruit, blacking is made.

Jamun, (Eugenia jambolana), all over Oudh, is a large-sized tree, and bears a black astringent small fruit, about the size of a large olive, which the natives eat. Used for various kinds of wood-work.

Asna or Asan, (Terminalia tomentosa), spontaneously in the Terai jungles; durable and elastic, for many purposes preferable to sal.

Am, (Mangifera indica), cultivated largely.

Kaitha,(Feronia elephantum),in various parts of Oudh not extensively. The fruit of this tree is used for the same purposes with that of Ægle marmelos ; but the latter is preferable.

Bael, (Ægle marmelos), all parts of Oudh, extensively. The fruit is extensively used dry in powder, and also for making sharbet, for bowel complaints.

Bair, (Zizyphus jujuba), various parts of Oudh. Used principally for native clogs.

Arar, (Ailanthus excelsa), extensively all over Oudh. Principally used for sword scabbards.

Gooler, (Ficus glomerata), all over Oudh. Used for furniture. Some of the lac of commerce is gathered from this tree; the fruit is eaten by natives.

Mhowah, (Bassia latifolia), all over Oudh. From the seeds oil is extracted, and from the fruits or flowers spirits are distilled.

Saul, (Shorea robusta), grows spontaneously and extensively in the Terai. The timber is durable, generally used for building purposes, bridges, &c. ; and is considered the best for such works.

The ancient Ayodhya, (*i. e.*, the Invincible) was the capital of the modern Oudh, and is celebrated in all hindoo poetry as the ancient capital of Ramachandra, founded by Ikshwaku, the first king of the solar dynasty. Like other capitals, its importance must have risen by slow degrees; yet, making every allowance for exaggeration, it must have attained great splendour long anterior to Rama. It was for many years the sovereignty of the princes of the solar line. The remains of the ancient city are still to be seen at the town of Oudh, situated on the banks of the Ghogra, seventy-nine miles from Lucknow and adjoining Fyzabad. Overgrown greatness characterized all the ancient Asiatic capitals, and that of Ayodia was immense. Lucknow, the present capital, is traditionally asserted to have been one of the suburbs of ancient Oudh, and so named by Rama, in compliment to his brother Lakshman. In the Ramayana (Book I, chap. v), it is thus described : On the banks of the Sarayu is a large country called Kosala, gay and happy, abounding with cattle, corn and wealth. In that country was a famous city called Ayodhya, built formerly by Manu, the lord of men. A great city, twelve yojana in extent, the houses of which stood in triple and long-extended rows. It was rich, and perpetually adorned with new improvements. The streets were well-disposed and well-watered. It was filled with merchants of various descriptions, and adorned with abundance of jewels; crowded with houses, beautified with gardens and groves of mango trees, surrounded by a deep and impregnable moat, completely furnished with arms. In the Sakuntala, (Act vi), Ayodhya is called Saketala. The country of which Ayódia was the capital, and Rama monarch, is termed in the geographical writings of the hindoos, Koshula; doubtless from the mother of Rama, whose name was Koshulya. The first royal emigrant from the north is styled, in the Rana's archives, Koshula-pootra, 'son of Koshula.'

Vishwamitra was the son of Gadhi (of the race of Kausika), king of Gadhipoora, and cotemporary of Umbareesha, king of Ayodyha or Oudh, the fortieth prince from Ikshwaku, consequently about two hundred years anterior to Rama, and probably about one thousand four hundred years before Christ.

It is related that the king Vishwamitra, defeated and disgraced by a powerful priest, like a serpent with his teeth broken, like the sun robbed by the eclipse of its splendour, was filled with perturbation. Deprived of his sons and array, stripped of his pride and confidence, he was left without resource as a bird bereft of his wings. He abandoned his kingdom to his son, and like all hindoo princes in distress, determined, by penitential rites and austerities, to obtain brahminhood. He took up his abode at the sacred Poshkur living on fruits and roots, and fixing his mind, said, "I will become a brahmin." By these penances he attained such spiritual power that he was enabled to usurp the brahmin's office. The history of his wanderings, austerities, and the temptations thrown in his way, is related. The celestial fair were commissioned to break in upon his meditations. The mother of love herself descended; while Indra, joining the cause of the brahmins, took the shape of the kokila, and added the melody of his notes to the allurements of Rembha and the perfumed zephyrs which assailed the royal saint in the wilderness. He was proof against all temptation, and condemned the fair one to become a pillar of stone. He persevered "till every passion was subdued," till "not a tincture of sin appeared in him," and gave such alarm to the whole priesthood, that they dreaded lest his excessive sanctity should be fatal to them: they feared mankind would become atheists. The gods and Bramha at their head were obliged to grant his desire of brahminhood; and Vashista, conciliated by the gods acquiesced in their wish, and formed a friendship with Vishwamitra.

The identity of Saketa and Ayodhya has, as General Cunningham's belief, always been admitted. The ancient city of Ayodhya or Saketa is described in the 'Ramayana' as situated on the bank of the Sarayu or Sarju river. It is said to have been 12 yojana or nearly 100 miles in circumference, for which should probably be read 12 kos, or 24 miles —an extent which the old city, with all its gardens, might once possibly have covered. At the present day, the people point to Ram Ghat and Guptar Ghat as the eastern and western boundaries of the old city, and the southern boundary they extend to Bharatkund, near Bhadarsa, a distance of 6 kos. The present city of Ajudhya, which is confined to the north-east corner of the old site, is just two miles in length by about three quarters of a mile in breadth; but not one-half of this extent is occupied by buildings, and the whole place wears a look of decay. There are enough mounds of ruins, covered with broken statues and sculptured pillars, such as mark the sites of other ancient cities, but only a low irregular mass of rubbish heaps, from which all the bricks have been excavated for the houses of the neighbouring city of Faizabad. This mahomedan city which is two miles and a half in length by one mile in breadth, is built chiefly of materials extracted from the ruins of Ajudhya. The two cities together occupy an area of nearly six square miles, is just about one-half of the probable size of the ancient capital of Rama. In Faizabad the only building of any consequence is the stuccoed brick tomb of the old Bhao Begum, whose story was dragged before the public during the famous trial of Warren Hastings. Faizabad was the capital of the first nawabs of Oudh, but it was deserted by Asaf-ud-doulah in A. D. 1775.

The founder of the last Oudh dynasty was Sadut Khan, who was appointed subadar of Oudh in the voluptuous reign of Mahomed Shah. He was succeeded by his son-in-law Sufder Jung, who died in 1753, and was succeeded by his son Shuja-ud-Dowla, who was created vizier by the emperor Shah Alam. He was defeated at Buxar in 1764 and retreated to his own dominions. He then sought aid from the Mahrattas but was again defeated, and he then threw himself on the generosity of the British. Shuja-ud-Dowlah died in 1775 and was succeeded by his son. It was during his reign that the interview took place with Warren Hastings, from which the treaty of 1781 resulted. Asof-ud-Dowlah died in 1797 and his reputed son Mirja Ali succeeded, only to be displaced for Sadut Ali's eldest son Shuja-ud-Dowlah with whom a treaty was made in 1812. He died 11th July 1814, and was succeeded by his eldest son Ghazi-ud-Din Hyder. Hitherto, the family, were styled vizier, but in 1819 was raised to the dignity of king. His son Nasir-ud-Din Hyder succeeded him, but died in 1817, and was succeeded by his uncle Mahomed Ali, who died in May 1842, and was succeeded by his son Amjud Ali, who, on the 13th February 1847 was succeeded by Wajid Ali. His misgovernment was such that after repeated warnings, he was dethroned in Feb. 1856, the British government then assumed the sovereignty of Oudh and the king was pensioned on twelve lacs yearly. In the course of the connection of the British with this family, the family lent several large sums to the British.—*Tod's Rajasthan, Vol.* i, *pp.* 29 *to* 215; *Williams' Story of Nala, p.* 114; *Aitchison's Treaties, &c.; Annals of Indian Administration; Catalogue Exhibition of* 1862; *Cunningham's Ancient Geog. of India, p.* 408. See British India, India, Infanticide, Khaki, Kush, Purbia, Solar race: Surya vansa, Sakya muni, Vishnu.

OUGEIN, a city in the western side of the peninsula of India, also called Ujjayini, Visala, and Pashpakarandini. It is the ancient Avanti, a city noticed in verses 28 and 31 of the Meghaduta.—*Williams' Story of Nala, p.* 116; *Captain Edward Warren.* See Inscriptions, Jayasinha, Junagurh, Ujein, Vicramaditya.

OUGEINIA DALBERGIOIDES, *Benth.* Syn. of Dalbergia ougeinensis, *Roxb.*

OUIGUR or Uigur, the most ancient of the Turkish tribes, formerly inhabited the part of Chinese Tartary, which is now occupied by a mixed population of Turk, Mongol and Kalmuk. The great Ouigoor horde in Eastern Turkistan, are Turk, and they became mahomedans in A.D. 966. The Chinese call them Hoieke, Oihor, and Hoai-Hoai. Towards the close of the 8th century, the emperors of the Tang dynasty deported about a million of Ouigoor families, from the neighbourhood of the Kashgar, and settled them at Kan-su and Chen-si. About A.D. 966, these families embraced mahomedanism, and under their chief Satook, they conquered Transoxiania, and carried away captive an immense number of Turks, of the Turghai tribe. In 972, the majority of these captives were allowed to return to their homes, but many remained, and they were styled Turghani or Tunghani, signifying remnant, and corrupted into Dungen, but known to the Chinese as Ouigoor or Hoai-Hoai. They are all mahomedans, but dress like Chinese. They are abstemious, religious, quarrelsome, using the knife, but honest and fond of trade. The people of Asia, who inhabit the countries which extend northwards to the Russian frontiers, westwards to the Caspian sea, and southwards to Affghanistan are for the greater part descendants of Turks, and it would be more proper to give to all these countries, the general name of Turkestan dividing it into,

1st, Northern or Russian Turkestan, comprehending in it the three hordes of the Kirghis nation.

2ndly, Southern Turkestan, inhabited by the Khivan, Turkoman and Kara-kalpak and including also great Bucharia, Kokand, and Tashkend.

3rdly, Eastern Turkestan, comprising Little Bucharia, which is subject to China.

The Chinese and Manchoo call by the name of "hoei hoei," all the mahomedan tribes who live under their dominion. This word, therefore, has ceased to designate a nation. As the Ouigour Hoei-hoei, called simply Hoei-hoei under the Mongol dynasty of Yuan, were mahomedans, this phrase is applied by the Chinese to all those of the same religion, in the same manner as the Russians are often called Greeks, because they are of the Greek church. The inhabitants of the towns of Little Bucharia are in part descendants of the ancient Ouigour Hoei-hoei, and consequently Turks, in part Sarti, or Bucharians who are scattered as merchants all over Central Asia, and who are Persians. There are many of them at Peking Hang-tcheou-fou, Canton, and other commercial cities of China. Their mother tongue is Persian but they also speak the oriental Turki, which is the general language of Turkistan, and the most diffused in little Bucharia. The Ouigour writing character was the original source of those still used by the Mongol and Manchu, and was itself almost certainly derived from the old Syriac character through the Nestorians. The modern Tartar characters are written (and it is presumed, read) in vertical lines from top to bottom of the page, the lines succeeding each other from left to right. What Ouigour meant with Mongol authors is doubtful, but the people and language so called by the Western Asiatics, were Turkish. Captain Valikhanoff speaks of the language now in use at Kashgar as being Uigur, but it is not clear whether he means that this term is known to the natives.—*Russians in Central Asia, p.* 67; *Yule Cathay, Vol.* i, *p.* 206; *Timkowski's Journey to Peking, Vol.* i, *pp.* 6, 378-79.

OUK-CHIN-YA.—? Diospyros melanoxylon.

OUK-GUAY, BURM. This tree is found all over the Tenasserim provinces, but it is scarce, and yields a perishable short grained wood. It is not heavy and floats in water when seasoned. Its maximum length is 15 feet and maximum girth 1½ cubits.—*Captain Dance.*

OUK-KYI-NE, BURM. A tree of Moulmein, wood used in ordinary house building.—*Cal. Cat. Ex.* 1862.

OUK-KHYIN-ZA, BURM. Diospyros, *sp.*

OUK-SHEET, BURM. Ægle marmelos.

OULA, a much prized grass, which grows plentifully on the banks of the Longari, a river of Manchuria, in which the Tartars envelope their feet, in lieu of stockings.

OULOUS, TURK. A tribe.

OUM SILLING or Silleung, a river of Gowhatty.

OUNDI, MAHR. Calophyllum inophyllum, *Linn.*

OUNGKA, see Simiadæ.

OUNG-MAI-PHYOO, BURM. Clitoria ternatea.—*Linn.*; *Roxb.*; *W. & A.*

OUN-THUAY, BURM.? A white, soft, wood met with in Amherst, where it is employed for common carpentry purposes. It is not subject to injury from insects.—*Captain Dance.*

OUPH, HEB. A fowl, a bird.

OUR-CHAKA, BENG. Sonneratia acida.

OURGA is the first town reached on this side the desert, and it takes forty-five days to go from Kalgan to Kiakhta. Mr. W. A. Whyte left Tien-tsin on the 16th October 1869, and

Pekin on the 20th; on the 24th he was at Kalgan, and on the 27th he was at the desert to Gobi. Seventeen days afterwards he was at Kurin (the Ourga of Mr. Grant's journey); then, entering Siberia, he passed the rivers Boro and Cara on the ice, on the 15th, on the 17th Kiakhta was reached; at this season of the year, although the cold is almost unendurable, there is no rain to aggravate the distress of a journey. The Mongols share in the superstition of sailors that whistling brings on a gale. See Kalkas.

OURIANKAI, are poor Samoiede and Turkish tribes who inhabit the countries situated on the Upper Jenisei, and the rivers which flow into it; they are commonly called the Chinese Soioute. —*Asia Polyglotta*, *pp*. 146, 224; *Klaproth in Timkowski's Journey to Peking*, *Vol*. i, *p*. 174.

OURMIA, a lake in Persia, with saline water; it is stated by Dr. Marcet to contain no lime, although of a specific gravity of 1165·07, and abounding in sulphates and muriates. This appears very remarkable in an inland sea nearly 300 miles in circumference, situated in a volcanic country. On referring to the works of travellers, it appeared that the streams flowing into it abounded in lime, which is deposited in large quantity in the form of a beautiful travertine. The lake of Ourmia, like that of Loonar, contains potash, which Dr. Carter did not detect in the springs running into the latter.—*Carter's Geological Papers on Western India*, *p*. 32.

OURU GADDI, or Avuru gaddi, also Ouru vatti veru, Tel. Andropogon muricatus, *Retz.*, Br. 1164.

OUSELEY, Major, wrote on Washing of gold-dust at Hera Khond.—Bl. As. Trans., 1839, Vol. viii, 1057. Course of the Nerbudda.—Ibid, 1845, Vol. xiv, part 1, 354. Antiquities of Jerguja.—Ibid, Vol. xxii, part 1, 65.

OUSSOURI. The province of the Amoor consists of all the territories situated on the left bank of the Amoor from the confluent of the rivers Schilka and Argoune, or from the limits of the Transbaikalian provinces and of Yakoutsk, descending the Amoor to the confluent of the river Oussouri and to the new confine of the maritime province.

OUSTAJALU, see Kazzilbash.

OUTCH, see Kabul, Khetri.

OUTCRY, the term in India for a public sale by auction.

OUTRAM, General Sir James, a distinguished soldier of the Bombay Army in the early and middle part of the 19th century.

OVA, Lat. Eggs.

OVAI-KAI, Tam.? Dillenia speciosa.

OVAL-LEAVED CASSIA, Eng. Cassia tora, *Linn.*

OVAL-LEAVED FIG-TREE, Eng. Ficus benjamina, *Linn.*

OVAL-LEAVED NICKER-TREE, Eng. Guilandina bonduc.—*Linn.*; *W. & A.*

OVEN.

Tandur,	Hind.	Tannur,	Heb.

OVIS, of this genus of mammals, Mr. Blyth considers that there are fourteen species. M. Gervais reckons six species. Mr. Hodgson regards the sheep as essentially an alpine animal. The Kirghis breed has a great tail, of 20 vertebral bones, so loaded with fat, that a truck is occasionally made to carry it. The Karakool breed has a fine, curled, black, and valuable fleece. Gestation lasts 144 to 150 days.—*Darwin.*

OVIS AMMON, *Linn.*

O. argali,	*Pallas.*	O. hodgsoni,	*Blyth.*
O. ammonoides,	*Hodgs.*		
Hyan; Nuan; Nyan,	Tib.	Niar; Nyund; Gnow,	Tib.

On the Tibetan side of the Himalaya. Ovis ammon of Pallas, stands from four to five feet high, and measures seven feet from nose to tail. It is quite a Tibetan animal, is seen as high as 18,000 feet and is seldom seen below 14,000 feet except when driven lower by snow. Measurement of a male of five years, according to the markings on the horns, 6 ft., 5 in., viz.:

From nose to base of horns, ...	Ft.	1	In.	1
Thence to insertion of tail, ...	„	5	„	1
Tail to end of hair, ...	„	0	„	3
Circumference of horn at base, ...	„	1	„	4¼
Length on the curve, tips broken,	„	2	„	10½

Winter pelage, above deep brown, interspersed with grey, with a distinctly marked darker dorsal line, passing (as in O. montana) in a narrow stripe through the disc on the croup, even to the tip of the tail. Sides mixed hoary or slaty grey brown; disc on the croup well defined and dirty white, the hair appearing as if rubbed. The throat and neck beneath to the breast, white, sprinkled with scattered brown hair; the hair long, bushy and pendent; and from 6 to 7 inches in length, while that of the back is barely 2 inches, except on the dorsal line, where it is 3 inches, and on the ridge of the neck above 3½ inches. Tail, above, brown, whitish at the sides, naked beneath. Under parts dirty white; medial line blackish, outside of the limbs with a dark list; lips, whitish; face paler brown than the body.

Front surface of horns, ...	3½ inches wide.
Inner lateral surface, ...	6 inches wide.

Measurement of the bare skull of a male seven years old.

Length of face to base of horns, ...	Ft.	1	In.	1
Length of horn on the curve, ...	„	2	„	10
Basal circumference, ...	„	1	„	4¼

These horns are weathered and much broken at the tips, and were probably about 3 feet 3 inches long.

Description of a female, 6 years old by the marking of the horns, total 5 feet, 6¼.

Nose to base of horns, ...	Ft.	0	In.	10¼
Thence to insertion of tail, ...	„	4	„	5
Tail, ...	„	0	„	3
Length of horns on the curve, ...	„	1	„	4½
Basal circumference, ...	„	0	„	8

In the female, the colouring is lighter than that of the male, having more grey; and the throat and foreneck are slaty instead of white, and devoid of the long pendent frill which graces the other sex; the dark dorsal line, which in the male runs in a narrow stripe through the pale disc, ends in the female at the commencement of the disc, and the tail and croup are of the same canescent fawn colour; the disc is far more extensive than that of the male. Along the ridge of the neck above, from the base of the horns to about 10 inches beyond them, there is a mane of true woolly hair 6½ inches long, gradually fading into the crisp quilly hair of the dorsal line. There is no dark list down the outside of the limbs, but the colour is pale fawn.

Front surface of horns,	...	1¾ Ins. broad.
Inner lateral surface,	...	3 „

In both sexes there is a beautifully soft inner coating of fine pushmeena wool of a pale mouse colour. The above measurements were taken with care, and although the male appears somewhat superior in size to Mr. Hodgson's, the general correspondence is evident enough.

	Hodgson.	Blyth.
male over all	Ft. 5 In. 11¼	Ft. 6 In. 5
to base of horns,	1 „ 0	1 „ 1
basal circumference	1 „ 3¼	1 „ 4¼
female over all,	5 „ 6¾	5 „ 6¼
to base of horns,	0 „ 11	9 „ 10¼
basal circumference	0 „ 8	1 „ 8

Ovis Ammon, Pallas; Ovis montana, *Desmarest;* Ovis nivicola, *Eschscholtz*, is distinct from Ovis montana of North America and Mr. Blyth refers to it, though with considerable hesitation, the horn in the Museum of the Royal College of Surgeons, London, for which was suggested the provisional name sculptorum.

Dr. Adams says, the argali, or Ovis ammon, is more plentiful on the northern ranges. A few remain about the Tooskee lake and neighbouring hills during summer; the majority, however, migrate to Nobra as the snow melts. He had seen enormous horns of the Ovis ammon on the chaits, where the finest are to be procured. These cairns are mostly made up of horns of tame yak, wild sheep, and goats, which are piled up in the shape of a cone, with stones, pieces of quartz, pebbles, and sticks, to which rags are attached. They are considered to be the abodes of spirits, and when a Tartar arrives at one, he walks round it several times, repeating a prayer, of which the everlasting "Om mani padmi om" forms the chief part. An adult male argali stands about 12½ hands high at the shoulders.—*Hooker, Vol.* i, *p.* 244; *Adams; Blyth in Bengal, As. Soc. Journ.; Naturalist in India.*

OVIS AMMONOIDES, *Hodgson.*

Ovis ammon, *Pallas.* | C. Hodgsonii, *Blyth.*

Ovis ammonoides, *Hodgson*, was dedicated to Mr. Hodgson as Ovis hodgsonii, some time before the publication of the name ammonoides in the 'Proceedings of the Zoological Society' for July 1840 was intended.

OVIS ARIES, the common sheep, is subject to great variety, and many of its forms have been raised to the rank of species. Dr. Gray, in the 'British Museum Catalogue,' enumerates no less than 33 varieties of this species, as under:

(*a*). The Spanish sheep, Ovis hispanicus, *Linn;* called also the Merino sheep and the British Middle-wooled sheep.

(*b*). The common sheep (Ovis rusticus, *Linn.;* O. gallica, *Desm.;* O. brachyurus, *Pallas;* O. leptura, *Schreb.*); the hornless sheep (O. anglicana, *Linn.*) Of this variety there are numerous forms, such as the Muggs sheep and Shetland sheep, the Southdown sheep, the Old Lincoln sheep, the Romney marsh sheep, the Cobwold sheep, the New Leicester sheep, the Cheviot sheep, the Old Teeswater sheep, the improved Teeswater sheep, the Dunky sheep, the Zetland and Orkney sheep, the Welsh mountain sheep, the soft-wooled sheep of Wales, the Wicklow mountain sheep, the Kerry sheep, the Exmoor sheep, the black-faced sheep, the black-faced Heath-sheep, and the Rass or Roosh (Ovis polii, *Blyth.*)

(*c*). The Barwall sheep (Aries barwal, *Hodgson*); Ovis barwal, *Hodgson;* O. ammonoides var. 1, *Gray.* It inhabits Nepaul.

(*d*). The Huniah sheep (Ovis hunia, *Hodgson*), the Hunia, or black-faced sheep of Tibet. Also a native of Nepaul.

(*e.*) The Cago (Ovis cagia, *Hodgson*); the Kago, or tame sheep of Cabul region; the Cago sheep of Gray. A native of Nepaul.

(*f*). The Seling, a native of Nepaul.

(*g*). The Curumbar sheep of Mysore.

(*h*). The sheep called Garar in India.

(*i*). The Dukhun sheep.

(*j*). The Shaymbliar sheep of Mysore.

(*k*). The broad-tailed sheep (O. laticaudatus, *Erxl.*, *Geoff.*, *Mem. Egypt*, *Lesson*, *Comp. Buffon*, x, 812; O. laticauda platyceros; Arabica, *Linn.;* O. Turcica, *Charlet;* O. cauda abesa, *Ludolf.*) It is a native of Barbary. There are several forms of this variety, of which the following are most prominent:—The fat-rumped sheep (O. steatopyga, *Pallas;* the Tartarian sheep of Bewick); the Persian sheep (O. A. caudatus, *Geoff.*); the fat-tailed sheep (O. A. macrocercus, *Schreb.*); the Aora fyel, or Abyssinian sheep; the Bucharian sheep, (O. bucharica, *Pallas;* the Tibetan sheep, (O. Tibetanus, *Fischer*); the Cape sheep, (O. capensis, *Erxleb.*); the sheep of Belkah.

(*l*). *Many-horned sheep* (O. polyceratus, *Linn.*) It is also called the four-horned Ram, and the Dumba sheep. It is a native of Nepaul.

(*m*). The puchia, or Hindustan Dumba (O. puchia, *Hodgson.*)

(x). *Caprovis vignei*, this genus embraces the Sha or Koch. It is the mountain sheep of the north of India, and is found in Tibet.

Caprovis argalis, the Argali, is the Ægoceras argali of Pallas, and often confounded with the former. It is a native of Siberia. Dr. Gray says of this species—"The Nyen or Bambhera, or wild sheep, seldom or never crosses the Hemachal, the Indian side of which range is the special habitat of the Nahoor, while to the north and west beyond Tibet, C. argali is replaced by other species, so that Tibet may be considered as the special habitat of one species (Ovis ammonoides), and the plateaux north of Tibet as far as the Altai of another (Ovis ammon), cited as types of the true ovine form; and it may be added, that the six sorts of tame sheep of Tibet and the sub-Himalayas, all without exception exhibit the essential characters of that form. There are several species that may be confounded under this head: the Siberian Argali is found in the most northern part of that country, and it is probably different from the Himalayan animal; but Mr. Blyth had not been able to discover any difference between the specimen received from Mr. Hodgson and those which were sent from Siberia by the Russian naturalist.

Pseudois Nahoor, the Nahoor, Nervate or Sua, is a native of Nepaul.

Several wild types of Ovis aries, *L.*, the domestic sheep, are strongly suspected to occur; but none of those above enumerated; unless, to a partial extent, O. vignei, though even this is very doubtful—*Eng. Cyc.*

OVIS BURRHEL, *Blyth.* It would seem, that Mr. Blyth was wrong in assigning to this a loftier altitude of haunt than that of O. nahoor. Captain Smith has informed him that O. burrhel and O. nahoor keep always in separate flocks, and are never seen on the same feeding ground; the Burrhel seldom ascending above 16,000 feet elevation, while the Nahoor goes much higher: both bleat like domestic sheep. Near the Boorenda pass, the Burrhel is much more plentiful than the Nahoor, but the latter is far more extensively diffused over the Himalaya generally. At the close of summer, when the snow is nearly melted away, a very nutritious grass grows abundantly under a thin coating of snow, and both species become exceedingly fat by feeding upon it, *i. e.*, in the months of August, September and October. At this time they can only be compared to the prize animals exhibited at the Smithfield shows, and they run with considerable difficulty, though still being far from easy of approach. In winter, when snowed in, they actually browze the hair off each other's bellies, many together having retired under the shelter of some overhanging rocks, from which they come out wretchedly poor. They produce one or two young, (commonly two,) in June and July. Ovis burrhel is deficient in the suborbital sinuses, and the same deficiency occurs in Ovis nahoor.—*Beng. As. Soc. Jour.*, *No.* clxxvii, *April* 1847.

OVIS CALIFORNIANA, *Douglas*, from California, description cited from 'Zoological Journal;' and the horns fully described by Mr. Blyth, and figured in Taylor's plate, fig. 5. An unquestionable species.

OVIS CYCLOCEROS, *Hutton; Sclater; Bly.*
O. vignei, *Blyth;* in part.
Uria; Urial, PANJAB. | Koch; Kuch, PANJAB.
Panjab wild sheep.

Found over all the Salt Range of the Punjab, the Sulimani range, the Hazara, Peshawar. Mr. Blyth has pointed out that Captain Hutton's Ovis cycloceros had been priorly named by him Ovis vignei.—*Blyth.*

OVIS CYLINDRICORNIS, *Blyth.* A species of the Caucasus. This is the least satisfactorily established of all the species in Mr. Blyth's monograph: resting on a communication from Colonel Hamilton Smith, relative to a species which must have been very different from either of those known to Mr. Blyth though described from memory only by Colonel H. Smith one of the most experienced of zoologists in the history of the Ruminantia.

OVIS GMELINI, *Blyth.* A sheep of Armenia. Identified with a species long ago rudely figured by the younger Gmelin, and the horn by Pallas; and Gmelin's description of the habits quoted, with further original information. Head figured in Taylor's plate, No. 9.

OVIS HODGSONI. Syn. of Ovis ammonoides.

OVIS MONTANA, *Desm.* Syn. of Ovis ammon of *Pallas.*

OVIS MONTANA, the Rocky mountain sheep of N. America.

OVIS MUSIMON, *Linn.* The Moufflon sheep of Corsica and Sardinia. Described by Mr. Blyth from life and a further notice given in J. A. S., x., 878. "The Argalis and Moufflons (not to mention the Tragelaphi)," writes Mr. Hodgson, "seem to form two striking groups among the wild sheep. The Himalaya Nahoor is a complete Moufflon; hence Mr. Blyth asked if the Corsican animal is, like the Himalayan, devoid of suborbital sinuses." In reply to this the Prince of Canino states that it is so devoid: but Mr. Hodgson was mistaken in approximating the Nahoor and Burrhel to the Moufflon of Corsica. These two Himalayan species, instead of being "complete Moufflons," are (so far at least as their horns are concerned) unlike O. musimon and form a little group per se, unless Ovis cylindricornis should prove to range with them: and the Moufflon is quite excluded from his definition of "round-horned" sheep, for which group Mr. Blyth presumes the appellation

(Pseudois is proposed). Their being "furnished with a well developed tail," will not exclude the Californian Argali, the tail of which is described as "eighteen inches long!" Mr. Ogilby long ago remarked the absence of suborbital sinuses in Ovis nahoor; and the group formed by Ovis nahoor and Ovis burrhel was distinctly indicated in Mr. Blyth's monograph (vide J. A. S., x., 867), being estimated there, as he still thinks, at its true value. Should it prove that O. musimon is really devoid of the facial cavities, the value of this character would fall to a mere specifical distinction; for, however the wild sheep may be arranged into minor groups, the O. vignei (which has the sinuses) could scarcely be placed in a different sub-division from O. musimon. And to the same group must be referred O. gmelini and O. ophion, though altogether perhaps forming a subsection of it. Both in O. gmelini and O. vignei, we find indications of affinity with the African O. tragelaphus.

OVIS NAHURA, *Hodgs.*, *Blyth.*

O. nahoor, *Hodgson*		O. burhel, *Blyth.*	
Blue-wild-sheep,	ENG.	Nervate,	NEPAL.
Burhel: Bharal,	HIMALAYA.	Wa; War,	SUTLEJ.
Bharur,	"	Na; Sna, LADAK,	TIBET.
Menda (male)	"		

Valley of the Sutlej, Sikim, Bhotan. Described from specimens, amongst which was a hornless female; and first clearly established as distinct from O. ammon.

OVIS NIVICOLA, *Eschs.* Syn. of Ovis Ammon of Pallas; Kamtschatka.

OVIS OPHION, *Blyth.* Founded on the coloured figure and description, by MM. Brandt and Ratzeburgh, of a specimen in the Berlin Museum.

OVIS POLII, *Blyth.* Rass: Roosh of Pamir, found on the plains of Pamir at 16,000 feet. Founded on a magnificent frontlet and horns brought by Lieutenant Wood from the Pamir steppe; combined with the notice quoted from Marco Polo, which refers undeniably to the same animal. Of the distinctness of this superb species, there can be no doubt whatever; and the frontlet is figured in Taylor's plate, figs. 1 and 2. Ovis Polii, O. ammonoides, Capra hymalaica, C. jemblaica, were sent to the Paris Exhibition of 1855.—*Paris, E. J. R.*

OVIS PROBATION, *Ogilvy,*

Ixalus probation.

described from a hornless specimen.

OVIS TRAGELAPHUS. *Pallas,* Aondad of the Moors, found on the Atlas mountains of N. Africa. A well-known species. Described from specimens, observed both alive and in museums.—*Ben. As. Journ., April* 1847.

OVIS VIGNEI, *Blyth.*

O. montana, *Cunningham,* Sha; Sha-poo Tibet, Ladak.	Indian wild sheep, ENG.

Found in the Hindu Koosh, the Pamir range, west from Ladak to the Caspian sea. The Indian wild sheep, occupies a wide range in the Himalaya. It is more like a deer than the moufflon of Europe. It is active, courageous and described from a coloured figure taken from life, and from two pairs of horns, the distinctness of which from those of all the other species is most obvious. A skin of this animal was described by Pennant as the "Bearded sheep," but was confounded by him with O. tragelaphus; and there is a brief notice and very passible figure of the species, taken from an animal killed in the vicinity of Persepolis, in Lieutenant Alexander's 'Travels from India to England,' &c., (1827.) It again appears as the "Wild sheep of the Hindu Koosh," described by Capt. Hay, J. A. S.; ix., 440; and as Ovis cycloceros, *Hutton*, "Calcutta Journal of Natural History" II, 514, and pl. XII, being again noticed by the latter gentleman in J. A. S., xv, 152. It may be observed that Capt. Hay remarks this species to differ from O. tragelaphus "in having a lachrymary sinus; and Capt. Hutton also described "a moderate-sized lachrymal sinus, which appears to secrete, or at all events contains, a thick gummy substance, of good consistency, and of a dull greyish colour. The Affghan and Belooch hunters," he adds, "more especially the latter, make use of this gum, by spreading it over the pans of their matchlocks, to prevent the damp from injuring the priming." We may, therefore, rest satisfied of its existence in this species.—*Blyth in Journal of the Bengal Asiatic Society.*

OW-AH-N-CHU, see India.

OWES, RUS. Owies, POL. Oats.

OWL.

Ghughu, HIND.

The owls of India, are the nocturnal tribe of the order Raptores, or Birds of prey, comprising:

Sub-fam. Buboninæ, 1 Nyctæa; 4 Bubo; 1 Asio; 2 Scops and 3 Ketuvia.
Sub-fam. Atheninæ, 1 Ninox scutatus; 5 Athene.
Sub-fam. Syrniinæ, 3 Syrnium, S. indrani; S. sinense and S. nivicolum.
Sub-fam. Strigiinæ, 1 Phodilus; 2 Glaux.

The Indian owl (Athene brama) is numerous in the Ceylon jungles.

The Himalaya owl (Athene cuculoides) is common in the woods and jungle, and is diurnal in its habits so far that Adams killed one at mid-day with a rat in its talons, the bird is, however, most often seen at dusk. Its favourite food consists of mice, shrews, and large coleopterous insects.

The pretty pigmy owlet (Athene brodiei) is often found in bushes. It is a diminutive little creature, little more than half the size of the last. Its call is measured, and composed of two notes frequently repeated. Its egg is white, and generally laid in the hollow of a tree, without any preparation whatever.

Of the nocturnal accipitres of Ceylon the most remarkable is the brown owl, Syrnium indranee, *Sykes.*, which, from its hideous yell, has acquired the name of the "Devil-bird." The Singhalese regard it literally with horror, and its scream by night in the vicinity of a village is bewailed as the harbinger of impending calamity. There is a popular legend in connection with it, to the effect that a morose and savage husband, who suspected the fidelity of his wife, availed himself of her absence to kill her child, of whose paternity he was doubtful, and on her return placed before her a curry prepared from its flesh. Of this the unhappy woman partook, till discovering the crime by finding the finger of her infant, she fled in frenzy to the forest, and there destroyed herself. On her death she was metamorphosed, according to the buddhist belief, into an ulama, or Devil-bird, which still at nightfall horrifies the villagers by repeating the frantic screams of the bereaved mother in her agony. Mr. Blyth wrote to Sir J. E. Tennent, as to the Syrnium Indranee, *Sykes*, from Calcutta that there are some doubts about this bird. There would appear to be three or four distinguishable races, the Ceylon bird approximating most nearly to that of the Malayan Peninsula.

The owls are arranged by Naturalists under the family Strigidæ of the order Raptores, and are sub-divided into the sub-families Striginæ, Syrniinæ, Asioninæ, Buboninæ and Surniinæ. The typical owls of which the Barn owl of Europe, Strix flammea is, the type, are nocturnal in their habits and are often called Screech owls from the unearthly screechings with which they call.

The Indian Screech owl, S. javanica, *de Wurmb.* of a pale yellow buff colour is found throughout Ceylon, India, Burmah and Malayana. It differs somewhat from the Barn owl of Europe. It roosts during the day, comes forth at dusk and hunts entirely at night, living on rats, mice, shrews, &c. It breeds in holes of trees and buildings. Its Hindi, Tamil and Telugu names, Karaya, Karail, Buri churi, HIND., Chaao-pitta, TEL., and Chaao-kurani, TAM., mean evil-bird, and death-bird.

The Grass owl, St. candida, *Tickell*, above of a tawny yellow colour, is found sparingly throughout the greater part of India. It lives almost exclusively in long grass, from which it rises heavily, flies a short distance and drops suddenly into the grass.

The Otus brachyotus frequents similar localities.

St. capensis, *Smith*, is from the Cape of Good Hope.

The Bay or chestnut coloured Screech owl, the Phodilus badius, *Horsfield*, occurs in Nepal, Sikkim, Burmah, Malayana and the E. Archipelago. The natives believe it is on good terms with the tiger.

The sub-family Syrniinæ, comprise the Hooting owls. They are birds of rather large size, living in woods and groves, and nocturnal in their habits. The Syrnium indranee, *Sykes*, the Brown wood owl, is 19 to 21 inches long, is found in Ceylon, throughout British India, Burmah and Malayana. It is of nocturnal habits. It is the devil-bird of Ceylon.

Syrnium newarense, *Hodgson*, is the Nepal Brown wood owl, two feet long, occurs in Ceylon, S. India, Central Nepal, N. W. Himalaya, and the Malayan peninsula.

The Mottled Wood Owl, is the very beautifully plumaged Syrnium sinense, *Latham*, of a richy tawny yellow colour, found in wild wooded districts throughout India, but not yet found in Ceylon and Burmah. It has a loud harsh dissonant hoot.

Syrnium seloputo of Burmah and Malaya, has even more beautiful plumage.

Syrnium leptogrammica, *Temm.* is from Borneo.

Syrnium nivicolum, *Hodgson*, is the Himalayan wood owl, mottled dark-brown and fulvous. It is found above 7,000 feet up to the snow line in the Himalaya.

The sub-family Asioninæ, has the genus Otus.

Otus vulgaris, *Fleming*, the long-eared owl of Europe, Affghanistan, Kashmir and Nepaul, frequents woods and feeds on mice, moles and beetles.

Otus brachyotus, *Gmelin*, is the short-eared owl of great part of N. America and over all the old world, in India is found in long grass, hunting chiefly at night, though it flies well by day. In India, it is migratory, coming in at the beginning of the cold weather and leaving about March. Its call is a double or treble hoot, not unlike that of the hoopoe.

The sub-family Buboninæ, comprises the genera Urrua, Huhua, Ketupa Ephialtes and Scops, the great Horned owls, or Eagle owls, also the small Scops owls.

Urrua bengalensis, *Franklin*, the Rock-horned owl, 22 inches long, is found throughout Affghanistan, India and Ceylon, wherever it can get rats, birds, lizards, snakes, crabs and large insects, generally in broken rocky ground but also in dense groves or gardens. Its cry durgoon durgoon, is a loud solemn hoot.

Urrua coromanda, *Latham*, is the Dusky-horned owl, 24 inches long, found in all India. It frequents thick groves and forest jungle.

Huhua nipalensis, *Hodgson*, the Forest Eagle owl, of a dark-brown colour, and 22 inches long, occurs in Nepal, S. India and Malayana.

Ketupa ceylonensis, *Gmelin*, the Brown Fish owl, 21 to 23 inches long, is found throughout Ceylon, India, Burmah, perhaps to China, frequenting forests, groves and gardens, coming forth at dusk to feed, generally making its way to a tank, brook or river, occasionally uttering its dismal cry, a repulsive laugh like haw-haw, hawho. It is said to kill even cats.

Ketupa flavipes, *Hodgson*, the Tawny Fish owl, is confined to the Himalaya. It is constantly found on the banks of rivers and flies well by day.

Ketupa javanensis, *Lesson*, and K. ceylonensis, extend from Ceylon and Arrakan to Java.

Ephialtes pennatus, *Hodgson*, the Indian Scops owl, is supposed by some to be the S. zorca of Europe. It is found throughout India and Ceylon, the Himalaya, Burmah and China.

Ephialtes lempigi, *Horsfield*, is the Large Scops owl, of all India, Ceylon, Burmah, Malayana and China, found in forests.

Scops rufescens, *Horsfield*, a large owl of Malayana, Japan, Celebes and Philippines.

Scops gymnopodus, *Kaup*, is said to be from India.

The sub-family Syrniinæ has the genera Athene, Glaucidium, Ninox, Syrnium.

Athene brama, *Temm.*, the Spotted owlet of Ceylon, India, Panjab, Burmah, Persia and all Asia, is found in dense forests. It is an earthy grey-brown colour, each feather with a white spot. It is 8 or 9 inches long.

Athene radiata, *Tickell*, the Jungle owlet, of all India; is probably the Athene cuculoides *Philips*, of N. W. Provinces.

Athene malabarica, *Blyth*, the Malabar owlet, 8 inches long, of Travancore, Cochin and S. Provinces of Malabar.

Athene castanoptera, *Horsfield*, Malayana.

Athene castanopus, *Blyth*, Ceylon.

Athene cuculoides, *Vigors*, the Large-barred owlet 9½ or 10½ inches long, occurs in the Himalaya, Panjab, Assam, Arrakan, Tenasserim to China. It feeds on mice, rats, beetles.

Glaucidium brodiæi, *Burton*, the Collared pigmy owlet, is found at from 3,000 to 4,000 feet throughout the Himalaya. It is 6½ inches long.

Ninox scutellatus, *Raffl.*, the Brown Hawk owl, 12 inches long, is found in the wooded parts of all India, extending into Burmah, Malayana, China and Japan, also said to occur in Madagascar. It frequents the skirts of the thick forests also.

Ninox, borneensis *Schlegel*, and N. japonica, *Schlegel*, of Borneo and Japan.

The horror of the owl's nocturnal scream has been equally prevalent in the west as in the east. Ovid introduces it in his Fasti, L. vi, l, 139, and Tibullus in his Elegies, L. i, El. v, says, Pliny, lxi, c. 93, doubts as to what bird produced the sound; and the details of Ovid's description do not apply to an owl. Mr. Mitford, of the Ceylon Civil Service, regards the identification of the Singhalese Devil-bird as open to similar doubts: he says, the Devil-bird is not an owl. I never heard it until I came to Kornegalle, where it haunts the rocky hill at the back of government house.

The unpleasant laugh of the fish-owl of Ceylon (Ketupa ceylonensis) is known, no sound grates harsher on the ear, or is more calculated to bring back recollections of hobgoblins, than the loud hollow voice of this fine bird, nor is it less startling to creep through the bush and come suddenly on an individual moping at mid-day on a branch overhead, flashing his large orange eyes full on your face, as with out-stretched wings he snaps his bill, or hissing defiance makes straight off to the nearest cover, pursued by crested bulbuls, jays, &c. This species is not often seen, its mid-day haunts are in impassable parts of the jungle.—*Tennent's Skt. Nat. Hist. of Ceylon, pp.* 246-47; *Adams, Naturalist in India; Jerdon's Birds of India.*

OWOSCHTSCH, Rus. Fruit.

OX, the ox is one of the Bovinæ, a sub-family of the family Bovidæ, of the order Ruminantia. The order may be briefly shown as under:—

Ruminantia.

- **Cervidæ.**
  - **Cervus.**
  - **Rucervus.**
  - **Rusa.**
  - **Axis.**
  - **Cervulus.**
  - **Moschus.**
  - **Memimna.**
- **Bovidæ.**
  - **Antilopinæ.**
    - **Portax.**
    - **Tetraceros.**
    - **Antilope.**
    - **Gazella.**
  - **Caprinæ.**
    - **Nemorrhœdus.**
    - **Hemitragus.**
    - **Capra**
    - **Ovis.**
  - **Bovinæ.**
    - **Bos.**
    - **Gavæus.**
    - **Bubalus.**

The Bovinæ, called cattle, also horned cattle, have always horns in both sexes, usually inclining upwards or forwards, with a large and broad muffle, a moderately long tail, no eyepits, but with four mammæ. The sub-family Bovinæ is divisable into three groups, the Bisontine or bisons, the Taurine or oxen, and the Bubaline or buffaloes.

The *Bisontine* group comprise the bison of Europe and N. America, the Musk ox of Arctic America and the Yak or Poephagus grunniens of Central Asia. The true bison of Europe, Bison urus or the Aurochs, has a broad forehead, long limbs and shaggy mane. The Yak called in Tibetan Brong-Dhong, in Hindi, the Ban-chowr or wild bull, is found wild on the northern side of the Himalaya, but it has been domesticated and called the Chaori-gao.

The *Taurine* group has been sub-divided by Blyth into the Zebu or humped domestic cattle, the Taurus, humpless cattle with cylindrical horns, and Gavæus, humpless cattle with flattened horns, peculiar to South-eastern Asia. They have all thirteen pairs of ribs. It is to the Zebus that the common humped cattle of India belong: they have run wild in Mysore, near Nellore, in Oudh, Mozuffurnuggur, Rohilcund and Shahabad. Near Nellore, the country they frequent is much covered with jungle and intersected with salt water creeks, and marine-lagoons, and the cattle are as wild and wary as the most feral species. They are of large size and their horns are long and upright. The genus Taurus contains the cattle of Europe with cylindrical horns, including the feral race of Chillingham. The flat-horned Taurines of Blyth include the genera Gavæus, Gavæus gaurus, *Jerdon*, the Gaur or gauri-gao of all India, the Py-oung of the Burmese; also the Gayal or Mit'hun, the G. frontalis, compared with the Gaur, a heavy clumsy-looking animal of the hilly tracts to the East of the Burramputer and at the head of the valley of Assam, the Mishmi hills and their vicinity and probably extending North and East into the borders of China. It is extensively and easily domesticated and has bred with the common Indian cattle.

The Ban-teng or Burmese wild cow, Gavæus sondaicus, the Tso-ing of the Burmese, extends from Chittagong through Burmah, and the Malayan peninsula, into the larger islands of the E. Archipelago. This species resembles the Gaur more than the Gayal and it wants the dew-lap. The young and the female are red.

The *Bubaline* group, the buffaloes of the genus Bubalus, have large, almost horizontal, angular horns, inclining backwards and sometimes downward, with a large and spare muffle and thirteen pairs of ribs. The wild buffalo, the Bubalus arni, is largely domesticated and used for all the purposes of an agricultural population. But it is found in the north and east of Ceylon, from the Godavery to Midnapore and Raepore, in the plains of Lower Bengal as far as Tirhoot, and Oudh to the Terai and Bhootan, inhabiting the margins of forests, in the most swampy sites. It lives in large herds, but in the rutting season the most powerful males lead off and appropriate several females. They rut in autumn and the female gestates ten months, producing one or two in summer. The domestic buffalo, is often lean and angular; they are used for draught and as milch cattle. But the wild buffalo is uniformly in high condition, and the bull is of such power and vigour as by his charge frequently to prostrate a well-sized elephant. There is an African species, B. brachyceros, *Gray*, and a Cape buffalo, B. cafer, with horns so large as nearly to cover the forehead. In the E. Indies the buffalo is generally used in ploughing up the muddy lands in which rice is grown often for carriage, rarely for draught for long journies. The Binjara and other migratory grain merchants who even yet, (1873) travel over several hundred miles of India, collecting grain and carrying salt, invariably use the bullock, never the buffalo.

Oxen are used by the peasantry of the East Indies both in ploughing and in tempering the mud in the wet paddy fields before sowing the rice; and when the harvest is reaped they "tread out the corn," after the immemorial custom of the east. The wealth of the native chiefs and landed proprietors in Ceylon frequently consists in their herds of bullocks, which they hire out to their dependents during the seasons for agricultural labour; and as they already supply them with land to be tilled, and lend the seed which is to crop it, the further contribution of this portion of the labour serves to render the dependence of the peasantry on the chiefs and headmen complete. From their constant exposure at all seasons, the cattle in the E. Indies, both those employed in agriculture and those on the roads, are subject to devastating murrains that sweep them away by thousands. So frequent is the recurrence of these calamities, and so extended their ravages, that they exercise a serious influence upon the commercial interests of the colony, by reducing the facilities of agriculture, and augmenting the cost of carriage during the most critical periods of the coffee harvest. A similar disorder, probably peripneumonia, frequently carries off the cattle in Assam and other hill countries on the continent of India; and there, as in Ceylon, the inflammatory symptoms in the lungs and throat, and the internal derangement and external eruptive appearances seem to indicate that the disease is a feverish influenza, attributable to neglect and exposure in a moist and variable climate: and that its prevention might be hoped for, and the cattle preserved by the simple expedient of more humane and considerate treatment, especially by affording them cover at night. The labour for which they are best adapted, and in which, before the opening of roads in India, these cattle were formerly employed, is in traversing the jungle paths of the interior, carrying light loads as pack-oxen in what in Ceylon is called a "tavalam," a term which, substituting bullocks for camels, is equivalent to a "caravan." The persons engaged in Ceylon in this wandering trade are chiefly Moors, and the business carried on by them consists in bringing up salt from the government depôts on the coast to be bartered with the Kandyans in the hills for "native coffee," which is grown in small quantities round every house, but without systematic cultivation. An ox will work well seven years if taken care of.

The Gavæus sondaicus is found in Burmah, Siam, Java and Borneo. In Ceylon, to every herd of cattle there is a sacred bull who is supposed to exert an influence over the prosperity of the flocks; his horns are ornamented with tufts of feathers, and frequently with small bells, and he invariably leads the great herd to pasture. On starting in the early morning from the cattle kraal the natives address the bull, telling him "to watch over the herd; to keep the cows from straying, and to lead them to the sweetest pastures, so that they shall give abundance of milk," &c.—*Tennent's Sketches of Nat. Hist., pp.*, 50, 53; *Jerdon; Mammals.*

OX and Cow-Hides, see Leather, Skins.

OXALIC ACID.

Sauerk-leesaure, GER.

A vegetable acid, found in considerable quantity in sorrel and rhubarb. It is used in calico-printing, and by straw-hat makers. It is an object of considerable importance in Switzerland, where it is prepared from the juice of wood-sorrel. Oxalic acid is obtainable from the salt in the leaves of gram, Cicer arietinum, the genera Oxalis, Rumex, Acetosella and other plants. Accidents have frequently occurred from its being administered instead of Epsom salts, which it resembles in appearance. —*Faulkner, Taylor, Waring, Royle.*

OXALIDACEÆ, *Lindl.* The Wood-sorrel tribe of 3 gen., 7 sp., viz., 2 Averrhoa, 4 Biophytum, 1 Oxalis.

OXALIS ACETOSELLA, *Linn.*

Wood sorrell.		Common wood sorrell.	
Tsah-tsiang-ts'au,	CHIN.	T'sau-mu,	CHIN.

A small perennial plant with a subterranean root-stock, consisting of many scaly joints; has a pleasant acid taste, dependent on the presence of oxalic acid, and is frequently used in salads; its flavour approaches near to that of lemons or tartaric acid, with which its medicinal effects also correspond, as it is esteemed a refrigerant anti-scorbutic and diuretic. The expressed juice evaporated and set in a cool place, affords a crystalline salt, which may be used whenever vegetable acids are wanted. It is sold in the shops under the name of Essential Salts of lemons, and is employed to take iron-moulds and ink-spots out of linen.—*Smith, Waring.*

OXALIS CORNICULATA, *Linn.*

Oxalis monadelpha, *Roxb.* | Oxalis pusilla, *Salis.*

Hemembab,	AR.	Procumbent oxalis,	ENG.
Hemba,	„	Ambuti; Amrul,	HIND.
Homadmad,	„	Shuklika, Chukrika,	SANS.
Amrul,	BENG.	Ambashta, Amlika,	„
Chuka-tiputti,	„	Amla-loniha,	SIAM.
Umbuti ki baji,	DUK.	Pulia-kire,	TAM.
Umbuti,	„	Puliari kiray,	„
Yellow-wood sorrel,	DUT.	Pullachinta; Pullichinta kura,	TEL.
Indian sorrel,	ENG.	Pulla chanchali,	„
Horned wood sorrel,	„		
Three-leaved „	„		

It has a decumbent stem, branched and rooting; the leaves are ternate with obcordate leaflets; oblong stipules united to the base of the petioles, the peduncles are two-flowered, and shorter than the leaves. It is a native of Europe, particularly in Spain, Italy and Greece, as well as in Japan, Mexico, North America, and England. The flowers are yellow. The flowers of the North American plant are larger than the European. This species is common all over India. It possesses exactly the same properties, and yields the same products as the European sorrel. The small leaves, tender shoots, and flowers, are given in electuaries by the hindoos as a cooling medicine in fevers, the extent of two tea-spoonsful daily. The very sour stem of this plant is imported from Delhi: into Ajmir, and is used to cure flatulent indigestion. In peninsular India, it is a common weed on lawns and in gardens, and is used by the natives in making chatney and in curries, it is a good substitute for lime juice or tamarind imparting a peculiar acid taste. It is one of the vegetables of Southern India.—*Ainslie's Mat. Med., p.* 256; *O'Shaughnessy, p.* 257; *Gen. Med. Top., p.* 153; *Irvine; Jaffrey.*

OXALIS MONADELPHA, *Roxb.*, and Oxalis pusilla, *Salis.* Syns. of Oxalis corniculata, *Linn.*

OXALIS ROSEA, a tuberous rooted plant, from the Cape of Good Hope, easily cultivated at the commencement of the rains; the small tubers should be allowed to remain in the pots in which they have grown and be carefully removed into fresh earth after the rains have set in, and if well attended to, will readily spring up, and produce abundance of rose-coloured flowers.—*Riddell.*

OXALIS SENSITIVA, *Linn.*

Biophytum sensitivum, *Roxb., DC. Wight.*

Bun maranga,	BENG.	Toda vadi,	MALEAL.

Common in India and Java, the plant beaten up and mixed with gingelly oil is given in gonorrhœa; and mixed with butter is applied to wounds and boils.—*Useful Plants.*

OX-GALL.

Niu-tau,	CHIN.	Fel-bovis,	LAT.
Bile of the Ox,	ENG.	Pittam,	TAM.
Pit,	HIND.	Pittamu,	TEL.
Fel-tauri,	LAT.		

An inert substance but used by Asiatics medicinally.

OXIDE OF CALCIUM, Lime.

OXIDE OF LEAD. Massicot or Murdar sang. The manufacture of this was introduced at Jagadri by Kashmiri and Bakal, two attah sellers, &c., who came from Jellalabad; they manufactured it in secret, and would not let others know the process. This is said to be made at Lahore and Jagadri, and it might be well employed in making lead plaster (strapping) with some of the country oils; other preparations of lead also might be manufactured from it.—*Powell's Hand-book, Econ. Prod. Punjab, pp.* 113, 114. See Lead, Massicot.

OXIDE NOIR DE MANGANESE, FR. Manganese.

OXLEYA XANTHOXYLA. This tree is a native of Australia, and attains a height of 100 feet. The wood is yellow, and employed for building boats. It is called yellow-wood.—*Eng. Cyc.*, *p.* 892; *Hogg's Vegetable Kingdom.*

OX-TAIL. In Indian wars, the ox-tail and umbrella were not unfrequently placed over some chief of consequence, to divert attention and protect the king from danger: in Shakspeare's description of the battle of Bosworth field, Richmond, in assaulting the gallant Usurper, exclaims, "Three have already fallen who wore that crown."—*Tod's Travels*, *p.* 201.

OXUS.

Amu, Pers. | Ab-i-ma, Pers.

A river of Central Asia, which rises on the west side of the table-land of Pamir, but there are still some doubts as to its actual source, and Colonel Yule alluding to such, asks is there a great Wakhsh branch of the Oxus coming from those regions, and if so where does it join the Panja or river of the Sirikul? To the first question, says he, I would answer in the affirmative. The very name Wakhsh appears to be that from which the classical and Chinese names of the combined stream (Oxus, and Potsu or Fatsu) are derived. It is also spoken of both by Hiwen Thsang and by Edrisi, and by the latter is described as a very great river, though he evidently regards the Panja river of Lt. Wood as the chief source. From the accounts given of the methods anciently in use to convey goods from India to the Black Sea, Pliny (*lib.* vi c. 4), particularly describes one route—"Having arrived at Bactra," (modern Balk,) he observes, "the merchandise then descends the Icarus (Jehon river) as far as the Oxus; and thence are carried down to the Caspian. They then cross that sea to the mouth of the Cyrus (the Kur), where they ascend that river; and, on going on shore, are transported by land for five days, to the banks of the Phasis (Rion), where they once more embark, and are conveyed down to the Euxine."

When the mighty Roman empire was blotted out, not only the trade with India but India itself was completely lost to the western world. But after some centuries, when the Genoese engaged in commerce and navigation, a new trade route had been opened up between India and Europe. The merchandise from the western part of India was now carried up the river Indus as far as it was navigable and then across country, through Samarcand, to the river Oxus, down which it was shipped to the Caspian Sea. In like manner the merchandise from China and the Moluccas was shipped across the Bay of Bengal, and up the rivers Ganges and Jumna, and then carried overland to the Oxus. Samarcand was then a great emporium, and the merchants of India, Turkey and Persia met there to exchange their wares. The ships sailed across the Caspian to the port of Astracan, at the mouth of the Volga. Thence the goods were carried up the river to the city of Novgorod in the province of Reizan, (a city that must have been considerably to the south of the famous Nijni Novgorod of to-day,) then overland for some miles to the river Don, where they were loaded on barks and carried down stream to the sea of Azoff, and on to the port of Caffa, or Theodosia, in the Crimea. Caffa belonged at that time to the Genoese and they came there in their galliasses to fetch Indian commodities, which they distributed throughout Europe. A glance at a map will show what a costly and roundabout route this must have been, yet the merchants of those days made use of the rivers wherever they could. In the reign of Commodita, emperor of Armenia, a better route was discovered, the merchandise being transported from the Caspian Sea through Georgia to the city of Trebisond, on the Black Sea, whence it was shipped to all parts of Europe. This was doubtless the origin of the connection of the Armenians with the trade of India. So highly was this route approved of that another Armenian emperor is said to have actually begun to cut a canal, 120 miles in length, from the Caspian to the Black Sea for the greater convenience of the trade, but the author of this scheme was slain and the enterprise fell through. The northern half of Central Asia consists of the Kirghiz desert, which is mountainous and rugged on the east, and full of saline steppes on the west. In the midst of the southern half lies the sea of Aral, on the western side of which, up to the Caspian Sea on the west, there stretches a broad tract of desert. But it is in a fertile tract that the conquests of Russia were made between 1864 and 1868. After long years spent in fortifying posts, in 1864, Russia made a sudden irruption into the upper valley of the Jaxartes, and in that year took three forts of Kokand, viz., Aoulietta, Turkestan and Chemkend. In the spring of 1865, the chief of Kokand fell in battle, and in June 1865, the city of Tashkend was stormed. On the 20th May 1866, they fought and won the battle of Irdjar, against the Bokhariotes, and later in the year captured the forts of Oratepe and Juzak, within 40 miles of Samarcand. On the 13th May 1868, a great battle was fought under the walls of Samarcand, and the city surrendered, and later in the year Bokhara yielded. At a short distance to the west of Yarkand and Kashgar, the great interior depression of Chinese Tartary terminates, and the boundary ranges coalesce in the elevated table-land of Pamir, from the western part of which the Oxus rises. The Oxus, is wild and unruly in its course. From its source on the Sar-i-kul to its embouchure, it is not all navigable but only from Char-jui. It has many dangerous sandbanks miles in length. The Oxus is known in Bendehesh as the river Vah. It is frozen over every winter from Kerki to its mouth. It is supposed to have left its former bed. The Greeks, speaking of the Jaxartes and Oxus, asserted that both these rivers disembogued into the Caspian. From this an opinion has been entertained, that in ancient times, the sea of Aral formed a part of the Caspian. Humboldt, however, does not admit this, and holds, in spite of the recent formations of the Ust-Urt, the isthmus between the two seas, that the connection could never have existed. The first allusions to the existence of the sea of Aral, are made by European travellers in the sixteenth century. The Russians, however, had long been aware of the existence of the "Blue" sea, as they called it and into which the river Syr or Jaxartes discharged itself on the east, and it was only with the subjection of the Kirghiz steppes, after 1840, that reliable accounts were received respecting the sea of Aral, which covers an area of about 23,000 square geographical miles. From the large body of water discharged into it by the Amu-Daria (Oxus) and Syr-Daria (Jaxartes), the lake, although brackish, is not so salt as the waters of the ocean. The Syr-Daria takes its source in several streams in the snowy Belur-Tag or Bolar-Dagh, a mountain range, extending on the Western confines of Chinese Turkistan. The Syr, after passing the Kara-tau range, pursues its course first in a north-westerly direction, and then westerly to the sea of Aral, and divides into a considerable number of branches and irrigating canals, without receiving into itself a single rivulet. Part of the Syr, from its source to the Kara-Uziak branch, is called the Djaman-Daria (bad river), probably on account of its being tortuous along that part of its course, and not so broad, deep and rapid as in other parts. Its breadth is not uniform. In the Kokan dominions, it attains 400 fathoms; in Russian territory both above and below Kara-Uziak, it is from 50 to 100 and even 250 fathoms broad. As the Djaman-Daria, however, it is considerably smaller than at other parts not exceeding in some places 30 fathoms. The depth of the river, like its width and current, also varies. Generally speaking, the Syr flows through a deep and steep-banked hollow, the depth at about one fathom from the shore being above a man's height, and then progressing from one fathom to five and six fathoms. The river Emba, Yemba or Jem, after a westerly course of 300 miles, falls into the Caspian in 47° N., 53° 15′ E. The country south of the Emba, consists of a table-land which separates the Caspian and Aral, and rises to an average elevation 620 feet. This table-land known as the Ust-Urt, is about 240 miles in length, and extends the whole width, 160 miles between the two seas. The entire east side of the plateau forms a bold coast line along the western shores of the sea of Aral, and at its S. E. corner it turns abruptly to the W. N. W., the angle thus formed at the S. W. corner of the sea of Aral being known as "the Tchink." The Ust-Urt is, in fact, the S. W. continuation and extremity of the great steppe of the Kirghiz Kaisaks, this portion forming part of the territory of the Lesser Horde. South of the Ust-Urt, and of the sea of Aral, is the khanat of Khiva, including the desert plain of Kharesm, and the oasis of the same name, as also the rich, well-watered plain of Merv, 37° 28′ N., 62° 10′ E. This region, also known in older geographies as Turan, is bounded, according to Captain Abbott, on the S. by an irregular curving line extending from the river Attreck, which debouches into the S. E. angle of the Caspian, in 37° N., 54° E., nearly to Herat, where it turns N., and becomes the eastern boundary of the khanat. The eastern boundary follows an imaginary line corresponding pretty closely with the 63° meridian, crossing the Oxus, or Amu-Daria, about 90 miles W. of Bokhara, and is thence prolonged northward till it intercepts the Syr or Jaxartes, about 120 miles from its mouth. The area comprised within these boundaries is about 450,000 square miles, the surface of which is singularly uniform. With the exception of the banks of the Oxus, and the oasis of Merv, the entire country presents an unbroken waste, unrelieved by mountains, rivers, lakes or forests. The Ust-Urt, is nominally part of the Khanat of Khiva, but the extreme cold of winter, and the intense heat of summer make it almost uninhabitable. The geological formation of this khanat is principally red sand-stone on the south, gradually changing into a firm clay resting upon lime-stone. The volume of the various rivers depends upon the season, the melting of the snows of the Hindoo Koosh, in which the Amu or Oxus rises, causing that river to overflow its banks in many places during the autumn. In some of the older maps, a dried river course is represented as occasionally filled from the Oxus, and finding its way across the desert of the Kharesm, till it reaches the Caspian at Balkan Bay, 39° 40′ N. There is nothing intrinsically improbable in this diversion, as the sea of Aral itself is known to be 117 feet above the level of the Caspian. The dominant race, in Khiva, are Usbec Tartars, to which tribe the latest dynasty of Khans belongs and the population is variously estimated by Balbi at 800,000, by Fraser at 1,500,000, and by Abbott, 2,600,000. Nearly the whole of the settled population of the Khanat of Khiva is concentered on the left bank of the

Oxus or Amu-Daria. The town of Kungrad extends along the left side of the Khan canal and the river Oxus or Amu-Daria. Between the right bank of the canal and the river runs a broad earthern wall, about three miles in length, and at a short distance off, between it and the river, is a second wall, both extremities of which abut on the river, thus forming, with the river bank, an oblong square. Khiva is situated on a fertile plain near the Oxus, in 41° 22′ 40″ N., by 60° 2′ 57″ E., and is about half a mile square, containing about 1,500 houses, clay built and arranged in narrow streets, with a population of about 12,000 permanent inhabitants. Immediately to the eastward of the khanat of Khiva is that of Bokhara, with limits more difficult to define than those of Khiva, owing to its incessant political fluctuations. When Burnes first visited Bokhara, the khan claimed the entire territory from the Hindoo-Koosh, including Balkh (the ancient Bactria) and Andku, or Ankoi, where Moorcroft died, to the basin of the Syr-Daria or Jaxartes or from 35° N. to 45° 31′ N. while the Eastern boundary, in the absence of precise geographical data has been variously stated at 68° to 70 E. The Eastern frontier is, in fact, conterminous with the khanat of Kokan, and the western boundary of what is variously known as Chinese Turkestan, or little Bokhara, of which the chief towns are Yarkend and Kashgar. But, since 1849, the advance of Russia along the valley of the Syr-Daria or Jaxartes and the incursions of the Kirghiz of the Middle horde on the one hand, and of the Kokanians on the other, made the basin of the Syr-Daria anything but a desirable acquisition, and the khan of Bokhara ceased to assert his sovereignty beyond the parallel of 41° N. The extent of the Bokhara khanat was therefore estimated at about 230,000 square miles, with a population estimated by Irving (1809), at 3,600,000, by Burnes at 1,000,000, by Fraser at 2,500,000 and by Balbi (1826), at 1,200,000. Fraser, however, speaks of the city of Bokhara as containing 120,000 houses alone, and doubts if any other Eastern city, except some of the Chinese capitals, contains so large a population ; and as the soil is argillaceous in the plains, and the valleys have long enjoyed, in the East, a reputation somewhat resembling that of temple in Thessaly. It seems probable that the larger estimates are the more likely to be correct. The territory is intersected from S. E., to N. W. by the Oxus, or Amu-Daria, the only other river of importance being its tributary, the Kholik, or Sogd, whence the ancient name Sogdiana given to the district of which Samarcand is the present capital. The eastern portion of the khanat of Bokhara is entirely occupied by mountains. Of these the chief are the Kish range, between Kish, 39° N., 67° E., and Samarcand, a spur of the little known Kara-Dagh chain. In this exceedingly rugged, precipitous system of mountains, occurs the celebrated Derbend or Koluga Pass, ("the Iron Gate"), leading from Kish, S. E., and forming the sole means of communication with Hissar and thence to Affghanistan. A still loftier range commences to the N. E. of Bokhara, and runs eastward to the borders of the khanat of Kokan where it converges at right angles to the Bolor or Belur Tagh. This is called the Ak-Dagh, or "white mountains," and seems to mark the northern boundary of the celebrated high-lying table-land of Pamir, on the west side of which the Oxus takes its rise. Lieutenant Wood, penetrated thither on the 19th February 1838, in mid-winter. On reaching a spot elevated 14,400 feet above the level of the sea, some of his escort refused to proceed further ; upon which he pushed forward with the remainder through deep, new-fallen snow. As he neared the head waters of the Oxus, the ice became weak and brittle. After quitting the surface of the river, he travelled about an hour along the right bank, and then ascended a low hill which apparently bounded the valley to the east, on surmounting this at 5 P. M. of the 19th February 1838, he stood on the Bam-i-Duniah, or 'Roof of the World', while before him lay stretched a noble frozen sheet of water, from whose western extremity issued the infant Oxus. This fine lake lies in the form of a crescent, about 14 miles long from east to west by one mile in average breadth. On three sides it is bordered by swelling hills about 500 feet high, while along its south bank they rise into mountains 3,500 feet above the lake, or 19,000 feet above sea-level covered with perpetual snow, from which never-failing source the lake is supplied. From observations made at the west end, he found the latitude to be 37° 27′ N., 73° 40′ E., and the elevation, as deduced from the boiling point of water, 15,000 feet. Recent authorities since the visit of Lieutenant Wood have, however, established that there is no affluent of the Syr-i-Daria, which takes its rise so far south as Lake Sir-i-kol, the immense ranges of the Belur and the Ak-Dagh intervening. The khanat of Kokan, which comprises almost the entire valley of the Syr-i-Daria or Jaxartes and its various confluents ; partly in consequence of the nomade half-savage hordes which form its northern population, partly from its geographical position, it has been among the very earliest to come into direct collision with Russia. From the north shore of the sea of Aral, there extends eastward a series of steppes, inhabited principally by the Kirghiz-Kasaks, who are divided into Lesser or Western, Middle, and

Great Hordes, the latter being the farthest to the east, and extending indeed as far as the great Lake Balkash, and the banks of the Ili, and the limits of the khanat are now said to extend as far north as the Ala-Tau, or Algonski range in South-Western Siberia (Lat. 48° North), in which parallel the Sar-i-su, a river which falls into the Teli-kul Lake, may be said to mark its limits eastwards. From this point the boundary line at latest accounts, extends to the banks of the Syr-i-Daria, where the Russians have erected the fort of Perovsky on the right bank, facing the Kokanian town of Ak-mesjid. The western includes a considerable sweep of land yet further west than the city of Khojend, the Cyropolis or Alexandria Ultima of classical writers. The entire length of this extensive territory may be roughly stated at 950 miles by an average breadth of 360, or about 345,000 sq. m., the whole surface being exceedingly mountainous, and forming in part the west buttress of the great central table-land of Asia. The whole region is intersected by immense streams, all flowing towards the Syr-i-Daria or Jaxartes, the majority of which, however, lose themselves in the numerous extensive lakes which here begin to stud the surface of the country, and possess no visible outlet. Kokan includes within its boundaries a number of considerable towns, besides the capital of the same name (a comparatively modern town), Khojend which numbers 30,000 inhabitants, Andijan the former capital, a little to the eastward of the present capital, Tashkend with a population said to amount to 100,000. Of the amount of population under the sway of the khan of Kokan, Nazarof reckons the standing militia at no fewer than 50,000 horsemen, and there is every reason to believe that the district watered by the Syr-i-Daria is well populated. The time occupied by caravans between Kokan and Bokhara is about six weeks. There is but little communication between Kokan and Little Bokhara, the Thian Shan interposing an almost insurmountable obstacle. Eastern Turkestan, Chinese Turkestan, or Little Bokhara, since about the middle of 18th century has belonged to the Chinese Empire. On the east it gradually merges in Mongolia, somewhere to the east of the great saline basin of the Lob-nor. The northern boundary is Dzungaria. The western is the khanat of Kokan including the precipitous Eastern front of the table-land of Pamir, and it is shut off from Little Thibet and Thibet Proper, to the south and south-east, by the eastern half of the Hindoo-Koosh, and the western chain of the great Kuen-Lun, over which the most frequented pass is that of Kara-Korum, 18,604 feet above sea level, connecting Ladak with Yarkand by the headwaters of the Shayok, which, rising from a glacier not far from the pass itself, falls into the Indus after a westerly course of 320 miles, just above the town of Iskardo, 35° 10′ N., 75° 28′ E. The entire territory of Little Bokhara, assuming it to extend as far as the meridian of 90°, thus including the great Lake of Lob, is sterile in the extreme, but relieved by large and fertile oases—a feature common to the continuation of the desert eastward where it becomes the great Desert of Gobi or Shamo. Of the various oases, the most important and best known are those of Kashgar, Yarkand, and Khotan. Of these, the first named lies at the foot of the southern spurs of the Thian Shan range, and consists of a well-watered tract, on the principal river of which, called by the same name, is the city of Kashgar. This was, for many centuries, the seat of an independent prince; but, since the rebellion of 1826, has been reduced by the Chinese authorities to a secondary position in the district of Ili, of which Yarkand is the capital, and to which Khotan has also been attached. Kashgar city is in 39° 25′ N., and 74° E. (approximatively): and the river on which it is situated, after a course of 300 miles unites with that of Yarkand to form the Tarym, which, after a further course of 250 miles, falls into the great Lake of Lob-nor. Both these streams are famous for the splendid specimens of jasper and jade-stone which are found in their beds. Yarkand is the capital of the Chinese district of Ili, and is situate in 38° 10′ N., and 76° 30′ E., on a river of the same name. It is walled, but with extensive suburbs, and has a population variously estimated at from 40,000 to 200,000. It has belonged to China since 1757, and is governed by mahomedan and Chinese officials alternately. The environs are highly cultivated, producing wheat, barley, rice, fruits, and silk, and there is extensive pasturage. Yarkand is known to the Chinese by the name of Ja-lo-kiang. Khotan lies to the eastward of Yarkand, and lies in an oasis said by the Chinese to be about 1000 li. or 350 m. in circumference, immediately to the north of the Kara-korum Pass. It is watered by a great number of streams, almost all of which flow into the Lob-nor. It contains the six cities of Khotan, Yurun-Khash, Kara-Khash, Djira, Keria and Takhubin, each of which is governed by a hakim, whose united votes constitute what is called the Council of Khotan. Khotan city is situate in 37° N. and 80° 35′ E., a position which very nearly corresponds with the site assigned to it as immediately to the N. E. of the Kara-korum Pass. It is the Ili-tchi or Hotaen of the Chinese, and is supposed to contain about 50,000 inhabitants. It was originally a hindoo colony, supposed to have been founded about the second century; but the magnificent buddhist temples and monasteries were all destroyed by the mahomedan conquerors. The northern portion of Little Bokhara, under the shadow, as it were, of the Ala-tagh, is the district of Aksu, one of the most fertile of the provinces into which the Chinese have subdivided their acquisitions here after the revolt of 1826. The products are various, consisting chiefly of lentils, wheat, barley, millet, apricots, grapes, and melons, and cotton is also said to grow here of fair quality. The capital of the same name, is situate in lat. 41° 9′ N., 78° 40′ E., and according to Timkowski, is the seat of a Chinese ambassador or viceroy. The population of the town is estimated by Moorcroft at about 25,000 and of the entire district at 130,000. The natives of the district are renowned for their taste in dressing hides and manufacturing cotton goods, and it is stated that there are mines of copper and one of rubies in the immediate neighbourhood. The *Turkoman* country, south of the Oxus or Turkistan, stretches from Balkh to the shores of the Caspian, filling up the space between that sea and the Aral. On the south it is bounded by hills, the continuation of the Hindu Kush, and the Parapamisus of the ancients, and a line drawn from Balkh to Astrabad on the Caspian will separate the country of the Turkoman from that of the Affghans and Persians. On the south-eastern shore of the Caspian, the country is mountainous, but in all other places it is a flat sandy desert, into which the mountain streams, the Murghab and the Tejend, fall, and are absorbed and never force their passage to the Oxus. Ignorance and poverty reign supreme in Mawar-un-nahar, the modern Bokhara, Khiva and Kokan, which formed the richest and most enlightened region of the east in the fourteenth and fifteenth centuries. The libraries of Samarkand, Tashkend, Ferganah (in the khanat of Kokan), Khiva and Bokhara, with the observatory at Samarkand, irrecoverably perished under the merciless hand of Tartar vandalism, which consigned to perdition all knowledge save that of a religious character. Asia seems to have been so called from the great Asi race of Central Asia, whose name of Asi is said by Remusat to have been applied by the Chinese almost promiscuously to the nations between the Jaxartes and Oxus, as far south as Samarkand, and in one of his quotations it is applied to people of Khojand, and in another to people of Bokhara. Central Asia has a hardy peasantry, dwelling in the mountain region with its vast upland downs, well suited for summer pasture, partly descendants of the original inhabitants, and in part of the many migratory races who have swept through the country. At the foot of the mountains, in the tracts of surpassing fertility, Turk, Bokhariot, Kalmuk, Kirghiz, Ouigur, Manchu, Chinese, Armenian and Indians dwell in the well-watered plains. Beyond these, in every direction, is the pathless desert, which has been tenanted by pastoral nomades ever since the earth was peopled. From the Vendidad opening chapters there seems in ancient times to have been a great kingdom in Central Asia. An eastern branch, with its primæval seats on the Oxus. The Iranian people, who were settled between the Oxus and the Jaxartes, as early as the time of the Judges of Israel, still held their ground in the country, under the names of Tat, Tajik, Sert, Galsha and Parsiwan; a primitive and not impure Iranian population might be found in almost every district from the Indus to the Jaxartes, and throughout the valleys of the Oxus. The Paropamisan chain, which bounds the Kohistan on the west, extends three hundred and fifty miles from east to west, and two hundred from north to south. The whole of this space is a maze of mountains, and though it affords a habitation to the Aimak and Hazarah, it is so difficult of access, and so little frequented, that no precise accounts of its geography are to be obtained. It is certain, however, that the range of Hindoo Koosh is there no longer so lofty as to be conspicuous among the mountains by which it is surrounded, and that no continued line of perpetual snow can any more be traced. The eastern half of this elevated region is inhabited by the Hazarah, and is cold, rugged and barren; the level spots are little cultivated, and the hills are naked and abrupt. The western part, which belongs to the Aimak, though it has wider valleys and is better cultivated, is still a wild and poor country. The northern face of these mountains has a sudden descent into the province of Balkh; their acclivity is less on their other extremities, except perhaps on the west or south-west. On the north-west they seem to sink gradually into the plain which borders on the desert. The slope of the whole tract is towards the west. To the north of this, extending eastwardly and to the west, are the elevated plains of Tartary, the Asiatic dominions of Russia, Chinese Tartary, and China, and the regions occupied by several Turkoman nations. To the south is India with its two peninsulas and its archipelagoes on the east, with the dominions of Persia and Turkey in Asia and Asia Minor, and the peninsula of Arabia on the west. The Caspian is an inland sea with Russian territory on the north and west, and Persia on the south. According to Strabo (lib. xi,) all the tribes east of the Caspian were called Scythic. The Dahæ were next the sea;

the Massa-getæ and Sacæ more eastward, but every tribe had a particular name. All were nomadic; but of these nomades, the best known are the Asi, the Pasiani, Tachari, Saccarandi, who took Bactria from the Greeks. The Sacæ made irruptions into Asia, similar to those of the Cimmerians, and possessed themselves of Bactria and the best district of Armenia called after them Saca-senæ. Of the first migrations into India of the Indu-Scythic Gete Takshak and Asi, that of Sehesnag from Sehesnagdes (Takshac from Techaristhan) six centuries before Christ, is the first noticed by the Purana. About the same period a grand irruption of the same races conquered Asia Minor, and eventually Scandinarva, and not long after the Asi and Tachari overturned the Greek kingdom of Bactria. The Romans felt the power of the Asi, the Catti and Cimbri from the Baltic shore, Colonel Tod (*Vol.* i, *p.* 49.) supposes the Asi and Tachari to be the Aswa and Takshac or Toorshka races of the Purans of Sacadwipa. The Dahæ to be the Dahya, now extinct, one of the 36 royal Rajput tribes, and he supposes them to be the descendants of Baldeva and Yudishtra, returned under different appellations. The country on the east is still occupied by the Turkoman race, The geography of the Vedic hymns confirms the theory that the Arian race migrated from Central Asia about seventeen centuries before Christ, entered India by the north-west, dwelt during the earliest Vedic portion in the Punjab, and migrated or fought their way into Hindustan and Central India during the five centuries that succeeded. From the frequent mention of the Suraswati and other rivers, we learn that the Punjab was at one time the locality of the Vedic Arians. The fathers of the Arians originally inhabited Iran proper, the Land of Pleasantness, and they left it only in consequence of a convulsion of nature, by which a great alteration in the climate was caused. When the climate was altered by some vast disturbance of nature, the Arians emigrated. They did not, however, follow the course of the Oxus, or they would have come in the first instance to Bactria, and not to Sogd. Their course, therefore, was more northerly. Its present climate is precisely what the record describes it to have been when the changes produced by the above commotion took place. It has only two months of warm weather. In the course of the Arians, after their expulsion from the primeval country between Sogdiania and the Sutlej, they formed, by the conquest of fourteen countries, as many kingdoms in the whole of the eastern part of Central Asia and India proper, in the country of the Indus and its confluents. In the intervening countries, they passed amongst the Turanians (Scythians
and Turcomans), and there is evidence that th
inhabitants whom they found in India wer
likewise Turanians. The main direction o
these travellers was southerly, and on th
southern bank of the Caspian is a group, th
nucleus of the Arian Media. Amongst th
Arian hindoo, the sacrifice of a horse, th
Aswamed'ha, seems to have been practised i
their religious rites. There are two hymns i
the Rig Veda describing the rite, and whic
leave no doubt, that in the early religion of th
race, this sacrifice, as a burnt offering to th
gods, was had recourse to. It was even the
however, falling into disuse, and was existin
as a relic of an ante-vedic period, importe
from a foreign region, possibly from Scythi
where animal victims, and especially horse
were commonly sacrificed. And in still late
times, the Aswamed'ha consisted in certai
ceremonies ending in the liberation of th
horse, as throughout southern India is sti
practised with a bull or cow, many of whic
are met with in every village, freed o
let loose in the name of Siva or Vishnu
The Aimak who graze their flocks in th
Parapamisus, are brave and relentless, an
Afghans when travelling, whether proceedin
from Balkh, Kabul, Kandahar or Herat, neve
enter into the mountain districts of the
intrepid nomade tribes. One of the Aim
tribes is known as the Feroz Kohi afte
the city of that name about 63 miles fro
Teheran. Timur, exasperated at the depreda
tions which they committed, transported th
whole of them into the mountains lying betwe
Persia. According to Prof. A. Vambery, th
Uigur are the most ancient of the Turki
tribes, and formerly inhabited a part of Chine
Tartary, which is now occupied by a mix
population of Turk, Mongol and Kalmu
They were the first who reduced the Turki
language to writing, borrowing the characte
from the Nestorian christians, who came
their country as early as the fourth century
our era. The manuscripts of this language, wri
ten in the characters mentioned, afford, ther
fore, the most ancient and valuable data in inve
tigating the history of Central Asia—nay
the whole Turkish race. But these monumen
are of great scarcity; he believes he has co
lected all that has been discovered of th
Uigur language, though the Uigur had a liter
ture, and were very fond of books at a tim
when the western world was involved in ign
rance and barbarism. The most valuab
manuscript he obtained bears date 1069, an
was written in Kashgar; it treats of ethics an
political subjects, and forms a kind of manual
advice to kings how to govern with justice an
success. It reveals the social condition of th
people, and forms the basis of the later regul

tions by which all Turks are governed. He believes that the Tartars of ancient time were not such barbarians as they now are. Since the year 1864, Russia has been making great progress in absorbing the kingdoms of Central Asia. In their operations, the Russians used only 2,000 and 3,000 men, and never had more than 15,000 in all Turkestan. Many emeralds come from Russia, Siberia, and Central Asia to India.

The parent country of the Jat seems to have been the banks of the Oxus, between Bactria, Hyrkania and Khorasmia. In this position, there was a fertile district, irrigated from the Margus river which Pliny calls Zotale or Zothale and General Cunningham believes this to have been the original seat of the Jat, the Iatii of Pliny and Ptolemy and the Xanthii of Strabo. The term Jat is only their tribal name, the general name of their horde is Abar. Taking these two names, their course from the Oxus to the Indus may be dimly traced, in the Xanthii of Strabo, the Iatii of Pliny and Ptolemy, the Xuthi of Dionysius of Samos, who are coupled with the Arieni, and in the Zuthi of Ptolemy, who occupied the Karmanian desert, on the frontier of Drongiana. Subsequently, the main body of the Iatii seem to have occupied the district of Abiria and the towns of Pardabathra and Bardaxema in Sind, or southern Indo-Scythia, while the Panjab or northern Indo-Scythic was chiefly colonized by their brethren of the Medes. Turan was formerly the appellation by which all the countries between the Jaxartes and the Oxus in one direction, and the Caspian and boundaries of China in another, were known to the natives of Persia. The countries north of the Hindu Kush, which lie in the valley of the Oxus and its tributary rivers, from Balkh upwards, have no general designation. Eastwards of that city lies Kunduz, the Mir of which subdued all the smaller provinces and it has another dependency, Badakhsan, further eastward. To the north of this territory are the hill states of Wakhan, Shughnan, Darwaz, Kulab and Hissar, whose rulers claim a descent from Alexander the Great. To the eastwards of Badakhshan lies the plain of Pamir inhabited by the Kirghis and beyond the Belut Tagh mountains are Chitral Gilget and Iskardo, which extend towards Kashmir. South of Badakhshan is the country of the Siah Posh Kafir, who occupy a great part of the range of Hindu kush and a portion of Belut Tagh. It is bounded on the north-east by Kashgar, or Badakhshan, and on the north-west by Koondooz in Balkh. On the west it has Inderab and Khost, also in Balkh, and the Kohistan of Cabul; and on the east it extends for a great distance towards the north of Kashmir, where its boundary is not distinctly known. The whole of this Alpine country is composed of snowy mountains, deep pine forests, and small but fertile valleys, which produce large quantities of grapes, wild and cultivated, and flocks of sheep and herds of cattle while the hills are covered with goats. Grain is inferior both in importance and abundance. The common kinds are wheat and millet. The roads are only fit for men on foot and are often crossed by rivers and torrents, which are passed by means of wooden bridges, or of swing-bridges made on ropes of withy or some other pliant tree. All the villages are described as built on the slopes of hills, so that the roof of one house forms the street leading to the one above it, and this is said to be the constant practice of the country. The people have no general name for their nation.. Each tribe has its peculiar name, for they are all in separate tribes, though not according to genealogy, but to geographical position, each valley being held by a distinct tribe. The mahomedans confound them all under the name of Kafir or infidel and call their country Kaffiristan. They also call one division of them Siahposh (black vested) or Tor, both epithets being taken from their dress, for the whole of the Kaffir are remarkable for their fairness and beauty of complexion: but those of the largest division wear a sort of vest of black goat-skins, while the other dresses in white cotton.—*Porter's Travels, Vol*, i, *p.* 112; *Fortnightly Review, July* 1868; *Dr. Jackson, in Transactions of the Bengal Asiatic Society, Vol.* viii,; *Russians in Central Asia, Captain Valikhanof and M. Vemukof*; *Powell's Hand-book, Econ. Prod. Punjab, p.* 49; *Tavernier's Travels, p.* 144; *Bunsen's Egypt, Vol.* ii, *p.* 303; *Wellsted's Travels, Vol.* ii, *p.* 323; *Malcolm's History of Persia, Vol.* i, *pp.* 20-21. See India, Iran, Kelat, Khiva, Kirkook; Kizzelozan, Koh, Kosi, Kuvir, Shawlgoat, Turkoman, Viswamitra.

OXYCANI, see Kabul.

OXYCARPUS COCHINENSIS, see Hebradendron.

OXYDRACEÆ, a tribe mentioned by Strabo, Arrian, Curtius, Stephanus and other travellers. Burnes, Masson and Ferrier, met with tribes who claim a Grecian descent. According to Burnes the Mir of Badakhshan, the chief of Darwaz in the valley of the Oxus, and the chiefs eastward of Darwaz who occupy the provinces of Kulab, Shughnan, and Wakhan, north of the Oxus; also the hill states of Chitral, Gilgit and Iskardo, are all held by chiefs who claim a Grecian descent. The whole of the princes who claim descent from Alexander are Tajik who inhabited the country before it was overrun by Turki or Tartar tribes. The Tajik, and mahomedans, regard Alexander as a prophet. The Badakhshan family are fair but present nothing in form or feature resembling the Greek. They are not unlike the modern Persian and there is a decided contrast between them and the Turk and Uzbek. General Ferrier on reaching Gazergah was much surprised to find there a small encampment of persons in the Uzbek dress, but whose configuration of features clearly indicated quite another origin. In conversation with him, they stated that they were the descendants of the Yunani (Greeks) whom Alexander the Great, Sikander Roomi, had left in these countries; and when he heard this he recollected that Marco Polo, and after him Burnes, as well as other writers on oriental history, mentioned the existence of Macedonian tribes which had settled on the north-west frontier of Chinese Tartary, and, from the replies he received to the numerous questions he put to these people, he was convinced of the existence of the real descendants of the ancient Greeks in those countries. These Yunani are not isolated and dispersed here and there but united in tribes, occupying a considerable tract of country; nothing, however, either in their language or their habits, betrays their origin. They are mahomedans, and have the reputation of being somewhat fanatical, and are not held in much consideration by the Tartars, amongst whom they are settled, but they are respected, for, like their ancestors, they are brave, and the consequences of their hatred are terrible to those who are the objects of it. Burnes, while admitting the existence of the descendants of these Greeks in Central Asia, appears to doubt whether some of their chiefs are, as they affirm, the descendants of Alexander, for the historians of the son of Philip assure us that he left no heir to reap the fruits of his immense conquests. Alexander built a city in his route eastwards towards the Indus to which he gave his own name, but the name it now bears, and its particular site have been lost. It was called Alexandria near the Caucasus, and Rennel points to Bamian as the quarter in which he would place it. General Ferrier mentions that the fortified town of Herat, is supposed to have been founded by Alexander the Great but he does not quote his authority. This city, he tells us is a quadrangle of 3½ miles long on the north and south sides, and rather more on the east and west. Its extent would be immense if all the suburbs were included, particularly those stretching to the west of the town beyond the Darwazah-i-Irak. After the death of Alexander the Great, Persia as well as Syria, fell to the lot of Seleucus Nicator, who established the dynasty of the Seleucidæ. Antiochus Soter succeeded Seleucus Nicator and in the reign of his successor, Antiochus Theos, Arsaces, a Scythian, who came from the north of the Sea of Azoff, induced the Persians to throw off the Greek yoke, founded the Parthian empire, and made Rhages his capital. This was likewise the period of the foundation of the Bactrian kingdom by Theodotus the governor of it, who finding himself cut off from Syria by the Persian revolution, declared his independence. Arsaces is called Asteh by eastern writers, and is said to have been a descendant of the ancient Persian kings. When he gained the kingdom it is said he promised to exact no tribute and merely to consider himself as the head of a confederacy of princes, united for the double object of maintaining their independence and freeing Persia from a foreign yoke. This is the commencement of that era of Persian history called by eastern writers, Mulook-ut-Tuaif, or commonwealth of tribes. In A.D. 906, Rhages was taken by Ismail, founder of the Samanee dynasty. It ceased then to be a seat of empire, and in A.D. 967, became the capital of the house of Shemgur, a race of petty princes who maintained a kind of independence, while the dynasties of Saman and Dilemee divided the empire of Persia. In A.D. 1027, Rhages was the last conquest of Mahmood of Ghuzni.—*Smith's Dictionary; Malcolm's History of Persia, quoted in Ferrier's Journeys, pp.* 65, 162-63.

OXYDULOUS IRON, see Loadstone.

OXYLOPHUS· The crested cuccoos during the rainy season are parasitical upon the nests of the Sat-bhai.

OXYLOPHUS, a genus of Batrachians, viz.

2ND SUB-CLASS, BATRACHIANS.

Tailess Batrachians—Batrachia Salienta.
Tailed Batrachians—Batrachia Gradientia.
Burrowing Batrachians—Ba-trachia Apoda.

Order Batrachia Salientia.

Opisthoglossa.

Fam.—Ranidæ.

Oxyglossus lima. *Tsch.*, Bengal, Siam.
Rana tigrina, *Daud.* Syn. brama, vittigera, rugulosa, Ceylon, S. India, Calcutta.
„ crassa, *Jerdon*, S. India, Ceylon.
„ cutipora, *D. & B.* S. India, Ceylon.
„ vittigera Weig, Syn. assimelis, agricola, altilabris, Ceylon, India, Burmah.
„ kuhlii, *Schl.* Syn. cyanophlyctis liebigii, gracilis, malabarica, flavescens, curtipes, niligirica Himalaya, India, Ceylon.
Hoplobactrachus ceylonicus, *Pet.* Ceylon.
Pyxycephalus breviceps, Syn. fodiens, pluvialis, sphærotheca, strigata, tonnopterna lalandii, *Tsch.*
„ rufescens, *Jerdon*, Malabar, Bengal.
„ breviceps, P. lividus, *Blyth.*

OXYKANUS, or Portikanus, king of

OXYLOPHUS MELANOLEUCOS. The edolio or black and white crested cuckoo has a piping well-known call, and in the evening, sports like a swallow.

OXYMURIATE OF MERCURY. Bichloride of Mercury.

OXYMEL OF COPPER, useful application to chronic sores.

OXYRIA RENIFORMIS, the mountain sorrell is found in the Sutlej valley between Rampur and Sungnam at an elevation of 6,000 to 8,000 feet. Used as a native remedy.—*Cleghorn's Punjab Report, p.* 67.

OXYSTELMA CAUDALA, *Ham., Rheede.* Syn. of Pentatropis microphylla, *W. & A.*

OXYLOBIUM CORDIFOLIUM. An ornamental plant easy of culture, in any common soil: the colours of the genus are yellow, orange and scarlet.—*Riddell.*

OXYSTELMA ESCULENTUM, *Roxb., Br.*

Asclepias rosea,	*Roxb.*	Periploca esculenta,	*Orr.*
Gharat. Gani	of Ravi.	Pala kura,	TEL.
Chiru pala,	TEL.	Pinna pala,	„
Dudi pala, Nela pala,	„	Se'pa chettu,	„

A twining, perennial, deciduous plant, flowers in the rains, large white, with a slight tinge of of rose colour, and streaked with purple veins; texture thin and delicate. Common in India on the banks of rivulets, used by the natives in decoction as a gargle in apthous ulcerations of the mouth, and in sore throat: cattle eat the roots. A slender climber not uncommon in the arid tracts of the central and southern Punjab. The fruit is eaten.—*Roxb.; Fl. Ind., Vol.* ii, *p.* 40; *Riddell*; *Royle*; *O'Shaughnessy, p.*457; *Dr. J. L. Stewart, M.D.*

OXYURA CRYSANTHEMOIDES. Mountain sorrel. Native of Britain, and North America, cultivated in any garden soil.—*Riddell.*

OYOTMANIS, JAV. Liquorice root,

OYSTER.

Huitre,	FR.	Ostriche,	IT.
Austern,	GER.	Ostreæ,	LAT.
Kalu,	GUZ.	Teram,	MALAY.
Sipi,	HIND.	Ostras,	SP.

CLASS V.—CONCHIFERA.

Sect. A.—Asiphonida, without respiratory siphons.

FAMILY I.—OSTREIDÆ.

GENERA.—Ostrea. Oyster. Syn. Amphidonta and pycnodonta. Peloris, *rec.* 60 sp. *fossil*, 200 sp.
Sub-gen.—Gryphæa, *fossil*, 30 sp.
Exogyra (conica), *fossil*, 40 sp.
Anomia, Syn. Fenestrella, Cepa, Aenigma, *rec.* 20 sp. *fossil*, 30 sp.
Sub-gen.—Placunomia, Syn. Pododesmus, *rec.* 12 sp.
Limanomia, *fossil*, 4 sp.
Placuna. Window-shell, *rec.* 4 sp.
Sub-gen.—Carolia, *fossil*, 3 sp. Syn. Hemiplacuna.
Placunopsis, *fossil*, 4 sp.
Pecten. Syn. Argus, Discites, Amusium, *rec.*, 120 sp., *fossil*, 450 sp.
Lima. Syn. Plagiostoma, *rec.*
Sub-gen.—Limatula, *rec.*, 8 sp., also *fossil.*
Limæa, *rec.*, 20 sp., *fossil*, 200 sp.
Spondylus. Thorny-oyster. Syn. Dianchora, Podopsis, Pachytes, *rec.*, 30 sp., *fossil*, 45 sp.
Sub-gen.—Pedum, *recent.*
Plicatula, *rec.*, 6 sp., *fossil*, 40 sp.

FAMILY II.—AVICULIDÆ.

GENERA. Avicula, *rec.* 25 sp., *fossil*, 300 sp.
Meleagrina. Pearl-oyster, *rec.*, 3 varieties.
Sub-gen.—Malleus. Hammer-oyster, *rec.*, 6 sp.
Vulsella. Syn Reniella, *rec.*, 3 sp., *fossil*, 4 sp.
Pteroperna, *fossil*, 3 sp.
? Aucella, *fossil.*
Ambonychia, *fossil*, 12 sp.
? Cardiola, *fossil*, 17 sp.
? Eurydesmia, *rec.*, and *fossil.*
Pterinea, *fossil*, 25 sp.
Monotis, *fossil.*
Halobia. Syn. ? (salinarum), *fossil.*
Posidonomya. Syn. of Posidonia, Poseidon, *fossil*, 60 sp.
? Aviculo-pecten, *fossil.*
Gervillia, *fossil*, 30. sp.
Sub-gen ?—Bakewellia, *fossil*, 5 sp.
Perna. Syn. Melina, Isognomon, Pedalion, *rec.* 16 sp. *fossil*, 30 sp.
Sub-gen.—Crenatula, *rec.*, 5 sp.
Hypotrema, *fossil.*
Inoceramus. Syn. of Catillus, *fossil*, 40 sp.
Pinna, *rec.*, 30 sp., *fossil*, 50 sp.
Sul-genus.—Trichites, *fossil*, 5 sp.

The oyster is a well-known and diffused mollusc or shell-fish. At Kottiar, near Trincomalie, the edible oysters are of prodigious size. The shell of one of these measured a little more than eleven inches in length, by half as many broad, thus unexpectedly attesting the correctness of one of the stories related by the historians of Alexander's expedition, that in India they had found oysters a foot long. Pliny says: "In Indico mari Alexandri rerum auctores pedalia inveniri prodidere," Darwin says, that amongst the fossils of Patagonia, he found "a massive gigantic oyster, sometimes even a foot in diameter." The shells of the Taclabo, or gigantic Philippine oyster, are used as fonts in the churches of that group. The fish of the Kima cockle, frequently weighs thirty or forty pounds. Some of the shells measure three feet across, are several inches thick, take a fine polish, and form valuable articles of the trade to China. It is reported that one was found weighing 278 pounds. The pearl oyster is the Meleagrina margaritifera.—*Faulkner*; *Pliny's Nat. Hist. lib.* xxxii, ch. 31; *Tennant's Sketches of the Nat. Hist. of Ceylon, p.* 371; *Walton's Preliminary Discourse, p.* 70; *Forrest's Voyage to New Guinea, p.* 43; *Rumph. tab.*, 47, *and born* 80; *Da Costa, Conchyll, Vol.* vii, *p.* 4; *Chemnitz, Vols.* vii, ix, *p.* 495; *Gmelin*; *Linn.*; *Syst., p.* 3,300; *Bonan, Vol.* i, *pp.* 83, 84; *Argenvill, p.* 23; *Dampier's Voyage to New Britain, in Harris, Vol.* i, *p.* 124; *quoted in St. John's Indian Archipelago, Vol.* i, *p.*137; *Woodward's Fossil Shells.* See Pearl oyster, Pearls. Mother of pearl, Shell.

OZIUS, a genus of the crustacea.

Ozius tuberculosus, *Edw.* Indian Ocean.
„ truncatus, *Edw.* Australia.
„ guttatus, *Edw.* N. Holland.
„ frontalis, *Edw.* Tranquebar.

P, in the English language, is the twelfth consonant and the sixteenth letter, and is pronounced by closely shutting the lips and opening them suddenly with an explosive emission of breath, as in part, pop, prop. When an initial or a final, as in imp, play, it gives an abruptness of sound to the consonant next it. P, b, f, m, and v, are all labial letters, and are convertible in various tongues. Ph, in representing the sounds of the Indian alphabets, is to be regarded as a simple aspirate as in up-hill, and not as an f, though this also occurs, in the Mahrati, where p'hul, Hindi, a flower becomes fool and pathar a stone, fattar. The Tamil letter p ப represents ph, as well as b and bh. The letter p, therefore, is, in Eastern tongues, transmutable into f and b.

PA, Sans., a prince or chief.

PAAK, Duk., Guz., Hind. Shark's fins.

PAAK-MARAM or Camughu, Tam.' Areca catechu.

PAAK SHENGERF, Duk. Cinnabar.

PAAKU, Tam. Betel-nut, Areca-nut, or Penang-nut.

PAAL, a land measure in the Eastern Archipelago, $\frac{11}{16}$ of a statute mile.

PAAN, Hind. Rhus cotinus.

PAARD, Dut. Horse.

PAARLEN, Dut. Pearls.

PAB, Hind. A ferment for beer, &c.

PABBA, Mahr. Chickrassia tabularis, *Ad.*

PABBASA CHETTU, Tel. Trichaurus ericoides, *W. & A.*, *p.* 143*; W. Ill.*, *p.* 24. Common in the affluents of the Krishna in Masulipatam. The same name is probably applied to Tamarix gallica.

PABE, Hind. Of Chenab, Populus ciliata.

PABEYAN, Malay. Custom House.

PABHA also Pubha, Mahr. Chicrassia tabularis.

PABHI-HILLS, hills to east of Jhelam.

PABKA, Hind. The copper receiver of a still, kept cool in water; in this the spirit accumulates.

PACE, the measure of the Romans.

PACHA, Malaya. Aucklandia costus. *Falconar.*

PACHAK, Hind. Aucklandia costus the 'kut' and 'pachak' of the natives of India; it is often called orris root in North-west India.—*Royle's Manual*, *p.* 618.

PACHAKU, Tel. Cinamomum iners *Rein.*

PACHAN, Hind. Malcolmia strigosa.

PACHETE HILLS. Length 105 miles; breadth 95, lie between 22° 56', 23° 54', 85° 46', 87° 10'. Imperfectly known. North part described as marked by hills from 400 to 600 feet. About 23° 35', 85° 50,' a mountain conjectured at from 2,500 to 3,000 feet. Near the centre of district, some hills about 900 feet. Formation generally primitive, of either granite gneiss, or sienite. Coal is found near Jeria, 23° 44', 86° 25'; and iron-ore exists at a short distance. The chain unites the north extremities of the west and east ghauts, and forms the base of the triangle on which rests the tableland of South India. By the Moguls, the country to the north was called Hindoostan, and that to the south the Deccan.

PACHCHA, Tel. Yellow; green; hence Pachcha adavi molla, Jasminum chrysanthemum, *R.*, *Vol.* i, *p.* 99. J. revolutum, *W. Ic.* 1258, Sans. Hema pushpika, *W.*, 979.

Pachcha botuku, or Bottu kuru chettu, Cordia polygama, *R.*, *Vol.* i, *p.* 594.

Pachcha chamanti, or Chamanti, Chrysanthemum roxburghii, *Desf.* Pyrethrum indicum, *R.*, *Vol.* iii, *p.* 436. Yellow variety.

Pachcha janumu, Crotalaria, *sp.* Sans. Sanapushpa, *W.*, 827.

Pachcha jonna, Tel. Sorghum vulgare, *Pers. var.*

Pachchaku chettu. Cinnamomum iners, *Reinw.*; *W. Ic.*, 122, 130; *Rheede*, *Vol.* i, *p.* 57. This name has been assigned on inspection of the leaves sold in the bazaar under the Telugu name, which have all the appearance of those of the wild cinnamon tree.

Pachcha manu ? Tel. Conocarpus acuminatus, *Roxb.*; *Royle.*

Pachcha mula goranta or mulu goranta. Barleria prionitis, *L.*; *R.*, *Vol.* iii, *p.* 36; *W. Ic.*, 452; *Rheede*, *Vol.* ix, *p.* 41, Sans. Kurantakah, *W.*, *p.* 232.

Pachcha nirulli. Allium tuberosum, *R.*, *Vol.* ii, *p.* 141. Sans. Latarkah, *W.*, 716. Common at Vizagapatam.

Pachchani padmamu. Tel. Nelumbium, *sp*? N. luteum, the only yellow species, is a native of N. America. The name may refer to a poetical or mythological kind.

Pachcha pedda goranta, Lawsonia alba, *Lam.* So called perhaps from its property of staining the skin, and to distinguish it from various species of Barleria.

Pachcha pesulu, or pesulu, Phaseolus mungo, *R.*, *Vol.* iii, *p.* 292, *a.* chlorospermus. Green gram or harya mung.

Pach chari, Dalbergia paniculata, *R.*, *Vol.* iii, *p.* 277; *Cor.*, *p.* 114; *W. & A.*, 819.

Pachcha vadambaram, Justicia dentata, *Klein*, J. ecbolium, *R.*, *p.* 114; *Rheede*, *Vol.* ii, *p.* 20.

Pachcha vasa, Acorus *sp.* ?

Pachcha vatti veru, Andropogon *sp.*

Pachcha yava, or Yava, Hordeum hexastichon, *L.; R.*, *Vol.* i, *p.* 358. Sans. Syn. of Tokma "Unripe barley," *W.*, *p.* 386.

Pachcha yirugudu, Dalbergia, *sp.* A species with orange or greenish flowers, perhaps D. rimosa, *R.*? The Sans. Syn. is Kapila. This word as well as Pachcha both signify yellow or greenish color, *W.*, *p.* 188.

PACHI, or Nachu, Blyxa octandra, *Rich.* Vallisneria oct., *R.*, *Vol.* iii, *p.* 752.

PACHI, Hind. Saccharum officinarum.

PACHI KALU, Tam. Emerald.

PACHIMAN, Tel. Conocarpus acuminatus, *Roxb.*; *Royle*, properly pachha manu.

PACHI MANU, properly pach'cha manu Anogeissus acuminatus, *Wall.*—Conocarpus ac. *R.* ii, 433.—*W.* and *A.* 977.

PACHISI, Hind. An Indian game, played with cowry-shells on a board or cloth. The game is usually played by four persons, each of whom is supplied with four wooden or ivory cones, which are called "got," and are of different colours for distinction. Victory consists in getting these four pieces safely through all the squares of each rectangle into the vacant place in the centre,—the difficulty being, that the adversaries take up in the same way as pieces are taken at backgammon. Moving is regulated by throwing "cowries," whose apertures falling uppermost or not, affect the amount of the throw by certain fixed rules.—*Tr. Hind.*, *Vol.* ii, *p.* 8.

PACHMARHI. A plateau in the Hoshangabad district, round which the Chauradeo Jata Pahar and Dhupgarh hills stand sentinel; it is about 3,500 feet high, or 2,500 feet above the plain in which Sohagpur lies; and its average temperature is probably from seven to ten degrees lower than that of the valley. There are some interesting ancient temples at Pachmarhi. The jungles lying all about the base of the range bear the same name, and are very dense to the East and West of it, though, having a great profusion of fine timber, do not apparently furnish beams of equal scantling with those situated on a lower level. The difficulties to be contended with in clearing a path for the transport of the timbers to the Kanhan are very great: and that stream, even in the monsoon, presents so many rocky barriers, as to render it doubtful whether the beams could even then be navigated in rafts to Kamptee; and the expense of land carriage would put the obtaining of beams from this source out of the question.

PACHUNDA, Mar. Capparis divaricata.

PACHONTI, Hind., Maleal. Isonandra acuminata, *Lindl.*

PACHRANGI, Hind., a kind of sugar cane.

PACHUKU, or pachaka, Sans. He who cooks; from puch, to cook.

PACHUNA.

PACHWAI, an intoxicating liquor forming an item to revenue.

PACHWANSA, Hind., a small wedge in a plough.

PACHYCORIDÆ, a family of insects, of the Order Hemiptera, which may be thus shown,

Order Hemiptera, *Linn.*

Fam. Pachycoridæ, *Dall.*
Cantuo, *Bymot & Serv.*
Callidea, *Lap.*
Fam. Eurygasteridæ, *Dall.*
Trigouosoma, *Lap.*
Fam. Plataspidæ, *Dall.*
Coptosoma, *Lap.*
Fam. Halydidæ, *Dall.*
Halys, *Fabr.*
Fam. Pentetamidæ, *St.*
Pentatoma, *Olive.*
Catácanthus, *Spin.*
Rhaphigaster, *Lap.*
Fam. Edessidæ, *Dall.*
Aspongopus, *Lap.*
Tesseratoma, *Lep. & Serv.*
Cyclopelta, *Am. & Serv.*
Fam. Phyllocephalidæ, *Dall.*
Phyllocephala, *Lap.*
Fam. Mictidæ, *Dall.*
Mictis, *Leach.*
Crinocerus, *Burm.*
Fam. Aniroscelidæ, *Dall.*
Leptoscelis, *Lap.*
Serinetha, *Spin.*
Fam. Alydidæ, *Dall.*
Alydus, *Fabr.*
Fam. Stenocephalidæ, *Dall.*
Leptocorisa, *Latr.*
Fam. Coreidæ, *Steph.*
Rhopalus, *Schill.*
Fam. Lygæidæ, *Westw.*
Lygæus, *Fabr.*
Rhyparochromus, *Curt.*
Fam. Aradidæ. *Wlk.*
Piestosoma, *Lap.*
Fam. Tingidæ, *Wlk.*
Calloniana, *Wlk.*
Fam. Cimicidæ, *Wlk.*
Limex, *Linn.*
Fam. Reduviidæ, *Steph.*
Pirates, *Burm.*
Acanthaspis, *Am. Serv.*
Fam. Hydrometridæ, *Leach.*
Ptilomera, *Am. Serv.*
Fam. Nepidæ, *Leach.*
Belostoma, *Latr.*
Nepa, *Linn.*
Fam. Notonectidæ, *Steph.*
Notonceta, *Linn.*
Corixa, *Geoff.*

PACHYMA COCOS.

Tsein-a-pho-ta-roup, Burm. | Fuhling, Chin.

This fungus, is used in China as a diet article and as a medicine. It occurs in the form of large tubers, varying in size up to a peck measure, has a corrugated, blackish-brown-skin, and consisting internally of a hard starchy substance, of a white colour but sometimes tinged with pale red or brown, especially towards the outside. They are found connected with living fir plantations or on the sites of old ones, and they are exported to India and elsewhere, as China root Fu-shin, is another kind mentioned in books. It occurs in many parts of China, in Japan and in Shantung and in S. Carolina, where it is called Indian Bread. In China it is ground up, mixed with rice flour, and made into small square cakes which are hawked about all but in the early morning. They are regarded as beneficial in dyspeptic complaints.—*Rev. Dr. Frederick Porter Smith*, M.B., *Medical Missionary*; *Chinese Mat. Med.* . See Smilax, Chinensis.

PACHYRHIZUS ANGULATUS, see Dolichos.

PACHYGLOSSÆ, see Chameleons.

PACIFIC OCEAN. The western Pacific is filled with the innumerable islands of the Eastern Archipelago. The Islands of the East Pacific extend from the east of New Guinea and the Philippines, to within two thousand five hundred miles of the western coast of America, and from about the 22° of north to the 47° of south latitude. The languages spoken over this vast area are, probably, nearly as numerous as the islands themselves. The language with variations, is spoken by the same race of men from the Fiji group west to Easter Island eastward, and from the Sandwich island north, to the New Zealand islands south. It has been called the Polynesian. The whole number of Malayan words in the Maori dialect of the Polynesian, as they are exhibited in Williams' Dictionary, only amount to 85. Mr. Crawfurd in his Malay Gram. and Dic., Vol. i, p. 7, considers that a certain connexion of more or less extent exists between most of the languages which prevail from Madagascar to Easter Islands in the Pacific, and from Formosa, on the coast of China to New Zealand. Thus, over 200 degrees of longitude and seventy of latitude, or over a fifth part of the earth's surface. In this are innumerable islands of the Indian Archipelago, from Sumatra to New Guinea, the great group of the Philippines, the Islands of the North and South Pacific, and Madagascar. It is inhabited by many different and distinct races of men, as the Malayan, the brown Polynesian, the insular negro of several varieties, and the African of Madagascar. Of these, the state of civilization is so various that some are abject savages, while others have made a respectable progress in the useful arts, and have even attained some knowledge of letters. He is of opinion that the leading race in the Archipelago is one and the same, but the languages are many, with more or less intermixture of some principal ones throughout. In Borneo, he says, there are at least 40 languages; in Celebes and its islands at least 10; in Flores 6; in Sumbawa 3; in Sumatra and its islands not fewer than 10; and even in civilized Java with its islands, 3. It is the same in the Philippine islands, and in Lucon alone, there are three. He says that in the Eastern Archipelago, no languages exist derived from a common stock, or standing to each other in the relation of sisterhood, as Italian, Spanish and French, do to each other; or as Gaelic does to Irish, or Armorican to Welsh, or Scotch to English. The only dialects that exist are of the Malay and Javanese languages, but they consist of little more than differences in pronunciation, or the more or less frequent use of a few words. In the Polynesian Islands alone, real dialects of a common tongue do exist, but there the number of words common to such dialects and to the languages of the Archipelago, is so trifling that it refutes at once the notion of a common origin. In Malay, the most familiar words for the head, the shoulder, the face, a limb, a hair or pile, brother, house, elephant, the sun, the day, to speak, and to talk, are all Sanskrit. In Javanese, Sanskrit furnishes words for the head, the shoulders, the throat, the hand, the face, father, brother, son, daughter, woman, house, buffalo, elephant, with synonymes for the hog and dog, the sun, the moon, the sea, and a mountain. In the language of Bali, the name for the sun in most familiar use is Sanskrit, and a word of the same language is the only one in use for the numeral ten. It is on the same principle that Mr. Crawfurd accounts for the existence of a similar class of Malayan words in the Tagala of the Philippine although the whole number of Malayan words does not exceed one-fiftieth part of the language. Head, brain, hand, finger, elbow, hair, feather, child, sea, moon, rain, to speak, to die, to give, to love, are examples. Some personal pronouns are found in the Polynesian dialects, where, in a vocabulary of five thousand words, a hundred Malayan terms do not exist. A sentence of Malay can be constructed without the assistance of Javanese words, or of Javanese without the help of Malay words. These two languages can be written or spoken without the least difficulty, without a word of Sanskrit or Arabic. The Malay and Javanese, although a large proportion of their words be in common, are distinct languages, and their Sanskrit and Arabic elements are extrinsic and unessential. When this test is applied to the Polynesian languages we find an opposite result. A sentence in the Maori and Tahitan can be written in words common to both, and without the help of one word of the Malayan which they contain, just as a sentence of Welsh or Irish can be constructed without the help of Latin, although of this language they contain, at least, as large a proportion of words as the Maori or Tahitan do of Malayan. Mr. Crawfurd is of opinion that the Malay and Javanese languages furnish the stock of the widespread words which are common to so many tongues in the Archipelago and which have been chiefly derived from the languages of the two most civilized and adventurous nations of the Archipelago—the Malays and Javanese, and he uses the word Malayan for whatever is common to these two people. The history of the nations along the southern borders of Asia, has in every era exercised some influence on the Archipelago, and the importance of the international influences of the Archipelago itself, may be supposed from the circumstance that while some writers have derived Malayan civilization from an original source in Menangkabau, others have referred it to Java, and others to Celebes, whilst two of the ablest, Mr. Marsden and Mr. Crawfurd have, as will have been seen above, busied themselves in endeavouring to exhume a great nation whose civilization preceded the Javanese, the Malayan, and the Bugis, and impressed itself more or less not only on the Archipelago but over all Polynesia. In the Pacific ocean, a westerly current fills the whole breadth of the tropical zone, from the coast of America to that of Australia and the Indian Archipelago. The cold Peruvian stream flows with great rapidity along the shores of Chili and Peru, and takes a westerly direction on reaching the neighbourhood of the line. It has everywhere a remarkably low temperature comparative to the latitude. After the current has assumed a westerly direction, its mean temperature does not exceed 20·5° R., but as it advances towards the west, its temperature gradually rises to 27° or 28° R. On the western banks of the Pacific, the equatorial stream divides into several branches. Part of its waters flow to the south, a greater quantity penetrates through the channels of the south Asiatic Archipelago, into the Indian Ocean, the remainder turns to the North-east, on the confines of the Chinese sea, leaves the eastern coast of the Japanese Islands and then spreads its warm waters under the influence of north-westerly winds over the northern part of the Pacific. Then the Japanese stream plays here the same part as the Gulf stream in the Atlantic and exerts a similar, though less mighty influence, over the climate of the west coast of America as it is neither so large nor so warm and having to traverse a wider ocean, in higher latitudes, naturally loses more of its heat during the passage. No trace of a written character has been found in the wide extent of the islands of the Pacific. Most of them are, probably, too small to have furnished a population, at once sufficiently numerous and concentrated, to generate the amount of civilization requisite for the purpose. In the great islands of New Zealand, with their comparatively energetic race of inhabitants, the discovery of letters would, most probably, have been made, as among some rude nations of Sumatra, had the civilization necessary not been precluded by the absence, as in the smaller islands, of the larger animals for labour, and of all the cereal grasses for food. Otaria stelleri, the sea lion of Steller, is found on all the coasts and islands of the Pacific, from 51° N. lat, to the extreme south, but chiefly in Prebelow Island St. Georges. It is hunted by the Aleuth, who use its tawny bristled hide for a boat covering and articles of clothing. Vasu, in the Fiji islands, although translated "nephew", does not imply a mere relationship, but a peculiar right, descending to chiefs from their mother, to demand from other districts, often (as in this case) of superior political power, property of any kind as presents. In this sense it does not, therefore, admit of a simple translation.—*Crawfurd's Malay Gram. and Dic., Vol.* i, *pp.* 1-141; *Mr. Logan in Journal Indian Archipelago from* 1848 *to* 1858, *p.* 774; *Hartwig*; *Captain Elphinstone Erskine's Islands of the Western Pacific, p.* 448. See Archipelago, India.

PACKHAN BED, HIND., of Kangra, A root obtained from Thibet, believed to be an antidote for opium, and used as such in cases of poisoning by that drug, either in powder, in doses of 15 grains, or in infusion.—*Cat. Ex.*

PACKING MATERIALS. The leaves of the Pandanus, of the Bauhinia bhojputra, and B. racemosa are so used, also those of the Pandanus.

PA-CO-HU-HUEI-HIAM, CHIN. Star Anise, Illicium anisatum,

PACORUS. See Greeks of Asia.

PACOURYNVA. See Clusiaceæ.

PADA, BURM. Mercury.

PADÆI, an ancient pastoral people tributary to Darius supposed to have been somewhere in India, and on the banks of the Ganges, who according to Herodotus, (Thalia iii, c. 99,) eat their aged relatives, see Batta.

PADAH, see Varaha mihira.

PA-DAING, BURM. Herbertianum.

PA-DAING KYET THWON, BURM. Scilla indica, *Roxb.*

PA-DAING-PHYU, BURM. Datura alba, *Rumph.*

PADAL, Pathadi, Pardhan or Desai is a Gond tribe who are the bards or religious councellors of the upper classes of Gonds. From these has sprung a half caste tribe, who speak Maratha, and occupy themselves in spinning thread and playing on wind instruments.

PADAL or Sammu, HIND., Bignonia suaveolens.

PADARA, HIND., of Ravi. Coriaria nepalensis.

PADALHI, an umbellifer, the root of which is used.

PADALLI, HIND. Heracleum, *sp.*

PADALON, a country lower than the earth.

PADAM is the term by which the races designate themselves, whom the Assamese name Bor and Bor Abor. The Bor occupy the mountains to the north of the Brahmaputra river, in about lat. 27° 12′ N., and long. 94 to 97° E., on the west or right bank of the Dihong river, on the southern face of the Himalayas on the borders of Thibet and China. They dwell to the south of the Bor Abor and their chief town is Membu.

Higher up are the Bor Abor, whose capital is Semong, of about 300 houses, they are polyandrous, it being not uncommon for an Abor woman to have two husbands, brothers, living under one roof. They do not eat beef, but hunt, and eat the flesh of, the buffalo. They are more powerful than the Bor. Their bachelors live in the Morang, a large building in the centre of the village for the reception of strangers, and in this custom they resemble some of the Archipelago races. They sacrifice to deities of the woods and hills. Numbers of these people are also found on the shores of the two great northern branches of the Brahmaputra river. When first known they made periodical descents on the plains. Bor means tribute, hence Abor free from tribute, and the Padam are so arranged, into the payers of and non-payers of tribute. They carry bows and arrows some of which are poisoned. Their dress is made of the bark of the Udhal tree. Bor is also said to mean "great," and we find the term of Bor Khampti employed. The Bor Abor is the more distant, the more independent and stronger portion. The Bor Abor lie on the higher hills and the similarity of their language to the Abor is not known. Considerable numbers of these people are also found on the shores of the two great northern branches of the Brahmaputra river. The Bor Abor race dwell on the north of the Abor, occupying the mountains on the north of the Brahmaputra river in lat. 28° N. and long. 95° E. to the west of the Dihong river. The British government make money-payments to the Bor Abor, Dophla, Meri and Aka, to abstain from levying black mail in Assam.—*Indian Annals; Latham's Descriptive Ethnology*; *Aitchison*. See Abor, India.

PADAM, Hind., also Padma, Sans. Nelumbium speciosum, *Willd.*

PADAM or Pajja, Hind. Prunus padus or Cerasus puddum. This cherry tree grows to no very great height; wood reddish, soft, light, subject to worms, splits if exposed to the sun, coarse-grained; used by zemindars for ordinary house building and for agricultural implements; bears a bitter fruit.—*Powell's Hand-book, Vol.* i, *p.* 541.

PADAN ARAM, see Babel.

PADANG ISLANDS, seven in number, lie on the west coast of Sumatra.

PADANG, Malay. A plant, probably the Pandanus odoratissimus, used in the Archipelago for making mats.

PADAR—Anemone obtusiloba.

PADARI, Tel. Bignonia suaveolens, *Roxb.*

PADA-VALLI also Pada-kelengoo, Maleal. Clypea burmanni.

PADAVALUM, Maleal. Tricosanthes cucumerina, *Linn.*

PADA-VARA, Maleal. Morinda umbellata.

PADAVETTU, see Hindoo.

PAD BAHERA, Hind. A mushroom of the Panjab, is said to produce insensibility.—*Powell's Hand-book, Vol.* i, *p.* 381.

PAD-DAING-PHU, Burm. Datura fastuosa, *Mill., Roxb.*

PADDAM, Hind. Cerasus puddum, Prunus puddum, bird cherry.

PAD-DAN, Burm. In Amherst, a timber used for making drums and musical instruments. It is a kind of red sanders wood.—*Cat. Ex.* 1851.

PADDA-NELLA-KURA, Tel. Premna latifolia.

PADDA PATSEROO, Tel. Mimosa procera.

PADDI, Malay. Rice in husk.

PADDI, Gond., Mhar. Sus indicus, *Schinz.*

PADDICARA, Tel. Alum.

PADDICARUM, Tam. Alum.

PADDLING CRABS, see Crabs.

PADDMA, see Krishna, Namam, Serpent.

PADDU-KAI, Tam., Bed.

PADDY, Anglo-Malay.

Bhatt,	Guz., Hind.	Oryza sativa,	Lat.
Padi,	Malay.	Nellu,	Tam.
Unhusked rice,	Eng.	Vadlu,	Tel.

PADDY BIRDS, an egret; so named from padi, Malay rice, because they often seek rice fields. See Birds, Cranes.

PADDY-FIELD DEER of Ceylon is the Axis oryzus of Kelaart.

PADE NARRAYAN, Tam. Poinciana elata.

PADEWAHKAN. The trade with New Guinea and the Eastern Islands, (commonly called the Bugis trade) and the Trepang fishery on the North Coast of Australia, are carried on chiefly in vessels called "Padewahkan." These leave Macassar and the other parts of Celebes, for the Eastern Islands during the westerly monsoon, returning with the south-east trade wind.

PADEEN, a race dwelling near the Indus, whom Herodotus describes as hunters, and eating raw flesh, it is most probable he had heard of the class termed Pardi, the hunters and fowlers to this day of India, but whose abode, like their occupation, is unrestricted.—*Tod's Travels, p.* 147.

PADI, Tam., Karn. In Madras a measure of capacity,=$\frac{1}{8}$th of a marcal, containing 93·75 cubic inches or about 3 lb. 6 oz. of water.

PADIVIL KOLOM, a round tank of Ceylon of great dimensions.

PADIL, also Purrul, Mar. Stereospermu suaveolens.

PADKA, the engraving of the soles of tw feet, on the top of a tombstone, to mark th tomb or samdi of a Gosain. It is also calle Charnpad.

PAD KI TOOR, Hind. Cajanus indicus, *Spreng.*

PADLU, Hind. Marlia begonifolia.

PADMA. The zostera, a sea weed of the eastern seas: species of Padma and Sargassum are met with in the eastern seas.—*Collingwood.*

PADMA-WAN, the sacred lily lake of the hindoos.

PADMINI, daughter of Hamir Sank, the Chohon rajah of Ceylon, in the 13th century. She was very beautiful, and was married to Bhim-si, uncle of the young prince Lakum-si of Chitor, and protector of the kingdom during his minority. In 1275 Bhim-si was lured into the camp of Alla-ud-din, who had conducted a long unsuccessful siege and there made prisoner, but was promised release if he would deliver up Padmini. Padmini, after consultation, feigned compliance, and was sent out with seven hundred covered litters, each of which contained an armed warrior. At the last interview allowed to the husband and wife, Bhim-si escaped under the cover of the warriors and Alla-ud-din retired. He returned however in A.D. 1303, and the Mewar people despairing of success, resolved on the rite of Johar. In this all their wives to the number of several thousands were led to subterranean fires, Padmini closing the train. Her name is hallowed in Rajput song, her beauty, accomplishments, and destruction.

PADMO-GOOLANCHA, Beng. Cocculus tomentosus.

PADOMAN, Malay. A Compass: the word is also written Paduman, Pandoman, Panduman.

PADOUK, Burm. Pterocarpus dalbergioides, also Pterocarpus indicus. Padouk affords a fine timber for many purposes, and from its large size and even texture has been brought into general notice. Several experiments have been made in the ordnance department of Madras to ascertain its fitness for gun carriages. As a substitute for teak, should it be found to answer for the above stated and other purposes, it would be valuable, and from its large size, its even grain, rendering it susceptible of a high polish, and beauty of colour and pattern, it appears to be well suited to the manufacture of articles of furniture.

PADOUK TOUNG KHA GAI, Burm. Pterocarpus.

PADRI, an Indian term given to the religious teachers, of all faiths, to the protestant and romish clergymen, and in Sumatra to the mahomedan teachers of Achin. These last are chiefly Malays of the Menangkabao States, of the interior of Sumatra, who for many years opposed the advance of the Dutch, but are now chiefly congregated in Achin, as the last hope of their race.

PADRI, Tam., Malayal., the Bignonia chelonoides tree, which is about twenty feet long and eight inches in diameter; it produces a small white flower in shape like the fusca, or rather the snow-drop, which has a most powerful fragrance, they are prescribed in infusion as a cooling drink in fevers. The leaves, if steeped in a portion of lime-juice, make a most grateful and cooling drink. This is one of the sacred trees, and considered the property of the pagoda; and the flowers are held sacred for the purpose of decorating the dancing-girls' heads on days of ceremony.—*Edye, M. & C.* See Padari, also Padri maram.

PADRIAR, Hind. Bauhinia variegata.

PADRI MARUM, Tam. Stereospermum suaveolens, also Maleal. Bignonia chelonoides.

PADRIUN, Hind. Elæodendron Roxburghi.

PADSHAH, Hind., Pers. A king, equivalent to the Arabic sultan; Padshahi, royal, Padshah-Zada a prince.

PADSHAHPUR, a town of the Delhi district in the North-west Provinces.

PADSHAH SALEP, a commercial term for a drug lately imported from Bombay into England. Its source is unknown and supposed by Dr. Birdwood to be the root Asparagus adscendens.

PADUA GURUWA. A small community of untraced origin in the mountains of Udakind, in western Uvah, in Ceylon, who profess mahomedanism, but conform to Kandyan customs, *Ten.*

PADUANG, Malay, trading vessels in the Archipelago.

PADUL, Mar. Stereospermum chelonoides, Bignonia, suaveolens, *Roxb.*

PADUNA, Hind. Tulipa stellata.

PADVALAM, Maleal. Trichosanthes cucumerina.

PAD-WASSAL, Hind. Allium cepa.

PAD-ZAHR, Pers. Bezoar stone.

PÆ, Burm. Corypha umbraculifera, also C. taliera. ?

PÆDERIA FÆTIDA, *Linn.*, *W. & A. Roxb.*

Psychotria, volubilis, *Roxb.*
Apocynum fœtidum, Burm.

Gandho-bhadhuli,	Beng.	Savirela chettu	Tel.
Gandhali,	Hind.		

Grows in Bengal and Peninsular India. It has a fœtid smell and the roots are used as an emetic.

PAE-JAMA, Hind. Trowsers.

PÆONIA ARBOREA. These beautiful flowering plants, the herbaceous species of which are so generally cultivated in England, and thrive best in the conservatories, are not known in Western India. Of the other species, P. brownii and P. californica are remarkable for being the only species inhabiting America; they are natives of California and of the country to the northward, and have little beauty: the first exists in English gardens, but is extremely rare. The rest of the genus consists entirely of European and Asiatic plants, which, according to De Candolle, form fifteen species; but there can be no doubt that the greater part of these supposed species are mere varieties, chiefly of P. officinalis, P. albiflora, P. tenuifolia, and P. peregrina. All these plants are liable to produce flowers, which, by the conversion of their numerous stamens into petals, are generally extremely beautiful: they have, however, no smell, or not an agreeable one. Being quite hardy, growing readily in any kind of soil, and easily multiplied, either by seeds or by division of the roots, they are generally favourites in gardens. All the species have an acrid principle concentrated in their roots and seeds, which are accordingly emetic and cathartic in moderate doses. They were formerly in great repute as a medicine; and Dioscorides, whose *Παιονια* was probably both P. officinalis and P. peregrina, gives no fewer than sixteen names, by which it was known.—*Riddell*; *Eng. Cyc.*

PÆONIA CORALLINA. Ud-Salap, Hind. The Pœonia of Dioscorides. Its root occurs as irregular, flattened, woody masses, with a brownish epidermis and fibrous with numerous fisures radiating from the centre. It is used by natives for weakness, palpitation and asthma, and to fasten round the neck of children to prevent asthma. Root believed to be antispasmodic and to stimulate the secretion of milk and menses. It is said to become more efficacious the longer it is kept.—*Powell's Hand-book, Vol.* i, *p.* 325.

PÆONIA MOUTAN is a shrub, of which several varieties, with beautiful whitish flowers stained with pink, are now in British gardens. Of these the most showy is that called P. papaveracea, which has a broad crimson stain at the base of each petal. If grown on the north side of a wall, or in a situation where it is but little exposed to the sun in the early part of the day, this species will bear the open air of England without protection: but it sprouts so early in the spring, if exposed to the sun, that it is very liable to be cut off by the late frosts of England. It is a native of China and is abundant. On the road, says Fortune I met a number of coolies, each carrying two baskets filled with moutans (tree-pæonies) in full flower, which were being taken to the markets for sale. When I reached the gardens I found many of the plants in full bloom, and certainly extremely handsome. The purple and lilac-coloured kinds were particularly striking. One, a very dwarf kind, and apparently a distinct species, had finely cut leaves, and flowers of a dark velvety purple, like the Tuscany rose of our gardens. This the Chinese call the "black" moutan, and I believe it is the same which Dr. Lindley has described in the Journal of the Horticultural Society, and named Pæonia atro-sanguinea. Another kind, called the "tse," or purple, has double flowers of a large size; this is probably the variety reported to have 1,000 petals, and which is said to exist only in the garden of the emperor. The third is called the "lan," or blue; this is a lilac variety, with flowers of the colour of Wistaria sinensis. There are others of various shades of purple, perfectly distinct from those, and equally fine. The double whites are also numerous and handsome. The largest of these Dr. Lindley has named P. globosa, but there are four or five others nearly as large and double. Some of them have a slight lilac tinge, which gives a richness to the colour. The most expensive is one called "wang," or yellow, by the Chinese: it is a straw-coloured variety, rather pretty, but not so handsome as some of the others.—*Fortunes' Wanderings, p.* 321.

PÆPOL, Singh. Carica papaya, *Linn.*

PAEROO, Maleal. Dolichos sinensis.

PAET THAN, Spathodea stipulata, *Wall.*

PAEUR-KU-SIMO, a river that enters the Baikal lake from south-east.

PAFLU, Hind. Marsilea quadrifolia.

PAGAH, Hind., Mahr. State soldiers, household troops.

PAGADAPU CHETTU or Errapurugudu, Tel.

Melanthesa rhamnoides, *Bl.—W. Ic.*
Phyllanthus vitis idœa, *R.* iii, 665.
P. reticulatus, *Poir.—Rheede,* v, 44.

The same name is also given to some other sp. with red berries as P. turbinatus, &c., and likewise to Sethia Indica, the Telugu name of which Roxb. assigns to M. turbinata.

PAGADA TIGE, Tel. Literally "Coral-twiner," syn. Vidruma, *W.*

PAGAN, a Burmese town. Captain Yule found the details of the architecture at Pagan in Burmah of hindoo origin; and it is known that Anoratha, or Anoratha Saumen, when he established buddhism in Pagan, built all its pagodas and temples after the exact models of those then existing in Thatung, or Satung, of the same size, and in the same order. Such is the testimony of Talaing tradition, and he believes of Tailing history. The name of this town is also written Paghan and it was a royal city about A.D. 700.

The Gauda-Palen is a buddhist temple at Paghan, signifies the throne of Gaudama. Height 180 feet. It is cruciform in plan. It is very conspicuous in approaching Paghan from the southward. Gauda-palen has numerous pinnacles and a tall central spire, it is seen glistening with its white stucco like plaster, far down the Irrawaddy river, rising like a dim vision of Milan cathedral. It is compact in structure and elevated in proportion to its bulk. It has a massive basement with porches and rising above in a pyramidal gradation of terraces crowned by a spire "htee." From the top of the terrace, just below the spire, is a fine prospect of the vast field of ruined temples stretching north-east and south-west.

The "Ananda," temple, another buddhist temple of Paghan, is supposed to have been built about the time of the Norman conquest. Ananda means the "Infinite" and hence it goes by the name of the infinite temple. The plan of the building is a square of nearly two hundred feet, having on each side a projecting vestibule which converts it into a perfect Greek cross. These vestibules are lower in perpendicular height than the body of the temple, which rises to 35 feet in two piers of windows. Above this, rise six successive terraces, diminishing as they ascend, connected by carved converging roofs, the last terrace just affording space enough for the spire which crowns the edifice. The gilded htee caps the whole at a height of 168 feet above the ground. The outer corridor is roofed with a continuous flying buttress, abutting on to the massive outer walls.

"Thaipinyu," or omniscient, is the second great temple of Paghan and is stated to have been built about A.D. 1100. It forms a massy square edifice of 200 feet on each side, rising to a height of 210 feet from the ground. The characteristic of the "Thaipinyu" is the elongation of the building, before any considerable diminution of spread takes place, and also the position of the principal shrine which stands high above the ground. There is first a spacious two storied basement similar to that of the Ananda, then two receding terraces, but here the usual gradation is interrupted. The third terrace instead of rising by terraces, like the others, projects at one leap aloft to a height of some fifty feet in a truly massive and stupendous cubical donjon elongated again, at the top by a renewal of the pyramidal gradation of terraces and the usual culminating spire. See India, Karen, Kocch, Yau.

PAGAN TRIBE, see Joboka, Malay.

PAGARA MALI, Tam. Nyctanthes arbortristis.

PA GAU GYEE, also Paga-theing, Burm. Alpinia nutans, *Roxb.*

PAGGER, Jav. A bamboo enclosure.

PAGGI, Hind., from Pag, a foot, a village servant in Guzerat who traces thieves by their foot prints. See India, Kattyawar.

PAGHELAMALLI, or Pagara mali, Tam.

Keysur,	Duk.	Nyctanthes arbor tristis,	Lat.
Poghadamullay,	Tel.		
Singhur,	Hind.	Sephalica,	Sans.
Sorrowful nyctanthes,			

This plant has a peculiarly delicate and delightfully smelling flower; its corol is white and the tube of a dark orange colour for which last it is much prized by the dyers.—*Ainslie's Mat. Med.*, *p.* 159.

PAGHMAR, north of Kabul.

PAGO, see Jakun.

PAGODA, a hindoo or buddhist temple: also a coin in India, of value Rs. 3½. Bartolomeo says that the name is obtained from Bhagavada, the name of a goddess, whose figure was on the coin. An attempt has also been made to derive the word from mahomedan authority, imagining that anti-idolatrous people to have called the temples of the hindoos by the debasing but accurate, appellation of but-gada: from but, an idol, and gada, a temple. Bartolomeo says, the coin being impressed with the goddess Bhagavada, is therefore, so called, pagoda being a corruption or abbreviation. De la Loubere, in his account of Siam, who that this is a corruption of two Persian words, Boot Khana signifying an idol temple. It may also have been applied by the Portuguese in the S. of India from Deh and gopa. Some of the hindoo and buddhist temples are magnificent. The whole exterior of many of the largest of the Burmese pagodas, is gilt. In the capital, some of the most beautiful and elaborate khyoungs or priests' houses are covered with the richest and most ornate gilding from top to bottom; and in some cases the cost of gilding alone, for a single building, has exceeded £10,000 sterling. On the occasion of festivals, also, it is a prevailing custom among the Burmans to attach to their pagodas leaves of gold, even when the building generally is not gilt, which is the origin of the little patches of gilding seen on the temples near every village of any size or wealth. The most costly pagoda in British India is that built by Bimul Sah. It is on a spur of the Aravalli. The site cost sixty lakhs to level, and took fourteen years in building at a cost of eighteen crores of rupees, perhaps in all twenty millions sterling. The more celebrated of those of Peninsular India, are at Achaveram, Chellambrum, Conjeveram, Jagarnath, Seringam, Tripati, Trivadi, Verdachellum, and Wariore.—*Moor*, *p.* 346; *Oldham in Yule's Embassy*, *p.* 344; *Howell*; *Thurlow.* See Dagoba, Bhagavada, Dehgopa, Serpent, Shooway Dagon.

PAGODA, a Madras gold coin equal to three rupees and a half, now uncurrent, but was about 52½ grains weight. 80 pagodas' weight is, a "seer" (cutcha) of 24 rupees' weight. This corresponded with the average weight of the old native rupee of 175 grains; but since the introduction of the "Company's rupee" of 180 grains, the "pagoda weight" is 54 grains generally.

PAGODA THRUSH, Acridotheres pagodarum, is probably the bird referred to in Lalla Rookh :—

> "Mecca's blue sacred pigeon, and the thrush
> Of Hindustan, whose holy warblings gush
> At evening from the tall pagoda's top."

PAGODALITE, or Agalmatalite.

PAGO MALAY, see Johore.

PAGRANA, a group of fishes of the family Sparidæ.

PAGRI or Pag, HIND. A head-dress, a turban, closely folded.

PAGRUS, a genus of fishes belonging to the family Sparidæ, with four or six strong concave teeth in front, supported by similar conical teeth behind them, with two rows of rounded molar teeth on each side of both jaws.—*Eng. Cyc.*

PAGUMA LANIGER, *Gray*. The Martes laniger, *Hodgs.*, an animal of Tibet and the snowy Himalaya.

PAGUMA TRIVIRGATA, *Gray*.

Viverra trivirgata, *Reinward, Mus. Leyd.*
Paradoxurus trivirgatus, *Gray*.

In Burmah, this animal is very common, and occasionally enters houses in the towns in pursuit of rats. When young it is easily domesticated, and valuable as a rat-catcher. It does not appear to have been seen in Arracan.—*Mason.*

PAGUNAI, HIND. Rubus lasiocarpus.

PAGURIANS, or Hermit crabs Paguridæ.

PAGURIDÆ, or Pagurians, a tribe of the apterurous section of the Anomurous family of Crustacea, composed of a considerable number of species, the greater part of which are remarkable for the more or less complete softness of the abdomen, the want of symmetry in the appendages of this part of the body, the shortness of the two posterior pairs of feet, and many other characters. Modern writers recognise several genera of this family. The Pagurus of Aristotle is not a Hermit-crab ; but he describes three kinds of Hermit-crabs under the name Καρκίνιον. They are termed Καρκίνας by Oppian, Ælian, and Galen. A great resemblance exists among all the Paguri, properly so called, not only in the details of their organisation, but in their habits. The cephalo-thoracic portion of their body is shorter than the abdominal portion. Hermit crabs or paguri, have stout claws and have a shield in front, but have a long soft and utterly defenceless tail. They occupy empty Natica and Neritina shells.

Pagurus cristatus, *Edws.* New Zealand.
„ deformis, *Edws.* Mauritius, Seychelles.
„ punctulatus, *Edws.* Indian Ocean.
„ affinis, *Edws.* Ceylon.
„ sanguinolentus, Q. & G.
„ setifer, *Edws.* New Holland.
„ clibanarius, *Edws.* Asiatic Seas.
„ crassimanus, *Edws.* South Seas.
„ tibicen, *Edws.* South Seas.
Pagurus elegans, Q. and G. New Ireland.
„ aniculus, *Edws.* Mauritius.
„ gonagrus, *Edws.* China.
„ pilosus, *Edws.* New Zealand.
„ frontalis, Q. and G. New Holland.
„ gamianus, *Edws.* Cape of Good Hope.
„ miles, *Edws.* Coasts of India.
„ custos, *Edws.* „ „
„ diaphanus, *Edws.* Oceanica.
„ hungarus, *Fabr.* India, Naples.

Cenobita of Latreille is a genus of the Paguridæ and in the opinion of M. Milne-Edwards, establishes the passage between the Paguri, properly so called, and Birgus. Cenobita rugosa, in length about 3 inches, is found in the Indian Ocean. There are three other species.—*Eng. Cyc.*; *Milne Edwards.*

PAGU TULLU, in Chittagong, Bambusa baccifera, also Beesha rheedii, *Kunth.*

PAHALGAM, see Kashmir.

PAHAL or Chaupan Pal, of Kashmir, are shepherds who tend the flocks of other people, there are, besides, several wandering tribes who seem distinct from the settled population.

PAHANG, on the east coast of the Malay peninsula, in lat. 3° 31½′ N., was formerly a place of great trade : the river is small. The southern part of Pahang is inhabited by the same tribe of Binua who are found in Johore. Some of them indeed have habitations which can scarcely be called houses. In the forests of Pahang are numerous tribes of the Jakun, who are as white as Europeans : they are small, but very good looking ; and the Malays form a party and beat the forest in order to catch these poor creatures. They take their captives to Pahang or to Siam, where, on account of their whiteness and comeliness, they sell them at a high price. The marriages of the Jakun are ordinarily celebrated about the months of July and August when fruits are plentiful. The bridegroom frequents for some time the house of his intended, and when he has obtained her consent, he makes a formal demand to the father. A day is then appointed ; and an entertainment is prepared, more or less solemn, according to the means of the two contracting parties, and their rank in the tribe. When the day of the marriage is arrived, the bridegroom repairs to the house of the bride's father, where the whole tribe is assembled. The dowry given by the man to his intended is delivered, and must consist at least of a silver or copper ring, and a few cubits of cloth : if the man is not poor, a pair of bracelets, some other ornaments, and several articles, as of furniture for the house of the new family, are added. Sometimes the woman presents also some gifts to her intended. Then the bride is delivered by her father to the bridegroom, and the solemnity of the wedding begins. Others state that amongst some tribes there is dance, in the midst of which the bride elect darts off into the forest, followed by the bridegroom. A chase ensues, during which should the youth fall down, or return unsuccessful, he is met with the jeers and merriments of the whole party, and the match is declared off. This story was related a little differently by a European who inhabited Pahang many years, who said that during the banquet a large fire is kindled, all the congregation standing as witnesses: the bride runs round the fire followed by her groom. See India, Jakun, Kedah or Quedah.

PAHAR, HIND. A hill.

PAHARIAH, of the Sonthal pergunnah, are arranged into two tribes, those who live in the Rajmahal hills, and the Naiga Pahariah on the plains to the west. The former live by grain crops reared on the slopes of the hills, and by bartering in the plains the hill bamboos, and the grass and timber which grow in luxuriant profusion in every direction. The Pahariah are given to great lying and drunkenness. The Bhagulpoor Hill Rangers were principally composed of this people. But since Mr. Cleveland's settlement in the beginning of this century many of them receive pensions. The other body, the Naiga Pahariah, have more than all the vices of their tribe on the hills, but are worse off, having no right of forest or well wooded hills and readily take to brigandage. Both the Pahariya tribes are low in the social scale. The Sonthal and Male or Rajmahali are regarded by Mr. Logan as a displaced portion of the prior inhabitants of the country. The Male and Kol tribes are supposed by him to resemble the coarser Binua tribes of the Malay peninsula, more than the Burmans, the Malays, or other Indonesian tribes. But the same type as the Male and Kol are found amongst Malays and Burmans, although generally softened, and the short and turned up nose caused by it are Binua, as also is the small stature and the vertical, turned up head. The Male or Rajmahali are described as mostly very low in stature, but stout and well proportioned. There are many less than 4 feet 10 inches and perhaps more under 5 feet 3, than above that standard, but 5 feet 3 inches is about the average height of the men. Their nose is flat and their lips thick, though less so than the Kafirs of Africa, but their lips are thicker than those of the population of the neighbouring plains. Buchanan Hamilton says that the features and complexion resemble those of all the rude tribes whom he had seen on the hills from the Ganges to Malabar, that is on the Vindhya mountains. Their noses are seldom arched and are rather thick at the points, owing to their nostrils being circular. Bishop Heber says that the Male nose is rather turned up than flattish, but they are not so diminutive as the noses of the Tartar nations, nor flattened like those of the African Negro. Their faces are oval and not shaped like a lozenge, as those of the Chinese are. Their lips are full, but not at all like those of the Negro; on the contrary their mouths in general are very well formed. Their eyes, instead of being hid in fat and placed obliquely like those of the Chinese, are exactly like those of the Europeans. Their women, though hard worked, are far from having harsh features. Bishop Heber says that the Malay or Chinese character of their features is lost, in a great degree, on close inspection. The Male head like that of the Kol has more of an elongated oval than that of a lozenge shape. The forehead is not narrow and the lateral projection of the zygomata is comparatively small. Nothing is said respecting the shape of the back of the head, a very important point in comparing Turanian tribes; the Male, or Hill man is described by Captain Sherwell as much shorter than the Sonthal and of a much slighter make. He is beardless or nearly so, is not of such a cheerful disposition, nor is he so industrious.—*Cal. Review, Dec.* 1860; *Mr. Logan in Jl. In. Arch.* See India, Kol.

PAHARI ARAND, HIND. Jatropha curcas, purging nut.

PAHARI GAJAR, HIND. Eryngium planum.

PAHARI KIKAR, HIND. Acacia farnesiana.

PAHARI-PIPAL, HIND. Thespesia populnea, *Lam.*, also Populus ciliata.

PAHARI PODINA, HIND. Mentha viridis, *Linn.*

PAHAURA, or P'haura, HIND. A hoe.

PAHKALI. According to the Akbarnamah this district was 30 kos long and 25 broad. During Akbar's reign it was ruled over by sultan Husain Khan, a descendant of the Karlugh which tribe was left in Pahkali by Timur on his return from India to Turan. The district after a short resistance was annexed by Akbar in the 35th year of his reign.—*Cal. Rev., Jan.* 1871.

PAHLAVI, a term applied to an ancient language of Persia. The origin of the word is said to be Balkavi or pertaining to Balkh and softened into Pahlavi. The term Pahlavi now applied to the official language of the Sassanian dynasty, Dr. Haug traces to Pahlav-parthia, and holds that from the memory of Parthian rule in Persia, everything connected with antiquity was called pahlavi, *i. e.*, ancient. The term Huzvaresh as applied to Pahlavi, he explains as a mode of writing and pronouncing a foreign word, generally Semitic, being written, and its Persian equivalent pronounced in its stead. Dr. Haug deciphered the Hajjabad, Naksh-i-Rajab and other Pahlavi inscriptions, and shows that in the Pahlavi languages, the Semitic element far out-weighs the Iranian. The Iranian verbal terminations, found in the Pahlavi MSS. are entirely wanting in the earlier Hajjabad inscription. The Pahlavi of the MSS. is, as written, a Semitic language with an admixture of Iranian words and a prevailing Iranian construction, and as read, a purely Iranian tongue. From using the Huzvaresh mode, the Persians came by degrees to write their words as they pronounced them, and thus the Semitic words of the Pahlavi had disappeared from modern Persian as early as the time of Firdusi. In discussing the origin and age of Pahlavi it cannot be supposed that the Sassanian kings, very zealous promoters of Persian ascendancy and restorers of the Zoroastrian religion, would adopt for their official language a Semitic dialect not then existing in Persia. Dr. Haug, therefore, looks to an earlier period of Persian history, and shows reason for concluding that Pahlavi is identical with that form of the Assyrian language which was spoken at Nineveh, whence it spread, with the Assyrian rule, over all the subject provinces, and among others over Iran. An old Pahlavi-pazend glossary, was edited by Destur Hoshengji Jamaspji Asa, revised and enlarged, with an introductory essay on Pahlavi by Dr. Martin Haug, Ph. D. It comprises the text of the Sassanian Farhang, and a Pahlavi-English glossary arranged as an alphabetical index according to the Roman character, and an important essay on the Pahlavi language by Dr. Haug. The essay comprises a history of the researches made in Europe into the Pahlavi language and literature.—*Times of India.* See Bactria.

PAHLDAR, Hind. A rifle barrel in facets, not round.

PAHLE, Lep. Felis uncia, *Schreber.*

PAHLWAN or Phailwan, Hind. An athlete a wrestler.

PAHOL, Sikh. The ceremony of initiating a Sikh, in his faith.

PAHU, Hind. Parrotia jacquemontiana.

PAHWAR, Hind., Pjt. Generic name for the tract of country and districts between the Jhilam and Indus rivers.

PAI, Burm. Lablab vulgare, *Savi. DC.* Indian kidney bean.

PAI, Tam. A spirit, a demon; a goblin, a devil. See Pais-achi.

PAI, Burm. Melilotus officinalis, *Linn.*

PAIDI CHETTU, or Medi chettu, Tel. Ficus glomerata, *R.*

PAIDI PATTI or Pamidi patti, Tel. Gossypium acuminatum, *R.* iii. 186—*W. Ill.* 27—*Royle, Ill.* i, 98. Paidi means "gold," hence "excellent" this species being much prized by brahmins for making the sacred thread and for the wicks of temple-lamps. It is generally found in back-yards and gardens and is known by its coarctate seeds.

PAIDI TANGEDU or Nuti kasinda, Tel. Cassia sophora, *L.*

PAIERA, Maleal. Oryza sativa, *Linn.*

PAIGHAMBAR, Hind. Prophet.

PAIGHAMBRI GAHOON, Hind. A huskless or pearl barley in Gugaira; black or purple barley is called the same, literally, prophet's wheat, a fine wheat without husk.

PAIGHAMBARI GUL, Hind. Arnebia echioides.

PAIGUL, Tam. A Mat.

PAIJAMA, Hind. Trowsers, lit., leg dress.

PAIKASHT, Hind. Cultivators, persons who having no land of their own, cultivate other peoples' land on terms agreed on.

PAIK, hindoo village milita, called Paik, Shet-sanadi and halab, in different parts of the country.—*W. E.*

PAIK HSAN, Burm. Crotalaria juncea, *Linn.*

PAI-KUMITI-KAI, Tam. Cucumis colocynthis, *Linn.*

PAIL, Hind. A rich loamy soil irrigated.

PAILÆ MARUM, Tam. Careya arborea.

PAI-LEN-MWÆ, Burm. Trichosanthes anguina, *Linn.*

PAILI, a measure of capacity, ⅛ of a kurawa.

PAINA-SCHULLI, Maleal. Dilivaria ilicifolia.

PAINA, bracelets worn by native women of India.

PAIN GANGA, an affluent of the Godavery river. The town of Chanda is built on its bank.

PAINI MARAM, Tam. Gum resins.

PAINI-SANTA, Hind. A plough driver's whip and goad.

PAINJNI, Hind. Part of a cart.

PAIN-NAI, Burm. Artocarpus laecucha, also Artocarpus integrifolia, *Linn.*

PAI-HOON, Burm. One of the Leguminosæ.

PAI-KYET-SOO, Burm. One of the Leguminosæ.

PAI-NOUNG-NEE, Burm. Canavalia gladiata.

PAI-THAN-TA, Burm. One of the Leguminosæ.

PAI-BYA, Burm. One of the Leguminosæ.

PAI-NAI-THA, Burm. One of the Leguminosæ.

PAI-NOUK, Burm. One of the Leguminosæ.

PAI-BE-SAT, Burm. One of the Leguminosæ.

PAI-NOUNG-NEE, Burm. Canavalia gladiata, *D. Cand.*, *Roxb.*, *W. & A.*

PAINSADI, also Painsi, Hind. Broad cotton cloth, 500 threads in the web.

PAINSAR, HIND. Part of the treddle in a loom.

PAINTED BAT, Kerivoula picta, *Jerd.*

PAINTED JUSTICIA, Justicia picta.

PAINTED POTTERY. Specimens of this ornamented pottery were sent from India to the London Exhibitions.

PAINTED SNIPE, Rhynchæa bengalensis.

PAINTING OF PORTRAITS, is an art which in India and China has attained to a high excellence.

PAIRAHAN, HIND. An under shirt.

PAIRHARA, HIND. Anklets.

PAIRAMMAVARU. Amongst the non-Aryan races of the S. of India, the goddess of small-pox. See Hindu or Hindoo.

PAIROODAGARADOO, TAM. Agriculture.

PAIRU, TAM., see Hindu or hindoo.

PAI-PA SOON, BURM. Cyamopsis psoraloides, *D. C. W. & A. W. Ic.*

PAISACHA, SANS. Demoniac; a demon.

PAISACHI PRAKRIT, differs not much from Magadhi.—*Hind. Theat., Vol.* ii, *p.* 215.

PAISHKUSH, or Pesh-kush, PERS. It literally signifies "first fruits," or rather that which is first extracted.—*Malcolm's Central India, Vol.* ii, *p.* 60.

PAITHAN, on the Godavery, is the Tagara of the author of the Periplus, which supplied the sindones for the roman market, Colonel Tod supposes Tagara tc be from Tak-nagara, the city of the Tak, or Takshac.—*Tod's Travels, p.* 297.

PAI-TOO, CHIN. Usually called a triumphal arch; ornamented buildings common in every part of China; some of stone, and others of wood. Most of them have been erected at the public expense.—*Baron Macartney's Embassy, Vol.* i, *p.* 24.

PAI-YEN-KHYUNG, BURM. Cajanus indicus, *Spreng.*

PAJANELLI also Aulantha, MALEAL. Calosanthes indica.

PAK, HIND., PERS. Pure, holy, clean.

PAK, HIND., of Jhelum, a square sail of a boat.

PAKANA, or Pakani, HIND., of Kaghan. Rubus lasiocarpus.

PAKAN-BED, HIND., or Pathan-bed, Gentiana, *sp.*; also Saxifraga ligulata.

PAKANG, see Sakai, Pahang.

PAKANRAS, HIND. A sweetmeat.

PAKAR, HIND. Ficus venosa.

PAKA-SHASANA, SANS. From paka, a giant, and shas, to govern.

PA-KA-THAN, BURM. A timber in Amherst, Tavoy and Mergui, of maximum girth 2 cubits and maximum length 12 feet. Abundant, but widely scattered all over these provinces inland. When seasoned it floats in water. It is used by Burmese to make paddles, oars, &c.; is a tough, durable, good wood, but too widely scattered to be easily obtained, unless such a large quantity be ordered as would repay a search in the forest.—*Captain Dance.*

PAK-CHAN, see Mergui.

PAKENATTI, a peaceful and harmless migratory race, found in Mysore and the Telugu country, who, about the beginning of the 18th century were driven from their houses by oppression.

PAKFONG, the white copper of the Chinese, an alloy of 40·4 parts of copper, 31·6 of nickel, 25·4 of zinc, and 2·6 of iron.—*Simmond's Dict.*

PAKHA, KHAS. Chamærops khasiana.

PAKHA, HIND. Ripe; complete; perfect. See Pakka.

PAKHALL, a lake, distant about 140 miles from the Nizam's capital, in a north-easterly direction. This reservoir, which is picturesquely situated in the heart of a pretty dense forest, has a magnificent spread of water, taking in a circumference of about 50 miles, its shelving margin being girded by a chain of low wooded hills and undulations. One in particular deserving special notice, situated on the south-east side, of considerable height and clothed with arborous verdure, constitutes a striking foreground to the picture, well worthy the pencil of the artist. The advantages here presented by nature, in steep natural ridges, have, at some remote period in the past, been made subservient to the formation of a huge embankment, by which means the capacity of the lake was considerably enhanced, and the existence of old weirs and sluices unmistakeably indicate the quondam flourishing condition of the land in the vicinity. When Mr. Blanford visited some of the remote parts of the Nizam's district, it was learnt after much trouble that there were thick beds of coal in the valley of a nullah not very far from Pakhall in the Warungal district. The place is often visited by wild elephants. The engineer put down trial borings in a place called Ballarpur, and the result was that beds of more than fifty feet thickness were found. At a place called Wurroa, a coal-pit was commenced, and a sufficient amount of information was obtained to enable the searchers to go on with their work. Dr. Oldham had a consultation with the Chief Commissioner of the Central Provinces on the subject of connecting the valley by rail with Bombay, and if this line of railway were completed, the great cotton and coal producing lands of Central India would be accessible to the nearest Indian seaport to Europe. The coal is of poor quality, breaks very rapidly on exposure and is therefore very wasteful. The coal from a place known as Saster is said to be very durable. Dr. Oldham is of opinion that there is yet a very large area of the Nizam's dominions under which workable coal can be found, and which will prove valuable at some future day.

PAKHA MARTIANA, see Chamærops khasiana.

PAKHAN-BED, often applied to Saxifraga ligulata.

PAKHAR, Hind. Ficus venosa.

PAKHA RITCHIANA, see Chamærops khasiania.

PAKHTAWAR, Hind. Abelia triflora.

PAKHTO, Pushtu or Affghan. The spoken language of the Affghan people.

PAKHUR, Hind. Lonicera quinquelocularis.

PAKKE or Pakki chettu, or Prakke chettu, Tel. Tamarix gallica, *L.*—*β.* Indica, *R.* ii, 100.

PAKINATI WANLOO, Tel. The head of the village authorities, the Reddi or Patail. See Bara baluti.

PAKISER — ? see Cock.

PAK LEAK LOW, called also Poo-toy, a small island, 1½ mile distant from the Grand Ladrone.

PAKKA, Hind. Often written pucca, ripe, complete, perfect and satisfactory. Used of buildings, means made of stone or brick and mortar, as opposed to mud; pakka plaster, plaster made of lime.

PAKKAH OSPANA, Hind., of Bajaur, Hammered iron.

PAKLI, see Kashmir.

PAKO-G'LING-GANG, or G'linggang, Malay. Cassia alata, *Linn.*; *W. & A.*

PAKOOR, Beng. Ficus venosa.

PAKORES, see Greeks of Asia.

PAK-PATTAN, or Ajudhan, an ancient city in the Punjab, on the high bank of the old Sutlej, 28 miles from the present course of the river. Its foundation is assigned to a hindoo saint, or raja, of the same name, of whom nothing else is recorded. This part of the Doab is still known as Surat-des, a name which recalls the Sura-kousæ of Diodorus, and the Sudrakæ and Oxudrakæ of other Greek writers. The Kathæi of Sangala are stigmatized in the Mahabharata as "thieving Bahika," as well as "wine-bibbers, and beef-eaters." They are also called by a variety of names, as Madra, Bahika, Aratta, and Jarttikka, and not even once by their own proper name, which, as we know from Alexander's historians, was Kathæi, and is preserved in the Kathi of the present day. General Cunningham therefore looks upon many of the ethnic appellations which the Greeks have handed down to us as mere nicknames, or abusive epithets applied by the brahmanical Arians to their Turanian neighbours. Pliny places the limit of Alexander's career in the territory of the Sudrakas, "in Sudracis expeditio Alexandri termino," and the altars on the opposite bank of the Hyphasis, or Bias river. On a general review of all the data, General Cunningham thinks that the site of Alexander's altars must be looked for along the line of the present course of the Sutlej. To this point, therefore the territory of the Sudrakæ, or Surakas must have extended in the time of Alexander. For many centuries Ajudhan was the principal ferry of the Sutlej, where the two great western roads from Dera Ghazi Khan and Dera Ismail Khan met the first via Mankera, Shorkot and Harapa; the second via Multan, and at this point the great conquerors Mahmud and Timur, and the great traveller Ibn Batuta, crossed the Sutlej. The fort is said to have been captured by Sabaktagin in A.H. 367, or A.D. 977-78, during his plundering expedition in the Punjab; and again by Ibrahim Ghaznavi, in A.H. 472 or A.D. 1079-80. On the invasion of Timur, the mass of the population fled to Bhatner, and the few people that remained were spared out of respect for the famous saint Farid-ud-din Shakar-ganj, whose shrine is in Ajudhan. From this saint the place derives its modern name of Pak-pattan, or the "Ferry of the Pure One," that is of Farid whose latter days were spent at Ajudhan. By continued fasting his body is said to have become so pure that whatever he put into his mouth to allay the cravings of hunger, even earth and stones, was immediately turned into sugar, whence his name of Shakar-ganj, or "Sugar-store." This miraculous power is recorded in a well-known Persian couplet:—

> Sang dar dast o gohar gardid
> Zahr dar Kamo Shakar gardid.

From a memorial couplet we learn that he died in A.H. 664, or A.D. 1265-66, when he was 95 lunar years of age. But as the old name of Ajudhan is the only one noted by Ibn Batuta in A.D. 1334, and by Timur's historian in A.D. 1397, it seems probable that the present name of Pak-pattan is of comparatively recent date. Colonel Yule says Abu Ajudin or Pak Pattan (the Pure or Holy Ferry) is a town on the right bank of the Sutlej valley, about half way between Bhawalpur and Firuzpur, the site of a very sacred mahomedan shrine, for the sake of which Timur on his devastating march spared the few persons found in the town.—*Cunningham's Ancient Geography of India, pp.* 214-219; *Yule Cathay, Vol.* ii, *p.* 406.

PAKRA, Hind. Tribulus lanuginosus and terrestris.

PAKRAIR, a river of Rewah.

PAK SHANGHARF, Duk. Cinnabar.

PAKSHUBUT, Hind. Populus nigra.

PAKSI, Malay. A bird.

PAKU, Malay. Nails.

PAKU TUNDU SUMAT, Cycas circinalis, *L.*

PAKU, see Karen, Tin.

PAKUA, Hind. Euonymus fimbriata.

PAKUNG-BA, in Munnipore, the personal deity or ishta-deva of the rajah. It is a snake, from which the Munnipore family claim descent. When it appears it is coaxed on to a cushion, by the priestess in attendance, who then performs certain ceremonies to please it.

PAKU MARAM, Tam. Areca catechu, *Linn.*, *Roxb.*

PAKUR, Beng. Ficus venosa, *Ait.*

PAKURA, Hind. Nyctanthes arbor-tristis.

PAKUSH-ASANI, see Indra.

PAKYA, Mahr., of the Ghats, Pteromys petaurista, *Pallas*; *Bly.*

PAKYOTH, the wild gourd of Scripture, Citrullus colocynthis, *Schrd*, grows in many parts of India, on the sandy lands of the peninsula, Dekkan, Guzerat, Kaja, Delhi. Dr. Burn states colocynth of two kinds occur in Guzerat, the cucumus colocynthis, and C. pseudo-colocynthis. The colocynth of commerce is the dried fruit, peeled and unpeeled, and is brought from the Levant, North of Africa and South of Spain. Colocynth is useful for protecting shawls and feathers against their inroads.

PAJA, Hind., of Kotgurh, also Pajjai Cerasus puddum, Prunus puddum, bird cherry. Seta pajja, Hind., is Rhamnus virgatus.

PAJANELLI or Aulantha. Tam. Calosanthes indica.

PAL, a tent.

PAL, a local term for long defiles, the residence of the mountaineers, their chiefs are called Indra Pati, in Bhaka, put. Pal is also the term for a community of any of the aboriginal mountain races; its import is a 'defile,' or 'valley,' fitted for cultivation and defence. It is probable that Poligar may be a corruption of Paligar, or the region (gar) of these Pal; Palita, Bhilita, Philita, are terms used by the learned for the Bhil tribes. Maina or Myna, Maira, Mairote, all designate mountaineers, from Mair or Mer, a hill.—*Tod's Rajasthan*, *Vol.* i, *p.* 381, *Vol.* ii, *p.* 350.

PAL, Tam. Milk.

PALA, Mal. Alstonia scholaris.

PALA, Burm. Elettaria cardamonum.

PALA, Hind. Frost.

PALA, see Inscriptions.

PALA—? In Penang, a tall thin tree; wood used for planks.—*Col. Frith.*

PALA, Tam. Cluytia patula, *Roxb.*

PALA, a dynasty of Gaur, one of whom, named Abhaya Deva, reigned A.D. 1439.

PALA CAMUDI, Malay. Cacalia sonchifolia.

PALACH, Hind. Cotton or down of Populus ciliata.

PALA CHETTU, Tel. Mimusops hexandra, *R.* ii, 238; *Cor.* 15—*W. Ic.* 1587. Sans. Syn. Kshirika. The name is also applied to Wrightia antidysenterica in the Rajahmundry hills and according to Beddome to Holorrhena antidysenterica, in the upper Godavery valley.

PALA CHUKKANDERU, Tel. Hemidesmus indicus, *R. Br.*—*W. Ic.* 594; *Contr.* 63—*Rheede*, x, 34. Br. 594, "a plant called Country Sarsaparilla." Chukka is a spot or mark referring to the pale mark down the centre of the leaf in some varieties.

PALA CODIJA also Manoopala, Tel. Wrightia antidysenterica. Connessi bark.

PALA INDIGO, indigo made from the Wrightia tinctoria.

PALÆORNIS, a genus of birds of the family Psittacidæ, of which the following species may be named:

P. alexandri.
P. barrabandi.
P. erythrocephalus.
P. flavitorquis.
P. malaccensis.
P. papuensis.
P. bengalensis.
P. bitorquatus.
P. pondicerianus.
P. panthosomus.
P. torquatus.

P. calthorpæ, *Layard*, *Blyth.*, J. A. S. xviii, 800, xix, 334, "common at Newera Elia and lower down." (*Kelaart.*)

PALA DANTAM, Tel. Ehretia lœvis, *R.* i, 597; *Cor.* 56—*W. Ic.* 1382.

PALA GARUDA, Tel. Alstonia scholaris, *R. Br.*—*W. Ic.* 422—*Rheede* 1, 45.

PALA GUNDA, Tel. Maranta ramosissima, *Wall.*—Grows wild in all the hill forests. Under the name of Palagunda or hill Arrow root, the Madras Revenue Commissioner, Mr. Elliot, sent a small supply of a starch from the Rajahmundry district, to the Exhibition of 1851.

PALA GURUGU, Tel. Holostemma rheedianum, *Spreng.*—*W. Contr.* 55; *Ic.* 597—Ascl. annularia, *R.* ii, 37—*Rheede*, ix, 7.

PA-LAH, Burm. Elettaria cardamomum, *Wh. & Mat.*

PALAK, also Palak-joohi, Beng. Hind. Rhinacanthus communis, also Justicia nasuta, and Ixora undulata.

PALAKH, Hind. Ficus venosa, Ban pala, is Pyrus Kumaonensis, Bissahri-pala is Diospyros lotus.

PALAK, Hind. Beta vulgaris: Jangli palak, is Rumex acutus.

PALAK, Hind., of Salt Range, is Ficus glomerata.

PALAK, Hind. Spinacea oleracea, a vegetable spinach, also Beta bengalensis.

PALA KURA or Chiru pala, Hind. Oxystelma esculentum, *R. Br.* Heyne, where the Sans. syn. Jivaka and Jivantika, *W.* 352, do not seem to be correct referring properly to sp. of Terminalia and of Orchids, &c.

PALALU, of the Northern Circars, agricultural labourers who are regarded as slaves to the ryots, and are hereditarily attached to and transferrable with the land. *The Agari* of Cuttack are said to be domestic slaves.

PALAM, Jav. Mangifera indica, *Linn.*

PALA MALLE TIVVA, Tel. Vallaris dichotoma, *Wall.*—*W. Ic.* 438—Echites dich, *R.* ii, 19, the Konda Doralu call it Putta podara yarala. See Poda patra.

PALA MARAM, also Patta, Tam. Mimusops hexandra.

PALA MARAM, the Malayala name of one of the jungle fruit trees of Malabar and Canara. It produces a fruit which the natives use medicinally, but as a timber it is of no value.—*Edye, Forests of Malabar and Canara.*

PALAMEDEIDÆ, a family of birds,

Sub-fam. Parrinæ, 2 gen., 2. sp., viz., 1 Metopidius ; 1 Hydrophasianus.

Fam. Gruidæ, 1 gen., 1 sub-gen., 3 sp., viz., 2 Grus, 1 Anthropoides.

PALA MARAM, Tam. Wrightia tinctoria.

PALA MARAM, also Palak, also Palavayraynoo, Tam. Nerium tinctorium.

PALAMOW, a district in W. Bengal, in which coal has been discovered. The district is very mountainous.

PALAMPORE, or Palang posh, Hind., a bed cover.

PALAMOUD, an alimentary substance used by the Turks and Arabs, and very much esteemed. It consists of acorns which have been burned to destroy the bitterness, dried, and toasted, and reduced to powder, with sugar and aromatics added.—*Simmond's Dict.*

PA-LAN, Burm. Bauhinia diphylla, *Buch.*

PALANDOK, Malay. Tragulus kanchil, *Gray.*

PALANDOO,——? Onions.

PALA NELA GUMMUDU, Batatas pentaphylla, *Ch,. W. Ic.*, 834. Sans. Kshiraka, *W.*

PALANG, Hind. A Bed.

PALANG KELANGU, Tam. Curcuma zedoaria, *Roxb.*

PALAPATTA, Maleal. Wrightia antidysenterica, *R. Br.* The bark.

PALANG POSH or Palampore. The former term is composed of two Persian words, literally "bed-cover." These are manufactured in the district of Cuddalore, at Ponnary, also at Sydapett in the out-skirts of Madras but, especially in the town of Masulipatam, the last always of a superior kind and in various sizes, 5½ to 6 cubits in breadth and 7 to 8 long, and are sold from 6 Rupees to Rs. 15 according to size. The Cuddalore, Ponnary and Sydapet fabrics are of ordinary quality, and are sold at from Rupees 2 to 7 each.

PALANKEEN or Palanquin, a litter or covered carriage borne on men's shoulders. Palanquin-bearing is rather a chinese than an Arian fashion. It has almost wholly ceased to be used in India.—*C.*, *p.* 53 ; *Simmond's Dict.*

PA-LAN-TOUNG WÆ, also Toolæ pha-do Burm. Costus argyrophyllus, *Wall.*

PALA NUGA, Tel. A cucurbitaceous plant ; Lagenaria, *sp.*

PALA PANDU, Tel. Mimusops hexandra.

PALA-PATTA, Maleal. Wrightia antidysenterica ; Connessi bark.

PALAR RIVER rises on the Mysore tableland, lat. 13° 20′, long. 78° 2′ runs S.E., 55 m., E. 87 m. S. E., 48 m. into Bay of Bengal. Length about 220 miles, running past Vellore, Arcot and Chingleput. It receives the Pony, 40 m.; Sheyaroo, 90 m. The entrance of the Palar, near Sadras, is contracted by a bar or narrow ridge of sand, inside of which the river becomes of considerable width. Kanchipura is the true Sanskrit name of Conjeveram, on the Palar river, a large straggling town of great antiquity, and still called Kanchi by the people. As Dravida was bounded by Konkana and Dhara-ka-kata on the north, and by Malakuta on the south, while no district is mentioned to the west it seems certain that it must have extended right across the peninsula, from sea to sea. During the pilgrim Hwen Thsang's stay at Kanchipura, about 300 buddhist monks arrived from Ceylon, which they had quitted on account of political disturbances consequent on the death of the king. Hwen Thsang must have arrived in Kanchipura, about the 30th of July, A. D. 639, and according to Turnour's list of the kings of Ceylon, raja Buna Mugalan, was put to death in A. D. 639. From the information furnished by these monks, the pilgrim drew up his account of Seng Kia-lo or Ceylon, which he was prevented from visiting by the disturbed state of the country. From Malayakuta he returned to Dravida (Conjeveram), and then proceeded to the north-west for 2000 li or 333 miles, to Kong-kien-na-pu-lo, or Konkanapura. Annagundi is a remarkable old site, and was the capital of a Yadava dynasty of princes before the foundation of the modern city of Vijayanagar on the southern bank of the river. —*Cunningham's Ancient Geog. of India, pp.* 548–49, 552 ; *Report of the Royal Sanitary Commission.*

PALARI, Singh. Boa-wood.

PALARI, Port. See Pali.

PALAS, Beng., Hind., Maleal., Sans. Butea frondosa. When a hindoo died at a distance, it was customary to burn vicariously an article of clothing along with a bundle of leaves of the Butea frondosa. This vicarious rite is called Palasavidhi. It is from the abundance of the Palas tree on the field that the name of Plassey was given to the battle fought by Clive in 1857.—*Wilson.* See Hindu or hindoo.

PALA SAMU, or Moduga chettu, Butea frondosa, *R.*

PALA SAMUDRA, or Samudra pala, Tel. Argyreia speciosa, *Swt.*

PALAS GUM, or Pulas gond or Dhak ka gond, is the produce of Butea frondosa, in ruby red, transparent grains of irregular tears. Much uncertainty long existed regarding the origin of the astringent gum kino, of which there are several kinds. The East Indian, African, Australian and American varieties, are ascribed to different trees. Kino generally occurs in shining grains, of a rich ruby red colour, nearly all soluble in alcohol, and readily pulverisable between the fingers. It also occurs in small and shining, brittle, angular fragments of a deep-brown colour, which appears to be a natural exudation of some one plant, from the uniformity of its appearance. The gum of Butea frondosa from India, at one time acknowledged by the Dublin College has no doubt been sometimes imported as kino. Botany Bay Kino, produced by Eucalyptus resinifera, or Brown Gum Tree, was at one time acknowledged by the Edinburgh College. A Jamaica, and a Columbian Kino, are mentioned; and an extract of Rhatany is sometimes enumerated with them. But a genuine kino has been supposed to come from the west coast of Africa. The best is now imported into Great Britain from Bombay. Kino seems to have been first introduced into European practice by Dr. Fothergill, in 1757, who states, in a paper in Med.Obs. and Enq. i, 358, that he was indebted for information respecting it to Dr. Oldfield, and that the substance was obtained from the river Gambia, whence he called it Gummi rubrum astringens Gambiense. Previous to this, Moon, in his travels into Africa, mentions a red gum as issuing from incisions in trees, and which he mistook for Dragon's blood. Mungo Park discovered that the tree which yielded this substance was called Pao de Sangue (Blood tree) by the Portuguese. His specimens were determined by Mr. R. Brown to belong to Pterocarpus erinaceus,—a tree which has since been well figured and fully described in the Flore de Senegambie, was introduced into the E. P. 1774 as Gummi Kino, and into the L. P. 1787 as Resini Kino, the name is derived from the Indian term kini, applied to a similar exudation from the bark of Butea frondosa, of which the Sanscrit name is Kin-suka, because this Butea gum had been sent as Kino to the above Society from Bombay. An old specimen in the India House is marked Gum Cheena. Dr. Pereira, several years since, found this "in the warehouse of an old drug firm in London a substance marked Gummi rubrum astringens," which he was told had formerly fetched a very high price. It is, however, very distinct from the kino of commerce, which, Dr. Royle was inclined to think was the produce of Pterocarpus marsupium. Dr. Pereira states that what he calls East Indian Kino is always regarded in commerce as genuine Gum Kino, the produce of the Malabar coast, from Anjarakandy, a farm within a few miles of Tellicherry, formerly one of the East India Company's plantations, under the superintendence of Mr. Brown, and visited by Dr. Buchanan, in January 1801. Gum kino is used medicinally as an astringent and in India to dye cotton cloth of a nankeen yellow.—*Mysore*, ii, *p*, 544; *Waterston*; *Faulkner*; *Himal. Bot.*, *p.* 195, and *Proc. Royal Asiatic Soc.*, *p.* 50, May 1838.

PALASH, or Balsaces, also Balas, the 18th Sassanian king, A.D. 484.

PALASHA, Sans. Butea frondosa.

PALASI, Malbal. Butea frondosa.

PALAS-PAPRI, Hind. Seeds of Butea frondosa.

PALASTYA, see Brahmadica.

PALA SUGANDHI, or Sugandhi, Hemidesmus indicus, *R. Br.*—H. angustifolia.

PALA TEKU, Tel. Asclepias sp.? The Sanscrit syns. are Griha drimah, Medhasringi, *W.* According to *Br.* white teak.
The name points to a large-leaved milky tree.

PALA TIGE, Tel. Leptadenia reticulata, *W. & A.*—*W. Contr.* 47; *Ic.* 350—Asclepias suberosa, *R.* ii, 38.

PALAUDU, also Latarka, also Sukundaka, Sans. Onion.

PALAUR, see Palar, Tripati.

PALA UTAN—? In Penang, a wood of light brown colour, from a large tree; only used for planks.—*Col. Frith.*

PALAVA. Manu, speaking of the Palava tribe of Kshatrya, who had neglected to reverence brahmans, styles them Dasya, whether they speak the language of the Mlech-cha or that of the Arya, and the people to whom he there alludes seem to have been Medes occupying the valley of the Indus.

PALAVARANI, or Palava renu, Tel, the Palay wood, of the English, Wrightia antidysenterica, a light, yellow, hard-wood.

PALAVESHUM, a Maraver of a servile family, who made himself celebrated for his robberies and outrages from Madura round to Quilon, during the latter period of the mahomedan Government of Seringapatam. He has been, since his death, worshipped as one of the Demons of the Shanars of Tinnevelly, and was most feared of all their devils. Thousands of persons are called after his name.

PALAWAH, Burm. A beautiful red, but heavy, wood of British Burmah. A cubic foot weighs lbs. 52. In a full-grown tree on good soil the average length of the trunk to the first branch is 45 feet, and average girth measured at 6 feet from the ground is 6 feet. It sells at 12 annas per cubic foot.—*Dr. Brandis' Cal. Cat. Ex.* 1862.

PALAWAN. The south western-most island of the Philippine group, is a long narrow strip of land extending nearly south-west and north-east 250 miles, forming the eastern boundary of the China Sea, from latitude 8° 13′ to 11° 17′ N. The northern extremity is a narrow peninsula about 60 miles in length, consisting of a mass of limestone rock, rising precipitously from the sea from200 to 300feet in height, which the native inhabitants climb readily in search of edible birds' nests, their chief occupation. It is along the eastern coast of the island that ships proceed when ships are bound up the China Sea late in the seasons, when the north-east monsoon is expected and derives from this the name of the Palawan passage.—*Journ. Ind. Arch.* See Balabac Island, India, Monsoon.

PALAY INDIGO, or Pala-Indigo, see Dyes.

PALAY, or Pale, Tam. Cryptostegia grandiflora.

PALAYAR, Predial slaves of Malabar. See Kanagan, Slaves.

PALAY MUNGALA VANLOO, Tel. Barber.

PALAY PALLAM, Tam. Mimusops hexandra.

PALCHARA. In the Rajput mythology, the palchara correspond to the Furies of the Romans. Tod describing a battle says, "The abstraction of Iswara was at an end, joy seized his soul at the prospect of completing his chaplet of skulls (roonda-mala.) The Yoginis danced with joy, their faces sparkled with delight, as they seized their vessels to drink the blood of the slain. The devourers of flesh, the Palcharas sung songs of triumph at the game of battle between the Chohan and Chundail.

PALCHI, or Pulchi pallam, Tam., fruit of Antidesma acida.

PALCONDAH, see Kimedy.

PAL-DANTAM, of Godavery, Tel. Ehretia lævis, *Roxb. Cor.*, *W. Ic.*

PALE, Hind. Maba buxifolia.

PALEGA-PANJANELI, Maleal. Calosanthes indica.

PALE KIRE, Tam. Asclepias volubilis, *Linn.*

PALEK JUBI, Hind. Rhinacanthus communis, *Nees.*

PALE KURE, Tel. Asclepias volubilis.

PALEMBANG, is on the Eastern Coast of Sumatra. Its ancient name was Banca Palembang. During the British occupation of Java, the sultan of Palembang caused all the Dutch in the town to be massacred, thinking that by this summary method he would be enabled to rid himself entirely of European influence; but the British government at Batavia, horror-struck by the atrocity of his conduct, for the purpose of evincing their displeasure at the crime, and their determination to punish it, despatched a force under the command of Colonel Gillespie, who, in the execution of this duty performed one of the most gallant exploits upon record. The force consisted of several vessels of war, and a large body of troops. On ascending the river, a battery of one hundred large guns flanked by armed vessels, surrendered without firing a shot, and the sultan, terrified at the approach of the British, fled into the interior with his treasure. With the news of his flight, the British commandant was informed that the Malays had risen, and were slaughtering the Chinese and other foreign settlers. Colonel Gillespie, anxious to put a stop to these frightful outrages, embarked with a small number of grenadiers in a few light boats, leaving orders for a larger force to follow immediately. When the little party approached the town, darkness had already set in, and the shrieks and outcries plainly evinced that the work of carnage was continued. The Colonel and his party, which consisted of ten persons himself included, landed undismayed among a vast multitude of blood-thirsty wretches who, paralyzed at the boldness of the action, allowed their opponents to enter the place, where they were soon afterwards joined by a small reinforcement. At midnight, about three hours after the arrival of the first party, the main body of troops entered the place, and a town defended by forts and batteries mounting two hundred and fifty pieces of cannon, was taken possession of without the loss of a single life. The following day saw order restored, and a new sultan was soon afterwards placed upon the throne. Notwithstanding the numerous languages in the Archipelago, the written characters are only eight or at most nine in number. The Javanese alphabet like all others in the Archipelago is written from left to right, each letter is distinct and unconnected, and the writing is perpendicular and not slanting. It is the character used for the Javanese proper, the Sunda, the Bali, and it is believed the Lombok and including Palembang in Sumatra, it is current among twelve millions of population. But in prior times, other characters to the extent of twelve in number, have prevailed in Java. See Sumatra.

PALEMONIDÆ, a family or tribe of Macrurous Decapodous Crustacea. They belong to Milne-Edward's family of Salicoques, or Shrimps, and his tribe Palemonians. The body is laterally compressed, but the abdomen never sharp. Thorax large, carapace armed in front with a great sabre-like rostrum, nearly always dentated above. Antennæ the first pair often with three terminal filaments. All the feet are slender, and the first two pairs are generally didactylous, whilst the last three pairs are never didactylous. The abdomen is of great size. The genera are, Gnathophyllum, Hippolyte, Rhynchocinetes, Pandalus, Lysmata, and Palemon.

Rhynchocinetes typus.—Length about 2½ inches. It is a native of the Indian Ocean.

Palemon.—(Fabr.) The Prawn. The species of this useful and delicious genus are numerous. M. Milne-Edwards records seventeen, besides the Indian Palemon brevimanus and P. Coromandelinus of Fabricius. Some of the species which are found in warm climates attain to a considerable size: such are the P. Carcinus of the Indian seas and the Ganges, which attains to nearly a foot in length, and the P. Jamaicensis of the Antilles, which is from 10 to 12 inches long. The prawns generally inhabit sandy bottoms near the coasts, but some are found at the mouths of rivers, and far up. They mostly boil red.

Palemon natator, *Edws.* Ind. Ocean, on Gulf weed.
„ brevimanus, *Edws.*
„ coromandelianus, *Fabr.*
„ longirostris, *Edws.* Ganges mouth.
„ carcinus, *Edws.* do.
„ ornatus, *Edws.* Amboyna, Waigyou.
„ lamarrei, *Edws.* Bengal coasts.
„ tranquebaricus, *Fabr.* Tranquebar.
„ hirtimanus, *Edws.* Mauritius.

Alpheadæ.—The shrimps are stouter in their forms than those of the preceding division, but they are not depressed as the Crangonidæ, are; the genera are Atya, Hymenocera, Alpheus, Pontonia, Antonomea, Curidina, Nika, and Atkanus.

Alpheus (Fabr.)—Carapace advanced above the eyes, forming above each of those organs a small vaulted buckler. They are found in the seas of warm climates. Some species are found in the Mediterranean, but the greater part in the seas of the Antilles or in the Indian Ocean.

Pontoniæ (Latr.)—Carapace short and convex: the front with a short but robust and inflected rostrum; the eyes are cylindrical, projecting, and very moveable.

P. macrophthalma.—Asiatic seas.

Stenopus (Latreille).—Penœdæ of Milne-Edwards: Body not compressed laterally, and teguments comparatively soft. Carapace terminated anteriorly by a small rostrum.

Stenopus hispidus.—Palemon hispidus, *Oliv.*, Indian Ocean.

Acetes. (Milne-Edwards).—Analogous to Sergestes in its conformation, but placed at a distance from all the animals of the same order by the absence of the last two pairs of feet. A. Indicus.—*Eng. Cyc.*

PALEMPORE, a kind of Indian dimity, of elegant patterns, used for bed coverlits. They are sometimes flowered with gold, made of silk, and worked in shawl and other patterns of coloured woven cotton. This is a Tamil corruption from the two Persian words Palaugposh, literally, bed-cover.—*Simmond's Dict.*

PALENGA ZEYLANICA, *Thw.*

Palenga-gass. SINGH.

A tree 40 to 50 feet high, of the Ambagamowa district in Ceylon, at an elevation of about 3,000 feet.—*Thw. En. Pl. Zeyl., p.* 287.

PALERI AMMA, a deity of the non-aryan races of the Peninsula. See Hindoo.

PALERU, TEL., Tribulus lanuginosus, *Linn.*

PALESTINE, gets its name from Philistine, a race who inhabited a tract bordering on the Mediterranean sea. It was also called Canaan Palestine was originally inhabited by a number of tribes, Kenite, Kenizzite, Kadmonite, Hittite, Jerezzite, Jebusite, Amorite, Canaanite, Girgashite, Hivite, Phœnician and Philistine, who were descended from Canaan the son of Ham.

The desert coast of the Mediterranean Sea, between Gaza the frontier town of Palestine and Pelusium or Shur the frontier town of Egypt, was called by the Hebrew writers the desert of Shur. It was thinly peopled by a race of Arabs named Amalekites. In Palestine itself, Ptolemais, Diospolis, Antipatris, Ælia, have all completely disappeared, and the old names, which existed before these high-sounding titles were conferred—Akka (Acre), Lydd, Kefer-saba, Jerusalem, have re-established themselves as firmly as if they had never been displaced. Sebaste and Neapolis have, however, succeeded in maintaining themselves, and preventing the return of Samaria and Shechem. Palestine now has about 400,000 people, chiefly Arabs, and Arabic is the ordinary tongue spoken. The Christians of many hostile sects are next numerous, with a few Jews, who have migrated from Europe to die in Palestine. Palestine is described in Deuteronomy as "The land whither thou goest is not the land of Egypt, but a land of hills and valleys." The Lebanon is a mountain of Palestine, comprehends the two ranges of Libanus and Anti-Libanus. Lebanon is the most elevated part of the chain. The range of the Lebanon, extends between the 33rd and 36th degree of north latitude, from the river Assey (the ancient Orontes) to its southern limits, bounded by the Letani, or Leontes of old. It is inhabited by a variety of different tribes, who from time immemorial have found a refuge in its fastnesses.—*Sharpe's History of Egypt, Vol.* i, *p.* 105; *Galton's Vacation Tourists, p.* 337; *Robinson's Travels in Palestine and Syria, Vol.* i, *p.* 18; *Deut.* xi, 10-11. See Kedron, Wadi-Araba, Lebanon, Jerusalem.

PALGHATCHERRY, 10° 46′; 76° 40′, in the Karnatik, near the right bank of the Ponani, about 800 feet, is a town in Coimbatore in a gap or pass, leading to the western coast. The gap of Palghat is the only break in the western chain of mountains from the Nerbudda and Taptee to Cape Comorin, and through it the railroad passes. It is a great gap in the peninsular chain between the southern slopes of the Nilghiri mountains and the northern face of those of Travancore. The S. W. monsoon blows through and does not deposit its moisture though the atmosphere is humid and the Salem hills intercept the N. E. monsoon. The Palghat ghauts are in length about 200 miles, from the gap of Palghatcherry nearly to Cape Comorin. Elevation from 4,000 to 7,000 feet with a spacious table-land, 4,740 feet. A peaked summit, 6,000 feet. Another 7,000 feet. Varragherry mountains 5,000 to 6,000 feet. Near Cape Comorin, in the extreme S., 2,000 feet. The W. brow of the ghats is, with little exception, abrupt; on the E. side the declivity is gradual. Such a conformation would indicate a volcanic disturbance along the W. precipitous face.

PALGONDA, see Nicolo-di-Conti.

PALHARA, Hind. One of the Solanaceæ.

PALI, Tam. Irambu in Malabar, Palari in Portuguese, is the Ceylon Iron-wood. It grows to about thirty feet in height, and twenty inches in diameter. It is very useful for stocks of anchors, piles for jetty-heads, beams in store houses and places where strength is required; for such purposes it will be found useful and durable: it may be obtained in great quantities at a very moderate rate.—*Edye, on the Timber of Ceylon.*

PALI, Tam. Isonandra acuminata, *Lindl.*

PALI, see Pyrope.

PALI, an ancient language in India which has long ceased to be spoken, but is still used in the buddhist scriptures of Ceylon, Burmah, and Siam. The Pali tongue in Singhalese is called Mungata; and in Burmese Magada-basa. Pali, was the language used by Buddha. Pali, Bali and Magadhi are synonyms for the Pali tongue. The Rupasiddhi, is the oldest Pali grammar now extant, and its author Buddhapriya compiled it from the ancient work of Kachha'-yana. A quotation from the latter is given in the Rupasiddhi apparently in the original words. According to this account, Kachha-yana was one of the principal disciples of Sakya, by whom he was selected for the important office of compiling the first Pali grammar, the rules of which are said to have been propounded by Tathagata himself. This statement seems highly probable; for the teacher must have soon found the difficulty of making himself clearly understood when each petty district had a provincial dialect of its own, unsettled both in its spelling and its pronunciation. A difficulty of this kind could only be overcome by the publication of some established rules of speech, which should fix the wavering pronunciation and loose orthography of a common language. This was accomplished by the Pali grammar of Kachhayana, compiled under Sakya's instruction; and the language, thus firmly established, was used throughout India by the buddhist teachers, for the promulgation and extension of the practical doctrines of their faith. In the buddhist works of Ceylon, this language is expressly called Magadhi, or the speech of Magadha; and as this district was the principal scene of Sakya's labours, as well as the native country of himself and of his principal disciples, the selection of Magadhi for the publication of his doctrines was both natural and obvious. Learned men have, however, entertained diverse opinions as to the Pali. Professor H. H. Wilson has remarked, that there are several differences between the language of existing buddhist inscriptions and the Magadhi of Pali grammars; but these differences are not such as to render them unintelligible to those whom Priyadasi addressed in his Pillar edicts in the middle of the third century before Christ. Professor Wilson admits that the Pali was most likely selected for his edicts by Priyadasi "that they might be intelligible to the people," but he is of opinion that the language of the inscriptions was rather the common tongue of the inhabitants of upper India than a form of speech peculiar to a class of religionists; and he argues that the use of the Pali language in the inscription is not a conclusive proof of their buddhistical origin. But as opposed to this view, it is a well known fact that the brahmans have never used any language but Sanscrit for their religious writings, and have stigmatised the Magadhi as the speech of men of low tribes. In their dramas, also the heroes and the brahmans always speak Sanscrit, while the use of Magadhi is confined to the attendants of royalty. Professor Wilson has, however, identified the Magadhi with Prakrit, the use of which, though more honorable, was still confined to the principal female characters, but the extensive employment in the dramatic works of the brahmans of various dialects, all derived from one common stock, seems to prove that they were the vernacular language of the people. In this vernacular language, whatever it was, whether the high Prakrit of the Saurasenas, or the low Prakrit of the Magadhas, we know certainly that the Vinaya and Sutra, or the practical doctrines of Sakya, were compiled, and therefore also promulgated. Cosma, in Prinsep's Journal, p. 503, has used the term Prakrit as comprehending all the written and cultivated dialects of Northern India. Prakrit means "common" or "natural," in contra-distinction to the "artificial" or "refined" Sanscrit, In the opinion, however, of Turnour, the celebrated Ceylon scholar, the Pali is a "rich and poetical language, which had already attained its present refinement at the time of Gotama Buddha's advent," (B.C. 588). According to Sir William Jones, it is "little more than the language of the brahmans, melted down by a delicate articulation to the softness of Italian." To Major Cunningham it seems to bear the same relation to Sanscrit that Italian does to Latin, and a much nearer one than modern English does to Anglo-Saxon. The nasal sounds are melted down, the compounds are softened to double and even simple consonants, and the open vowels are more numerous. It is the opinion of all European scholars that the Pali language is derived almost entirely from the Sanscrit, and in this opinion he fully coincides. Messrs. Burnouf and Lassen, who jointly formed a Pali grammar, state, as the result of their labours, that Pali is almost identical with Sanscrit, and Professor Lassen at a later date, when more conversant with the Pali books, states authoritatively, that the whole of the Prakrit language is derived from the Sanscrit. Turnour also declares his conviction that all researches tend to prove the great antiquity of Sanscrit. Professor Wilson and James Prinsep are likewise of the same opinion. This conclusion seems self-evident, for there is a tendency in all spoken languages to suppress dissimilar consonants, and to soften hard ones: as in the Latin Camillus for the Tuscan Cadmilus, and the English farthing for the Anglo-Saxon feorthing; or, as in the Pali assa, "a horse," for the Sanscrit aswa, and the Pali majha, "middle," for the Sanscrit madhya. There is also a natural inclination to clear away the semivowels and weaker consonants, as in the English King, for the Anglo-Saxon Kyning, or as in the Pali Olakita "the seen" (i. e. Buddha) for the Sanscrit Avalakita; and in the Pali Ujeniya, a "man of Ujain," for the Sanscrit Ujajayaniya." It is always therefore easy to determine between any written languages, that resemble each other, which of the two is the original, and which the borrowed; because letters or any syllables are never added, but, on the contrary, are always suppressed or curtailed in the process of time. The Pali is, therefore, without doubt, derived from the Sanscrit, and must, moreover, have been a spoken language for many centuries. For the publication of his esoteric theories regarding the origin of the world, and the creation of mankind, Sakya made use of the Sanscrit language only. But the perfect language of our day, perhaps, owes much of its refinement to the care and sagacity of that Great Reformer: for it seems highly probable that Katyana, the inspired saint and lawgiver who corrected the inaccuracies of Panini's Sanscrit grammar, is the same as the Kachhayano who compiled the Pali grammar, during the life-time of Sakya. Katyayana's annotations on Panini, called Nartika, restrict his vague rules, enlarge his limited ones, and mark numerous exceptions to others. These amended rules of Sanscrit grammar were formed into memorial verses by Bartrihari, whose metrical aphorisms, entitled Karika, have almost equal authority with the precepts of Panini, and emendations of Katyayana. According to popular tradition, Bhartrihari, was the brother of Vikramaditya, the author of the Hindoo Samvat, which dates from B.C. 57. The age of Katyayana is unknown; but as he flourished between the date of Panini, in about 1100 B.C., and that of Bhartrihari, in 57 B.C,. there is every probability in favor of the opinion that he was one of the disciples of Buddha. But this identification of the two greatest grammarians of the Sanscrit and Pali languages rests upon other grounds besides those mentioned above. Colebrooke, Wilson, and Lassen have all identified the commentator on Panini with Vararuchi, the author of the Prakrit grammar, called Prakrita prakassa, or Chandrika. Of Vararuchi nothing more is known than that his work is the oldest Prakrit grammar extant, and that his body of rules includes all that had been laid down by earlier grammarians regarding the vernacular dialects. This identification is still more strikingly confirmed by the fact that Kachhayano is not a name but only a patronymic, which signifies the son of Kachho, and was first assumed by the grammarian himself. If, therefore, Vararuch Katyayana is not the same person as Kachhayano, he must be posterior to him and of the same family. We shall thus have two Katyayanas of the same family living much about the same time, each of whom compiled a grammar, which is much more improbable than that the two were one and the same person. The probable identity of the two great grammarians seems to offer an additional reason for considering Sakya Muni as one of the chief benefactors of his country. For we must not look upon Sakya Muni simply as the founder of a new religious system, but as a great social reformer who dared to preach the perfect equality of all mankind, and the consequent abolition of caste, in spite of the menaces of the most powerful and arrogant priesthood in the world. We must regard him also as a patriot, who, in spite of tyrannical kings and princes, had the courage to incite his countrymen to resist the forcible abduction of their wives and daughters by great men. To him the Indians were indebted for a code of pure and practical morality which inculcated charity and chastity, performance of good works, and abstinence from evil, and general kindness to all living things. To him, also they owe the early refinement and systematic arrangement of their language in the selection of the learned Katyayana as the compiler of the Sanscrit and Pali grammars. The Pali books examined and abstracted by Mr. Turnour, consist of the Pitakattayan, the Attha-katha, and the Mahawansa. The first is, quasi, the gospel of buddhists. It is stated in the Mahawansa, that the Pitakattayan was brought to Ceylon by Mahindo, the son of Asoka, in the eighteenth year of his father's reign, that is, in B.C. 306, in the exact Pali form in which it now exists.—*Prinsep's Tibet, Tartary and Mongolia, pp.* 148–49; *Cunningham's Bhilsa Topes.* See Buddha, Inscriptions, India, Khunniara, Lat, Mon, Sanskrit, Siam, Swastika, Talieng or Mon, Topes, Turnour.

PALI is said to mean separated, proper. The Scythic Pali may be the shepherd invaders of Egypt.

PALI DIPAWANSO, see Inscriptions.

PALIOGRAPHIC, see Khunniara.

PALI OLAKITA, see Pali.

PALI-STHUPO, see Topes.

PALI UJENIYA, see Pali.

PALIA MANKENA, Tel. Urena sinuata.

PALIBROTHA, the ancient name of Pataliputra at the confluence of the Sone river with the Ganges. Its most celebrated king was Sandracottus. Few places in India are so old, and recall to mind so many associations, as the Pataliputra of the hindoos, the Palibothra of the Greeks, and the Potolitse of the Chinese, all referring to the city which is known in our day under the name of Patna. The name of Pataliputra does not occur either in Menu or the Mahabharat, the capital of ancient Magadha, having in those ages been Rajgriha. It was in the middle of the sixth century before Christ that Ajatasutra founded the city of Pataliputra. 'This prince,' says Lassen, appears to have long had the intention of conquering Vasali, for it is recorded that his two ministers,Sunitha, and Vasyankara founded, in the village of Patali, a fortress against the Vriggi, this took place a short time before the death of Buddah. Under the ancient name of Pataliputra, the place stands before the eyes of the modern traveller as the capital of the Nandas, of Chandragupta, and of Asoca, as the scene where were played those outwitting Machiavellian policies between Rakshasa and Chanakya, which form the subject of the drama of Mudra Rakshasa and Chanakya, where Megasthenes had arrived on an embassy from Seleucus and resided many years leaving behind a record that possesses no ordinary claims upon our attention, whence Asoca issued his famous edicts about buddhism, identified by General Cunningham with the modern Besarh, 20 miles north of Hajipoor. It is from the writings of Megasthenes that we learn that 'Palibothra was eight miles long and one and a half broad defended by a deep ditch and a high rampart with 570 towers and 64 gates, a state of grandeur, of which not a tithe is possessed by the present city. In the time of the mahomedan conquest, the capital of Behar is said to have been removed to the town of that name, and its rajah to have become so degenerated as to abscond from his capital. As described by Ralph Fitch, Patna in the end of the sixteenth century was a large city, but contained only houses of earth and straw. Of the towers and gateways spoken of by Megasthenes, or of the lofty pillars, columns, and turrets of the Suganga palace mentioned by the hindoo dramatist not a trace exists surviving the ravages of time and war. Mahomedans now form a large part of the population of Patna, and a hundred thousand of them assemble at the Emambarah to celebrate the Mohurrum. Patna is the only remaining place where the number of mahomedans is strong and influential. At Patna is a monument over 150 Englishmen massacred in cold blood by Sumroo under the orders of Meer Cassim. It is a tall slender column of alternate, black and yellow stone that lifts its head about 30 feet high in the old English burial ground atPatna.—*Bunsen, Vol.* iii,*p.*520; *Tr. of Hind., Vol.* i, *pp.* 113–19. See Chandragupta, India, Megasthenes, Scylax.

PALIER-MANKENI, Tel. Urena sinuata.

PALI KI JHAR, Duk. Ehretia buxifolia.

PALINURUS, the name given by Fabricius to a genus of Crustacea which forms the tribe of Langoustiens in the system of M. Milne-Edwards, being the fourth of his family of Cuirassed Macrurians, and characterised by the existence of antennæ of the ordinary form and the absence of didactylous pincers. It is also regarded as the type of a family of the Palinuridæ. The Palinuri, or Sea-Crawfish, have the body nearly cylindrical. Their carapace is nearly straight from before backwards, very convex transversely, and presents about its anterior third part a deep transverse furrow, which is directed forward on each side and separates the stomachal from the cardial and branchial regions, the only ones which can be well distinguished. Palinurus fasciatus has the antennular ring armed above with two conical rather large teeth situated near its anterior border. Carapace armed with a small number of spines, and slightly granular, or only dotted on its posterior half; lateral tooth of the anterior border of the carapace small; no spines on the median line of the stomachal region; median tooth of the anterior border of the epistome very large. Length about a foot. It is a native of the Indian ocean.

Palinurus vulgaris, is the common Sea-Craw-Fish, or Spiny Lobster; Langouste of the French. Length about 18 inches. Weight sometimes from 12 to 15 lbs. It inhabits the seas of Europe, and is common on the rocky coasts of Britain especially in the south and on the like coasts of France, especially in the south and west.

Palinurus lalandii, *Edws.* Cape Good Hope.
„ fasciatus, *Edws.* Indian Ocean.
„ ornatus, *Edws.* Indian Seas.
„ sulcatus, *Edws.* Indian Coasts.
„ penicillatus, *Edws.* Indian Ocean.
„ dasypus, *Edws.* Indian Seas.

—*Eng. Cyc.*

PALIAR or Puliar, a race of herdsmen and merchants on the Anamalai hills of Coimbatore. See Kader.

PALIS, Singh. Boa-wood.

PALITA MANDA also Palita mundar, and Palto-mander, Beng. Erythrina indica, *Lam.*

PALITA-KANDIL-LAMPU, Anglo-Malay. Lamp.

PALITANA, or Palit'hana, or the abode of the Pali, is the name of the town at the foot of the sacred mount Satrunjya (signifying victorious over the foe) the Jain temples on which are sacred to Budhiswara, or the Lord of the Buddhist. Palit'hana seems derived from the pastoral (pali) Scythic invaders bringing in their train the buddhist faith which appears not indigenous to India. Palestine, which, with the whole of Syria and Egypt, was ruled by the Yksos or Shepherd-kings, who for a season expelled the old Coptic race, may have had a similar import to the Palit'hana founded by the Indo-Scythic Pali. The hill of Shutrunjya at Palitana in the Gohelwar district at the mouth of the Gulf of Cambay, is dedicated to Adinath, the first of the 24 hierophants of the Jains. Each temple contains images in marble of Adinath or of some other of the Tirthankara and perhaps no fabric of human workmanship in India, is more calculated to arouse wonder, admiration and lasting remembrance, than Palitana in its unique and mysterious perfection. No fabric of human workmanship in India, is more wondrous than Palitana, or Palit'hana, 'the dwelling of the Palli,' situated at the eastern base of Satrunjya, which rises nearly two thousand feet, and is between two and three miles in ascent, taking the sinuosities of the route into account.—*Moor, p.* 253; *Tod's Travels, p.* 275. See Hindoo, Inscriptions, Karli, Khandagiri, Krishna, Lat.

PALIZ, Pusht. Cucumis melo, *Linn.*, *W.*

PALJOR of Chenab, Fragaria vesca, *Linn.*

PALK BAY and Palk Strait are between Ceylon and the Peninsula of India, and separate the northern part of Ceylon from the mainland.

PALKEE or Palankeen, an oblong box, with a carrying pole at each end, used in India, as a means of conveyance, where the roads are difficult. These are now rarely seen, the roads have been so much improved. Butler remarks that any one may now ride in a palkee; in former days, when we paid 1,000 rupees to ride in a palkee or dola, then there was some dignity in being thus conveyed, and none but men of rank were entitled to the privilege.—*Butler's Travels of Assam, p.* 223.

PALKHI, Hind. Ficus venosa.

PALIVE CHETTU, Tel. Br. 565, gives the syns. Kulabata and Khelana, not in W.

PALLA, Tel. Mimusops hexandra, *Roxb.*

PALLADIUS, a European traveller in Persia, a few years before the Chinese Fa Hian.

PALLADIUS, was the author of a tract De Moribus Brachmanorum, written about A. D. It was embodied in the Pseudo-Callisthenes, published by Muller (Script. de Alex. Magno, pp. 103-4.) In it there is an account of the Bisades, the gatherers of pepper. They are described as "a dwarfish and imbecile race who dwell in rocky caves, and from the nature of their country are expert at climbing cliffs, and thus able to gather the pepper from the thickets. These Bisades are pygmies, with big heads and long straight unclipt hair. Sir J. E. Tennent applies this to the Veddahs of Ceylon. But, there is nothing, in the passage to fix it to Ceylon, and Muller points out, that the Besidæ are mentioned by Ptolemy (vii, 1) as a people, otherwise called Tiladæ, who live north of Mæandrus (a mountain chain on the east of Bengal,) "dwarfish and stumpy and platter-faced, but white in complexion." Lassen however, in his map by Kiepert, locates them as a Bhotiya race in the Himalaya near Darjiling in the Garo and Kasia hills north of Sylhet.—*Yule Cathay, Vol.* i, *pp.* 144-145. See Scholastikos, Veddah.

PALLAN, Pallar or Puller, are a low caste or slave race attached to the Vellala agriculturists of the south of India. The Mallar are the agricultural labourers of the Pallar tribe.—*Wils. Glossary.* See Paraiah.

PALLANDU, Sans. Allium cepa, *Linn.*

PALLANGU, Tam. Hemp of Madras, the Ambari of the Dekhan, Hibiscus cannabinus.

PALLAS, an author who wrote on the natural history of Central Asia.

PALLAS, Hind. See Poda wood.

PALLAY MARAM, Tam. Wrightia. tinctoria.

PALLE, Tam. Mimusops hexandra, *Roxb.*

PALLEGOIX. A Bishop of the Romish church, long resident in the Malay peninsula, who wrote on Siam. "Some years ago" he says, "a great drought, had dried up all the ponds in the neighbourhood of Ayuthia:

during the night, torrents of rain fell. Next day, going for a walk into the country, he was surprised at seeing the ponds almost full, and a quantity of fish leaping about! 'Whence have these fish come?' I inquired of a labourer: 'yesterday there was not one.' He replied they were come under favour of the rain. In 1831, when fish were uncommonly cheap, the Bishop of Siam poured fifty cwt. into his ponds: but, in less than a month, nine-tenths escaped during a rain that fell in the night. There are three species of this wandering fish, called Pla-xon, pla-duk, pla-mo. The first is voracious, and about the size of a carp; salted and dried, it can be preserved for a year: it is very abundant, and is exported to China, Singapore and Java, and is a particularly wholesome and health-giving fish. Sir J. E. Tennant thinks that the fish here alluded to by Sir John Bowring is the Anabas scandens, Cuv. (Perca scandens *Daldorf*, Kavaya also Kawhoya Singh. Pannei eri, (Tam.,) which Dr. Hamilton Buchanan says is most tenacious of life; he had known boatmen on the Ganges keep them for five or six days in an earthern pot without water and daily to use what they wanted, finding them as lively and fresh as when caught. The Platycephalus clavulatus, P. insidiator and P. carbunculus can all sustain life for some little time out of water. Mr. Layard, once encountered several of the Anabas, travelling along a dusty gravel road in the mid-day sun.—*Bowring's Siam*, *Vol.* i, *p.* 10; *Ann. Nat. Hist. Mag.* 1853, *Pallegoix*, *Siam*, i, 144.

PALLEKE or Palaki, Tel. Capparis brevispina, *DC.*—*W.* & *A.*, C. acuminata, *R.*, ii, 566.

PALLERU, or Chiri palleru, Tel. Tribulus lanuginosus, *L.*—*R.*, ii, 401—*W.* & *A.*, 471.

PALLERU KORA. Tel. A tree from Palakonda with scabrous lanceolate leaves.

PALLERU TEGA, Tel. Dioscorea, *sp.*

PALLE-SATTERAM, Tam. The "Lizard-science," Lizards are supposed to give warning by chirping of approaching good or evil.—*Hardy.*

PALLI, a servile tribe in the south of India, bondsmen or slaves of brahmin proprietors.—*Wilson.*

PALLIA, Hind. A funeral monumental pillar, amongst the Rajpoots. See Rajpoots.

PALLIKONDA, or Polikonda, 12° 55′; 78° 57′, in the Karnatik, near the right bank of the Palar. Dak bangalow, 841 feet.—*Rob. Schl.*

PALLIWAL. Next to the lordly Rajpoots, equalling them in numbers and far surpassing them in wealth, are the Palliwal of Jessulmir. They are brahmins, and denominated Palliwal from having been temporal proprietors of Palli, and all its lands, long before the Rahtor colonized Marwar. Tradition is silent as to the manner in which they became possessed of this domain: but it is connected with the history of the Pali, or pastoral tribes, who from the town of Palli to Palit'hana, in Saurashtra, have left traces of their existence; and Colonel Tod was inclined to the opinion that all the ramifications of the races figuratively denominated Agnicula, were of Pali origin: more especially the Chohan, whose princes and chiefs for ages retained the distinctive affix of Pal. The Palliwal brahmins, as appears by the annals of Marwar, held the domain of Palli when Seoji, at the end of the twelfth century, invaded that land from Canouj, and by an act of treachery first established his power. It is evident, however, that he did not extirpate them, for the cause of their migration to the desert of Jessulmir is attributed to a period of a mahomedan invasion of Marwar, when a general war-contribution (dind) being imposed on the inhabitants, the Palliwal pleaded caste, and refused. This exasperated the raja; for as their habits were almost exclusively mercantile, their stake was greater than that of the rest of the community, and he threw their principal men into prison. In order to avenge this, they had recourse to a grand "chandi" or act of suicide; but instead of gaining their object, he issued a manifesto of banishment to every Palliwal in his dominions. The greater part took refuge in Jessulmir, though many settled in Bekaner, Dhat, and the valley of Sind. At one time, their number was calculated to equal that of the Rajpoots. In the early part of the 19th century almost all the internal trade of the country passed through their hands, and it was chiefly with their capital that its merchants traded in foreign parts. They were the Metayer of the desert, advancing money to the cultivators, taking the security of the crop; and buying up all the wool and ghee (clarified butter), which they transported to foreign parts. They also rear and keep flocks. They were then subject to the visits of the Maldote, Tejmalote, and other plunderers. The Palliwal never marry out of their own tribe: and, directly contrary to the laws of Menu, the bridegroom gives a sum of money to the bride. It will be deemed a curious incident in the history of superstition, that a tribe, brahmin by name, at least, should worship the bridle of a horse. When to this is added the fact, that the most ancient coins discovered in these regions bear the Pali character and the effigies of the horse, it aids to prove the Scythic character of the early colonists of these regions, who, although nomadic (Pali), were equestrian. There is little doubt that the Palliwal brahmins are the remains of the priests of the Palli race, who, in their pastoral and commercial pursuits, have lost their spiritual power.

Pokurna Brahmins are a singular brahminical tribe; of whom it is calculated there were, about A.D. 1820, fifteen hundred to two thousand families in Jessulmir. They are also numerous in Marwar and Bikaner, and are scattered over the desert and valley of the Indus. They follow agricultural and pastoral pursuits chiefly, having little or no concern in trade. The tradition of their origin is singular: it is said that they were Bildars, and excavated the sacred lake of Poshkur or Pokur, for which act they obtained the favour of the deity and the grade of brahmins, with the title of Pokurna. Their chief object of emblematic worship, the khodala, a kind of pick-axe used in digging, seems to favor this tradition.

Jut or Jit here, form a great part of the agricultural population: There are also various other tribes.

The Castle of Jessulmir, is erected on an almost insulated peak, from two hundred to two hundred and fifty feet in height, a strong wall running round the crest of the hill. It has four gates, but very few cannon mounted.—*Tod's Rajasthan, Vol.* ii, *pp.* 284-287.

PALLO, HIND. Wallheimia tridactylites.

PALLO SULTANO, see Ballidæ.

PALLU, HIND. Impatiens, *sp.*

PALLUNGOO of Madras, Crotalaria juncea, *Linn.* See Ambaree, Hemp.

PALM. The term applied in Southern India to the bars of iron, manufactured from Cutties.

PALMS. The palm trees or palm tribe of plants, belong to the Order Cocoaceæ, the Palmaceæ of Lindley. They grow alike in the Eastern and in the Western Hemispheres, but are rarely beyond 35° south and 49° north. Particular species of palms are confined to their own peculiar localities but Cocos nucifera, Acrocomia, Sclerocarpa and Borassus flabelliformis are spread over many lands. The number of species scattered over the world amount to over 1,000. Of these, not a few love the humid banks of rivulets and streams; others cling to the sea shores, and some ascend into Alpine regions. Some collect into dense forests, others spring up singly or in clusters, over the plains. The chief palms are,

A. Areceæ, Ariceneæ, *Martius, Endl.*
Chamædirea gracilis, *Willde*, S. America.
Hyophorbe indica, *Gœrtn.* Bourbon.
Oreodoxa oleracea, *Endl.*, W. Indies.
„ regia, *Humb.* Cuba.
Areca catechu, *Linn.* E. Indies.
„ dicksonii, *Roxb.* Malabar Hills.
„ triandra, *Roxb.* Chittagong.
„ gracilis, *Roxb.* Concan, Sylhet, Chittagong.
„ crinita, *Bory.* Mascarhenas Islands.
„ humilis, *Willde.* Amboyna.
„ rubra, *Bory.* Mascarhenas.
Areca vestiaria,———China ?
„ laxa, *Gr.* Andamans.
„ nagensis, *Gr.* Assam, Naga Hills.
„ cocoides, *Gr.* Malacca.
„ pumila, *Gr.* „
„ malaiana, *Gr.* „
„ disticha, *Roxb.* „
Seaforthia elegans, *R. Br.* N. Holland.
Harina caryotoides, *Buch.* Chittagong.
Arenga saccharifera, *Labell.* Malay Islands, Cochin-China, Archipelago.
Caryota urens, *L.* Concans, Coromandel, Moluccas.
„ horrida, *Jacq.* Caraccas.
„ sobolifera, *Wall.* Mauritius.
B. Lepidocaryeæ. Lepidocaryinæ, *Mart., Endl.*
Calamus draco, *Willde*, Sumatra, Moluccas.
„ erectus, *Roxb.* Sylhet.
„ extensus, *Roxb.* Sylhet.
„ fasciculatus, *Roxb.* Bengal.
„ gracilis, *Roxb.* Chittagong.
„ hostilis, *Wall.*——— ?
„ humilis, *Roxb.* Chittagong.
„ latifolius, *Roxb.* Chittagong.
„ monoicus, *Roxb.*——— ?
„ polygamus, *Roxb.* Chittagong.
„ quinquenervius, *Roxb.* Sylhet.
„ rotang, *L.* Bengal, Concan Ghauts.
„ rudentum, *Lour.* Cochin-China, Moluccas.
„ tenuis, *Roxb.* Chittagong.
„ verus, *Lour.* Moluccas, Cochin China.
Zalacca assamica, *Wall.* Assam.
„ edulis *Reinw.* River banks of Pegu to Moluccas.
„ macrostachya.
Sagus farinifera, *Gœrtn.* Malayana & Archipelago.
„ rumphii.
„ lævis, *Rumph.* Sumatra to Moluccas.
C. Borasseæ. Borassinæ, *Martius, Endlich.*
Borassus flabelliformis, *L.* E. Indies.
Latania borbonica, *Lam.* Bourbon.
Bentinckia condapana, *Berry*, Travancore Hills.
D. Corypheæ. Coryphenæ, *Mart., Endlicher.*
Corypha elata, *Roxb.* Bengal.
„ taliera, *Roxb.* Bengal.
„ umbraculifera, *L.* Ceylon, Moluccas.
„ utan, *Lam.* Moluccas.
„ rotundifolia, *Lam.* Cochin-China, Moluccas.
Livistonia mauritiana, *Wall.* Mauritius.
„ spectabilis, *Gr.* Malacca.
Licuala pumila, *Bl.* Java.
„ rotundifolia, *Bl.* Java.
„ peltata, *Roxb.* Chittagong.
„ spinosa, *Wurmb.* Cochin-China, Celebes, Moluccas.
„ triphylla, *Gr.* Malacca.
„ longipes, *Gr.* „
„ acutifida, Sumatra.
„ paludosa, *Gr.* Malacca.
„ spinosa, *Gr.*
„ dentifida, *Mart.* Pinang.
„ glabra, *Gr.* Malacca.
Sabal adansonii, *Guerns.* N. Orleans.
„ hystrix, *Nutt.* E. Florida, Georgia.
Chamærops griffithiana, *Wall.* Khassya mountains.
„ humilis, *L.* S. Europe.
„ martiana, *Wall.* Dehra Dhoon.
„ mitis, *Mayer.* Guiana.
„ khassyana, *Gr.* Khassya.
„ ritchiana, *Gr.* „
Rhapis flabelliformis, *Ait.* China, Japan.
Phœnix acaulis, *Buch.* Bahar.
„ dactylifera, *L.* Middle and Tropical Asia.
„ farinifera, *Roxb.* Coromandel.
„ paludosa, *Roxb.* Sunderbuns.

Phœnix sylvestris, *Roxb.* All India.
„ ouseleyana, *Gr.* Assam.
„ pedunculata, *Gr.* Neilgherries.
E. Cocoeæ. Cocoinæ, *Martius*, *Endlicher.*
Elæis guineensis, *Jacq.* Guinea.
Cocos flexuosa, *Mart.*, Brazil.
„ nucifera, *L.* Southern and Eastern Asia.
Lodoicea seychellarum, *Labell.* Sechelles.
Plectocomia elongata, *Mart.*. Java.
Ceratolobus glauces-ceus, *Bl.* Java.
Dæmonorops melanochœtes, *Bl.* Java.
Eugeissonia truncata, *Griffiths.*
Leopoldinia pulchra, Java.
Livistonia jenkinsiana, *Griffiths.* Assam.

Many of the palms, in tropical countries, are conspicuous for their lofty pillar-like stems, surmounted by apparently inaccessible fruit or gigantic foliage, and are remarkable for the many useful purposes they are calculated to fulfil; they furnish many of the necessaries, comforts, and luxuries of life, and we come more or less in contact with them in almost every action of daily life. In household economy, parts of them are formed into spoons, and cups, and ladles and lamps, and hats, and clothes, and combs, hammocks, bow strings, fishing-lines and fish-hooks. The light rafters of the houses are obtained from the straight cylindrical trunks of the Java Palm (Leopoldinia pulchra) and the date or palmyra trees. In general they adhere to the soil by clusters of strong simple roots which not uncommonly form a hillock elevated above the surface of the ground. Their trunks are solid, harder on the outside than the centre, and are sometimes, as in the cane-palms, coated by a layer of siliceous matter; they are usually quite simple, growing exclusively by a single terminal bud, called in the Areca its cabbage, and eaten as a delicacy when boiled; but in the Hyphæne, or doom-palm, they are regularly forked. In the majority of the order the stem is cylindrical, but in some it is thickest at the base, and in others swollen in the middle; occasionally it is defended by strong hard spines, but is more frequently unarmed, and marked by rings which indicate the places whence the leaves fall off. The leaves, called fronds by Linnæus, are alternate, with a very hard epidermis and a distinct petiole, from the base of which a coarse network, called reticulum, sometimes separates next the trunk; they are usually either pinnated or fan-shaped, but are occasionally nearly split in two; their veins are parallel, the spaces between them plaited, and the whole size sometimes very great, as in the fan-palm, in which specimens have been seen as much as 18 or 20 feet in breadth. The flowers appear in panicled spikes from the inside of hard dry spathes, which are often boat-shaped, and although small, they are sometimes so extremely numerous that each panicle will weigh many pounds. They are generally hermaphrodite, but often monœcious, diœcious, or polygamous. The calyx and corolla consist each of three pieces, which are either distinct or more or less united. The stamens vary in number, from 3 to a large multiple of that number, and bear 2-celled linear anthers, which open along their inner face. The ovary consists of 3 carpels, which are sometimes distinct, sometimes consolidated, and occasionally in part abortive, so that the ovary is only 1-celled. The ovaries are almost always solitary, and erect in each cell, but sometimes two are present, which in that case stand side by side; they are orthotropous in some genera and anatropous in others. The styles are very short, the stigmas simple. The fruit varies extremely in its consistence and appearance. Sometimes it is 3-celled, often 1-celled; in such species as the cocoanut it is a kind of drupe covered by a coarse fibrous rind; in others it is a soft sweet eatable pericarp, as in the date; in others its surface is broken up into lozenge-shaped spaces, as in the Sagus, whose fruit looks as if covered with scale-armour. The seed is single, either solid or hollow, and consists principally of albumen of a fleshy, oily, horny, or cartilaginous texture, within which is lodged a very small cylindrical embryo at some part of the surface distant from the hilum. Palms appear to prefer a soil in some measure salt, although many species are inhabitants altogether of inland districts and even of high mountains. Their geographical limits appear to be within 36° N, lat. in America, 44° N. lat. in Europe, 34° N. lat. in Asia, and 38° S. lat. in the southern hemisphere; and, according to Von Martius, their powers of migration are extremely small; none of them have been able to cross the ocean without the aid of man. This, however, is not applicable so far as regards the cocoanut, the keeled fruit of which sails to the most distant shores. Their favourite stations are on the banks of rivers and water-courses, and the sea-shore, some species scattered singly and others collected together into large forests. There is scarcely a species of this order in which some useful property is not found. The cocoanut, the date, and others, are valued for their fruit; the fan-palm, and many more for their foliage, whose hardness and durability render it an excellent material for thatching; the sweet juice of the palmyra, the date, the cocoanut, and Arenga palms, when fermented yields wine; the centre of the sago-palm abounds in nutritive starch; the trunk of the Iriartea or Ceroxylon exudes a valuable vegetable wax; oil is expressed in abundance from the oil-palm and from the cocoanut palm; an astringent matter resembling dragon's blood is produced by Calamus draco; many of the species contain within their leaves so hard a kind of fibrous matter, that it is employed instead of needles, or so tough that it is manufactured into cordage; and finally, their trunks are in some cases valued for their strength and used as timber, or for their elasticity, or their flexibility, as in the cane-palm. The fruit of some is edible, of others abounding in oil, the sap of a few forms a pleasant beverage, and may by evaporation yield sugar or be fermented into a spirit. The stems of some species are gorged with farinaceous matter, which may be separated as a starch-like powder or granulated into sago. The broad leaves, from their great size and hard surface, are useful for thatching the cottages of the poor, or for making umbrellas for the rich. The narrow-leaved kinds are plaited into mats and baskets, or smoothed so as to be fit for writing on; while the leaves of several, when in a young and tender state, are eaten, both raw and in a cooked state, and are hence called cabbage palms. Some abound in strong unyielding fibre, while others form wood which is applicable to all the purposes of timber. Hence, several are valuable articles of culture in the countries where they are indigenous, or where the soil and climate are suitable for their growth—as, for instance, the date palm in Arabia and Africa, the oil palm in the West of Africa, the cocoanut in India and its Islands, together with the Betel-nut, Palmyra, and talipat palms; while the sago, the Ejoo, and the betel-nut palms flourish in the moist warm climates of the Malayan Peninsula and of the Indian Archipelago. The palms abound chiefly in the tropical parts of South America, as well as of the Old World; but a few species extend to rather high latitudes, as an Areca to lat. 38° S. in New Zealand, and a Sabal (Chamærops, Auct.) to lat. 40° N. in North America; while the dwarf palm, a native of the North of Africa, is now at home in the South of Europe. There even the date palm is grown in a few sheltered situations; though it is in the hot and dry soil of Arabia and Africa that it attains the greatest perfection, and furnishes a principal part of the diet of its inhabitants, as well as an article of commerce. Phœnix sylvestris, a variety or species of the same genus, is common in most parts of India. A Chamærops is found in Nepal, and one on the Khasya Hills, at elevations of from 5,000 to 8,000 feet; while C. Ritchiana is found in the Khybur Pass, and probably all along the mountainous range from Affghanistan to Sind. But it is in far southern latitudes and in a different climate that the cocoa and the betel-nut palms are objects of extensive culture; as well as the sago palms, of which the ejoo or gomuto of the Malays the Arenga saccharifera of botanists, is one abounding in sap, which can be used as palm wine or converted into sugar; yielding at all times strong and durable fibre. The older trees when cut down yield sago, as do Sagus rumphii and S. lævis, especially abundant in and near Sumatra. The latter is remarkable among palms for throwing up young plants around it in the same manner as the plantain. Both kinds of sago tree are strongly recommended for cultivation—the Arenga on low coasts near the sea, but the species of sagus even on the edges of the marshes which abound in such situations. It is no doubt to some one of these sago trees that Sir John Maundeville alludes, when he says: "in that land grow trees that bear meal, of which men make bread, white and of good savour; and it seemeth as it were of wheat, but it is not quite of such savour. And there are other trees that bear good and sweet honey; and others that bear poison. And if you like to hear how the meal comes out of the trees, men hew the trees with an hatchet, all about the foot, till the bark be separated in many parts; and then comes out a thick liquor, which they receive in vessels, and dry it in the sun, and then carry it to a mill to grind, and it becomes fair and white meal; and the honey and the wine, and the poison, are drawn out of other trees in the same manner, and put in vessels to keep." The leaves of many palms are employed for thatching, for making chattahs or umbrellas, punkahs and hats. The stems of Licuala acutifida afford the well-known walking sticks known by the name of "Penang Lawyers,' those of Licuala peltata, the Chattah-pat of Assam, are in universal demand in that valley. Scarcely a single ploughman, cow-keeper or cooly, but has his Jhapee or Chattah, made of Chattah-pat. But the leaves of this palm are coarser than those of another, the Tokapat of the Assamese, which has been named Livistona Jenkinsiana, by Griffith. Col. Jenkins says that this species of palm is an indispensable accompaniment of every native gentleman's house, but in some parts it is rare, and the trees are then of great value. The leaves are in universal use throughout Assam, for covering the tops of dhoolies or palkees, and the roofs of khel boats; also, for making the peculiar hats, or rather umbrella-hats (jhapee) of the Assamese. For all these purposes the leaves are admirably adapted, from their lightness, toughness and durability. To the above list of useful Indian palms, we might easily add some, such as Zalacca macrostachya, used for making baskets and for tying Nipa leaves as well as mention the native names of others employed for many of the same purposes as the foregoing. The Chinese are said to make cables of palm leaves. The Areca vestiaria is so called from clothing being made from its fibres, and Rhapis cochinchinensis is employed for thatching, &c. Lodoicea Seychellarum is the palm yielding the formerly much famed "Cocos de Mer" or "Double Cocoanut,"—for a specimen of which, in the Mauritius collection, a Prize Medal was awarded at the Exhibition of 1851; its leaves are formed into baskets and flowers. The palms prove the great value of these plants to the regions where they are indigenous—yielding flour and sugar, milk and honey-like fluids, demulcent drinks and fiery spirit, fibre for cordage and for clothing, leaves for thatching and for platting, as well as wood for a variety of purposes. There is little doubt that some may yield the fibre which so abounds in their leaves, sufficient easily to be useful to the paper-maker.—Further information on the various Palms of Eastern and Southern Asia, the cocoanut palm, palmyra, Corypha, Caryota urens, Arenga saccharifera, will be found under these several heads. This natural order of plants is one of the largest, the most beautiful, as well as the most useful of the whole vegetable kingdom. They are almost exclusively plants of tropical countries. They belong, systematically speaking, to the endogens or monocotyledons, the same great division which comprises the grasses, sedges, lilies, orchids and screw-pines, and most of them attain the size and assume the aspect of trees. Palms having arrived at the proper age, flower every year until they die, or only once during the whole course of their existence, and have sometimes from 200,000 to 600,000 flowers on a single tree. The fruits are almost of every colour, and a single spathe of the Seje palm of the Orinoco bears as many as 8,000 of them. The common cocoanut is one of the largest of the fruits and the double cocoanut of the Seychilles measures about four feet in circumference and probably surpasses all others in dimensions. There are not less than 1,000 known species of this useful plant. Palms are associated with the most sublime truths of christianity, and in our every day life we speak of our "palmy days," and "carrying off the palm," as happy and excellent times and seasons of rejoicing. Various of their products are largely made use of by the inhabitants of the countries in which they grow, and are exported to nations thousands of miles away, who employ them for many purposes, useful and economic. The sweeper of the crossings of London, holds in his hand a broom, the fibrous portion of which was cut by the wild Indians of Brazil from the stems of a palm: the gentleman who prides himself on his Penang Lawyer, is but carrying a young plant of the Licuala acutifida. The knob of the ladies parasol, is formed from a Coquilla-nut, turned into that shape. The chip hats, so extensively worn on fine summer days, are made of the leaves of a Cuban palm (Thrinax argentea). Heaps of dates are to be seen in all the shops of Europe which were gathered by the Bedouin Arabs, or on the borders of the great desert of Sahara; and cocoanuts, grown on the shores of the Indian Ocean, in the myriads of islands which form its Archipelago, or on the shores of the Carribean sea, are sold in every city of the colder regions of the world, where they are ever beheld with unabated curiosity. The cordage and rigging of the ships, and the thick mattings used on stair cases in England, spun and woven, are from the husk of the cocoanut, and many articles of furniture are made from the woods of palms. Toys and ornaments are made from the kernels of the vegetable Ivory palm. The stearic candles so well known are composed of the fatty substance extracted from the oil palm and the cocoanut. The sago which ministers so powerfully to the recovery of the sick, and which is seen in such varied guise on our tables, is the pith of palms that flourish in many tropical regions, the famous Betel-nut dentifrice formed of the charcoal of that nut, colored with dragons blood, is the produce of two palms, and the toilet soaps of Europe are made from palm oils. Everywhere we meet with numerous products of palms, either in a raw state, or turned by the ingenuity of man to some useful purpose: and millions of people, who never saw a palm are benefitted by the products of these useful trees. But if this be felt in remote regions of the cold north, in the tropical regions of Asia, Africa, America and Australia, where these elegant members of the vegetable kingdom flourish in all their native splendour, the inhabitants derive from them many of the necessaries, comforts, and luxuries of life, and come more or less in contact with them in almost every action of daily life. In household economy, parts of them are formed into spoons, and cups, and ladles and lamps, and hats and clothes, and combs, and hammocks, and bowstrings, and fishing lines, fish-hooks. The light rafters of their houses are obtained from the straight cylindrical trunks of the Java Palm (Leopoldinia pulchra), the date and palmyra tree. The roof is thatched with the leaves of palms. In one region, the door of the house is made of the split stems of the Pashiuba palm, (Iriartea exorhiza), and in another the thickly matted leaves of the cocoanut and palmyra serve as a door for the gardens and parterres. The harpoon for catching the cow fish, is formed of the black-wood of the Pashiuba barriguda (Iriartea ventricosa.) The people eat the fruits the produce of many of this tribe of trees, and in the palm-wine and arracks from the various plants, they enjoy palatable refreshing and stimulating drinks.

The Chamærops Khasiana, the fan-palm, the pakha of the Khassya, grows on the cliffs near Mamloo on the Khassya hills: it may be seen on looking over the edge of the plateau, its long curved trunk rising out of the naked rocks, but its site is generally inaccessible: while near it grows the Saxifraga ciliaris of English gardens, a common plant in the north-west Himalaya, but extremely scarce in Sikkim and the Khassya mountains. This species of Chamærops is very closely allied to, if not identical with P. Martiana of Nepal, which ascends to 8,000 feet in the western Himalaya, where it is annually covered with snow: it is not found in Sikkim, but an allied species occurs in Affghanistan, called P. Ritchiana. The dwarf palm of Southern Europe is a well known species. There are upwards of twenty kinds of palm in the Khassya district, including Chamærops, three species of Areca, two of Wallichia, Arenga, Caryota, three of Phœnix, Plectocomia, Licuala, and many species of Calamus. Besides these there are several kinds of Pandanus, and the Cycas pectinata. The palms of the Khassya hills amount to fourteen, of which the Chamærops and Arenga are the only genera not found in Sikkim.

In the West Indies, where the Oreodoxa oleracea, the edible cabbage tree, grows, its green top is eaten both raw and cooked. The betel-nut palm, Areca catechu grows throughout the East Indies, and produces the betel-nut which the people largely use as a masticatory along with the betel-leaf, and its nut also yields a kind of catechu. In the mountains of Malabar, the poorer people use the nut of the Areca dicksonii as a substitute for the betel-nut. The Arenga, the Gomuti palm of the Eastern Archipelago, yields sago, sugar, palm-wine and black horse-hair-like fibres, from which cordage and cables are made. A single tree yields about lbs. 150 of good sago meal, and its sap is boiled down into a thick syrup, and allowed to concrete. Horse-hair-like fibres surround the petioles of the leaves, and the sap is largely used as a palm-wine. The palm-wine from the Caryota urens of the Peninsula and the Moluccas is a valuable product. It is fermented and drank as an intoxicating beverage, and is distilled to obtain a spirituous liquid. The best trees, during the hot season, will yield 100 pints of sap in 24 hours. The pith of the trunk in old trees is made into sago, and baked as bread or boiled in the form of a thick gruel. The different species of Calamus furnish the canes and ratans of commerce. They are largely used in the East Indies as the linings of bedsteads, chairs, as screens, to form ladders, and cables The Sagus lævis, *Rumph*, of the Eastern Archipelago, and S. farinifera *Gœrtn*, of the Malay peninsula and the Archipelago, both yield the sago of commerce; the people of the Moluccas live almost wholly on the pith of the latter tree. The leaves of the Tali tree of Ceylon and the Moluccas, the Tali-pat or great fan-palm of Ceylon, the Corypha umbraculifera, are of great value as a thatching material, and the leaves of the tara palm of Bengal, the Corypha taliera, are used as a book to write on, with the steel styles, and they are also used to tie the rafters of their houses. The species of the date palms, the genus Phœnix yield several useful products. P. sylvestris, the wild date palm, grows abundantly throughout British India. Its fruit is of little value but its juice is largely used as a palm-wine, and is boiled with sugar, which is extensively exported to other countries. The date tree is met with in almost every part of British India, it flourishes most congenially, and is found plentifully in the alluvial soils which cover the south-eastern portion of Bengal proper, excepting only such tracts as suffer entire submersion annually from the overflow of their rivers, as is common in portions of the Dacca, Mymensing, and Sunderbun districts. The extent of country best suited for its growth, and over which it is found most plentifully as above indicated, may therefore be taken as within an area stretching east and west about 200 miles, and north and south about 100 miles, and comprehending by a rough estimate about 9,000 square miles within an irregular triangular space. When not stunted in its growth by the extraction of its juice for sugar, it is a very handsome tree, rising in Bengal from 30 to 40 feet in height, with a dense crown of leaves spreading in a hemispherical form from its summit. These leaves are from 10 to 15 feet long, and composed of numerous leaflets or pinules about 18 inches long. The trunk is rough, from the adherence of the bases of the falling leaves; this serves to distinguish it at a glance from the smooth-trunked cocoanut palm, which in its leaves only it resembles. The fruit consists more of seed than of pulp, and altogether is only about one-fourth the size of the Arabian kind brought annually to Calcutta for sale, and when fresh imported, a rich and favourite fruit there. This inferiority of the Indian fruit may no doubt be attributed to the entire neglect of its improvement there from time immemorial, and perhaps, in some measure, to the practice of tapping the trees for their sap, so universally followed in every part of British India, to obtain the palm-toddy. The process of tapping and extracting the juice commences about the 1st of November and terminates about the 15th of February. Some days previously, the lower leaves of the crown are stripped off all round, and a few extra leaves from the side of the tree intended to be tapped. On the part thus denuded, a triangular incision is made with a knife, about an inch deep, so as to penetrate through the cortex, and divide the sap vessels; each side of the triangle measuring about 6 inches, with one point downwards, in which is inserted a piece of grooved bamboo, along which the sap trickles, and from thence drops into an earthen pot suspended underneath it by a string. The pots are suspended in the evening, and removed very early the following morning, ere the sun has sufficient power to warm the juice, which would cause it immediately to ferment and destroy its quality of crystallizing into sugar. The cutting being made in the afternoon, next morning the pot is found to contain from a full-grown tree, 10 seers of juice, the second morning 4 seers, and the third morning 2 seers of juice; the quantity exuding afterwards is so small that no pot is suspended for the next four days. Daily at sunrise, throughout the goor season, the toddy-drawer may be seen climbing his trees, and collecting at a convenient spot beneath them, the earthen pots containing the juice yielded during the past night. Under a rude shed, covered with the leaves of the date tree itself, and erected under the shade of the plantation, is prepared the boiling apparatus to serve for the goor season. It consists of a hole of about 3 feet in diameter, sunk about 2 feet in the ground, over which are supported by mud arches four thin earthen pans of a semi-globular shape, and 18 inches in diameter; the hole itself is the furnace, and has two apertures on opposite sides for feeding in the fuel, and for escape of the smoke. The fire is lit as soon as the juice is collected, and poured into the four pans, which are kept constantly supplied with fresh juice as the water evaporates until the whole produce of the morning is boiled down to the required density. As the contents of each pan becomes sufficiently boiled, they are ladled out into other earthern pots or jars, of various sizes, from 5 to 20 seers of contents, according to local custom, and in these the boiled extract cools, crystallizes into a hard compound of granulated sugar and molasses, and is brought to market for sale as goor. The subsequent processes by which the goor is deprived more or less of its molasses and impurities are too long to be detailed.

In Arabia, the people of the Nejd, as Wallin informs us, believe that the more the date palms are watered, the more syrup will the fruit produce; they, therefore, inundate the ground as often as possible. At El Jauf, where the date is peculiarly good, the trees are watered regularly every third or fourth day.

The stem of Phœnix farinifera contains fecula which is used as food, in times of scarcity, its leaflets are wrought into mats, and the common petioles are split into three or four and used to make baskets. Its fruit is edible. Walking sticks are made of the trunks of the Ph. paludosa, and the trunks are used as rafters and the leaves for thatch. The palm oils from the Elæis guineensis the oil palm of the West Indies and from the cocoanut palm of the East Indies are extensively used in the West and East. The Elæis guineensis also yields an excellent palm wine. The numerous uses to which the Cocoanut Palm are applied are familiar to all who have not even seen it. It grows on the shores of all the East and West Indies, and the leaves furnish thatch for dwellings, materials for buckets, baskets and fences, and make excellent torches. The juice of the flower stem, is fermented into palm wine, distilled into arrack, or made into sugar. The fruit when green is filled with a liquid albumen, which is largely drunk as a refreshing liquid: when ripe the albumen solidifies and is used in cooking, and affords an abundance of oil which is used in lamps and in Europe is manufactured into candles. The fibrous rind forms the coir of commerce, made into cordage and cables. A fibre is obtained from the sheaths of the leaves of a kind of palm (Chamærops) which grows in the Kangra hills up to 5,000 feet. The peculiar structure of the wood of the palms deserves attention, it appears formed of a series of hard stiff longitudinal fibres not interlaced or twisted but crossed at considerable intervals at various angles by similar fibres which proceed from the soft heart of the tree, to the outer part, probably to the leaf stem—a radial section of palmyra rafter shows this, the interstices are filled up with pith, the proportion of which increases with the distance from the outer part. The wood is used in England for veneers and inlaying. It is exported in large quantities from Ceylon, where it is used for rafters, pillars, and posts of native houses. The toddy of the cocoanut, the palmyra and the gomuti palms is obtained from the spathe. In the palmyra and cocoanut the spathe is cut across and the juice flows into a pot. In the gomuti, the spathe is wounded. With the date tree the stem is notched and sloped and a spout made of the branch. Of others of the palms of the E. Indies, the following mention may be made:—

Eugeissona truncata, Griffiths, is a stemless palm, growing in thick tufts, which are surrounded by the debris of the old leaves. Leaves numerous, the outer ones spreading, fifteen to twenty feet in length. It grows in forests on the hills about Ching, Malacca, and is very common. It is also common in Penang where, according to Mr. Lewis, it is much used in making mats for sides of houses, for thatch and for the same purposes as those of Nipa fruticans; its Malayan name is Bertam.

Corypha elata, Griffiths, has a straight trunk, but often varying in thickness. A tree about thirty years old, when in flower, was seventy feet to the base of the inflorescence, another about sixty; circumference near the root eight feet, and about the middle of the trees five and a half or six; their whole length strongly marked with rough, dark-coloured, spiral ridges, and furrows, which plainly point out the spiral arrangement of the leaves. The ligneous fibres, as in the order, are on the outside, forming a tube for the soft spongy substance within, of a dark chocolate colour, tough and hard, but by no means equal, in either quantity or quality, to the very serviceable wood of Borassus flabelliformis. This palm grows in Bengal flowering in March and April: the seeds require about twelve months to ripen. It is the Bujoor or Bujur-batool, of Bengal and is cultivated in the gardens about Calcutta. This palm is to be at once recognized by its black spirally marked trunk. From the other species of Corypha it is abundantly distinct by its long, obviously spirally placed ex auriculate petioles, and by the smaller dark-green flat lamina, with narrow linear-ensiform segments. The fruit is smaller. According to Roxburgh's drawing the inflorescence of this species is so dense that no part of the spadiæ or spathes is visible, and the outline is irregular pyramidal, some of the branches being much larger than others.

Corypha taliera, Roxb., has a trunk perfectly straight, about thirty feet high, and as near as the eye can judge equally thick throughout, of a dark-brown colour, and somewhat rough with the marks left by the impression of the fallen leaves. The leaves of this tree are employed by the natives to write on with their pointed steel styles and also to tie the rafters of their houses, for they are strong and durable, the wood does not seem to be applied to any useful purpose. It grows in Bengal, but it is scarce in the vicinity of Calcutta. It flowers at the beginning of the hot season, the seeds ripen nine or ten months afterwards. It is the Tara, Tillier or Tareet of Bengal. This species is so closely allied to C. umbraculifera, as to be difficult to distinguish when out of flower. The Botanic garden's specimens are distinguishable by the lamina of the leaf being conduplicate from the middle upwards, and by their posticous segments overlapping so that the whole becomes peltate. The leaves are very like those of Borassus flabelliformis, but much larger. The petioles are biauriculate and without an obvious spiral arrangement, they separate at the top of the dilated part, and subsequently fall off, leaving a smooth trunk. The lamina is five or six feet long, fifteen feet broad, glaucescent; the segments are ninety or ninety-five in number, deeper and broader than in C. umbraculifera, the central ones being 3 to 3½ feet long.

Corypha umbraculifera, is very much like C. taliera. The leaves are, however, larger than those of the species alluded to, and in its native places they attain an immense size. It grows in Ceylon, the Malabar and Malay coasts. It is the Tala or Tala-gas, of the Singhalese, Condayari, Tamul, (*Roxb.*) Coddo-Pana of Malabar (*Rheede.*) the Talipot palm of the English.

Licuala. Flowers hermaphrodite. Calyx and corolla each three-parted. Stamens six, filaments often united into a ring, distinct from the corolla drupe, (only one matured), one seeded. Albumen excavated in front. Embryo placed behind. The species of Licuala are shrubby, sometimes stemless, palms, of the East Indies as well as the Islands of the Eastern Archipelago. The stem in many is marked with rings, and sometimes rough with the persistent indurated leaves of the petioles of fallen leaves. The leaves are pinnately fan-shaped, with the petioles armed towards the margins with horny conical or often hooked prickles; pinnules wedge-shaped, with their apex more or less truncate or lobed, and the lobes bifid. Spadix spicately or paniculately branching.

Licuala paludosa, Gr., the trunk is from eight to twelve feet high, about 1½ inch in diameter, unarmed, and almost without marks of annuli, except towards the apex where they are incomplete. Crown of moderate size. Rete, or woody fibres rather stout, of a rich brown colour. It grows in Malacca in low sandy wet places along the sea-coast about Tanjo-cling Roondoor, and Pulo Bissar, associated with Pandanus, Eugenia, Diospyros, Helospora, &c. It flowers in February. The species approaches to L. spinosa, but is abundantly distinct by its smooth stem, (which does not look much like the stem of a palm), and by the short smooth turbinate flowers. The tracts of country in which it is found, form one of the peculiar marks of the Straits' Flora, and are highly contrasted with the muddy littoral tracts, which are covered as usual with mangrove jungle.

Licuala spinosa, Willd., is a stout palm, forming dense bushy tufts. Trunk two to four inches in diameter, eight or twelve feet high, marked with the scars of the fallen petioles, leaves six or seven feet long, petiole about four and a half feet long, obtusely trigonal, margins armed throughout with stout conical somewhat curved aculei. It grows in Malacca, common in wet places, particularly in hedges. It is called in Malay, Plass, it flowers in the cold, and ripens its fruit in the hot season. It appears to vary a good deal; it is not improbable that two species lurk under this name. Some of the specimens have the trunk armed with the hardened bases of the petioles, with more slender spadixes, and considerably smaller fruit. It is a low palm, with a stout stem three or four feet high, marked below with the scars of the fallen leaves, above rough from the persistent bases of the petioles. It grows in the woody mountainous country to the eastward of and near the Chittagong mountains beyond the Ganges Himalayan range, below Darjeling, Rungpore. It is cultivated in H. C. Bot. Gardens, flowering in the cold season, fruiting in the hot season. It is the Kurud or Kurkuti of Bengal and the Chattah Pat of the Assamese. It is the largest and finest species of the genus and is not likely to be confounded with any others. Its large peltate orbicular leaves, simple large pendulous spikes, and comparatively very large flowers, will at once distinguish it. In the leaves it is allied to L. longipes, but that species is almost stemless, the leaves are also dark green, and differently lobed. Martius' figure of the entire plant gives a much better idea of L. spinosa than of this species. The leaves are used for the same purposes as those of the Toko but are much coarser, and only made use of by the lower orders. The demand for them is very great, scarcely a single ploughman, cow-keeper or cooly, but has his Jhapee or Chattah made of Chattah Pat.

Licuala dentifida, Martius. It grows in Penang, its Malay name is Plass-tikooss. Its stems afford the well-known walking stick, the "Penang lawyer." These are prepared by scraping with glass, and polishing, each stem is well scraped, by which the epidermis is altogether removed; care must be taken not to take away much more, as the inside is like the substance of a rattan. It is on this acount that the smaller, thinner sticks are so much sought for, and are so rare. The sticks are then straightened by fire. No other process is used. The plant seems to be confined within narrow geographical limits; it is not known, as Griffiths believed, about Malacca, where its place seem to be supplied by the following closely allied species. Martius, however, states it is to be found throughout the Malayan peninsula. Griffiths had an impression that under this species, as given by Martius, two distinct palms will be found; for, though the description by Martius agrees well with Griffiths' Penang specimens, yet the drawing of the spadix represents the parts nearly of the same size as in L. spinosa. L. pumila, *Blume*, appears only distinguished from this, by the broader equal teeth of the pinnules (the intermediate ones of which are the broadest) being described as sixteen to twenty-one lines broad, and six to eight toothed, while the two innermost ones are said to be only an inch broad.

Licuala glabra, Griffiths, is a miniature palm, the trunk being from three to five feet high and rather more slender than that of the preceding. The petiole, the rete and the ligula are much the same as those of the preceding. It grows solitary on Goonong Miring, an offset of Mount Ophir. Flowers in February. Its Malayan name is Plass Goonoong. Griffiths first met with this species on Mount Ophir, he subsequently received specimens from the same locality. It is closely allied to the preceding, (Penang lawyer), from which indeed the leaves are scarcely distinguishable, except by the broad sinuses of the lobes, and their more obtuse points. The smooth inflorescence and flowers, however, at once distinguish it from both that species and L. pumila of Blume. Griffiths was not aware of its stem being used for walking sticks.

Licuala longipes, Griffiths, grows in Malacca, solitary, in dense forests, at Ayer Punnas (Rhim) Goonoong Miring, and Mount Ophir, but not above an elevation of a thousand feet, also on the Tenasserim coast in forests near Lainear to the south of Mergui. It flowers nearly all the year. And is the Plass Bhatto of the Malays. This, judging from Schultes' description, appea to be somewhat allied to *Blume* L. ramo quoted by Martius under L. spinosa.

Licuala triphylla, Griffiths, is a very smal dwarf palm, the whole height not exceedin two and a half feet; the stem being about thre or four inches long. It grows in Malacca i dense forests, at Ayer Punnus, (Rhim). Th stature and leaves of this, will at once distinguish it. In the teeth of the pinnules i approaches L. pumila, and especially L. longipes.

Livistona spectabilis, Griffiths, is a loft palm, fifty or sixty feet high. Trunk smoot or armed towards the base with the hard persistent bases of the petioles. It inhabit Malacca, is solitary in the low littoral tract adapted to rice cultivation. The Penang Malay name, is Sardang.

Livistona sinensis, Griffiths, is twenty o twenty-five feet high, with a stout obscurel annulated trunk. Crown round. Leaves muc plicated, and also conduplicate along the centre It grows in Southern China, according to Dr. Martius. It was cultivated in the Hon Co.'s gardens under the name Livistonia mauritianis said to have been introduced from the Mauritiu in 1821.

Chamærops martiana, Griffiths. Trunk

twenty feet high, irregularly annulate, of irregular diameter. Crown hemispherical, rather thin. Leaves three feet long. Petioles two and a half or three feet long, unarmed, generally partly twisted. Spadices three or five feet, long, very much branched, furnished at the base (under each primary branch) with spathes, peduncle about a foot long. Lowermost spathe one, or one and a half foot long, two-edged semi-bifid at the apex, the third or fourth supports a flower bearing branch. Spikes one, or one and a half inch long. It grows at Bunipa in the valley of Nipal, at an elevation of about five thousand feet above the level of the sea. Newar name, Tuggu.

Chamærops khasyana, Griffiths, is a palm of moderate height, nine or ten feet, the trunk five inches in diameter in the thickest parts, and is obscurely annulate. Under the crown, which is thick, is an oblong mass (two feet long) consisting of the flattened bases of petioles and their rete of stiff woody fibres. The leaves are about three and a half feet long. Petiole eighteen inches long, with irregular denticulate margins. It grows in the Khasya hills: on precipices at Moosai and Mamloo, altitude four thousand feet; not observed in flower or fruit. Takill Kemaon altitude 8,000, this species is closely allied to C. Martiana: it differs in its shorter, stouter stature, the petioles toothed throughout, in the nature of the rete, and the texture of the leaves which is more like that of C. humilis. The paleaceous tomentum is, however, much more developed, and the berries are bluish, not yellow. The divisions of the leaves are much the same, excepting the secondary segments of the central divisions, which are shallow, obtuse, and recurved.

Chamærops ritchiana, is a small palm, scarcely exceeding two or three feet in height, generally tufted, and generally almost stemless. There is scarcely any rete, but the bases of the petioles where they naturally cover each other, present a rust-coloured wool. It grows in the Khybur Pass, and generally in the low arid mountainous parts of eastern Affghanistan. Pushtoo name Maizurry. Not observed in flower or fruit. It is the only palm Griffiths met with in that country, and is of extensive use for making cordage, &c.

The Phœnix genus are palms of the East Indies, and northern parts of Africa, trees and shrubs, their stems marked with the scars of fallen leaves, or rough with the persistent bases of their petioles: in some cases stemless. The leaves are pinnate, the pinnules linear. The spadix appear from between the leaves, the spathes coriaceous and sheathing.' Flowers yellowish white. Fruit edible, soft and reddish yellow or brown.

Phœnix acaulis. Stem none in plants ten years old; at this age when in flower, the whole body of the plant, including inflorescence but exclusively of the foliage is of an ovate form, and not exceeding six or eight inches in height from the surface of the ground. Leaflets or fronds pinnate; from two or six feet long. Leaves nearly opposite, rather remote fascicles; the superior ones folded, slender, ensiform, and about eighteen inches long; lower ones small, straight, rigid, and ending in very sharp spinous points. Petioles (stips) near the base flat, towards the apex triangular, smooth, it grows in Behar, on elevated plains on the north side of the Ganges on a clayey soil. Chota-Nagpore, Burmah in plains between the valley of Hook-hoong and Mogam. Junglee Khujur.

Phœnix ouseleyana. The rete consists of a few rigid fibres. Leaves two and a half or three feet long. It grows in Chota-Nagpore, according to Col. Ouseley, and according to Major Jenkins, in Assam.

Phœnix pedunculata. Monœcious, soboliferous, generally stemless. Trunk, if any, rough. Common and very gregarious on open ground of the hilly country about Courtallum, Coonoor, Neilgherries, at an elevation of 6,000 feet of the ventral face.

Phœnix farinifera, Roxb. Trunk, the little it has, is only about one, or at most two feet high, and so entirely enveloped in the sheaths of the leaves that it is never seen, the whole appearing like a large round bush. It grows in dry barren parts chiefly of the sandy lands at a small distance from the sea near Coringa. Flowers in January, February; fruit ripens in May. Telinga name Cheltacita. Common on all the hilly country between the Ganges and Cape Comorin.

Phœnix sylvestris, Roxb., is a very handsome palm, often, when uninjured by extracting toddy, thirty-five to forty feet in height. Trunk rough from the persistent bases of the petioles. Crown about hemispherical, very large and thick. Leaves ten to fifteen feet long. Petioles compressed only towards the apex; at the base bearing a few channelled triangular short spines. Pinnules very numerous, densely fascicled, glaucous, rigid, ensiform, eighteen inches long, one inch and three lines wide, conduplicate at the base, then canaliculate, subulately acuminated, almost spinous pointed four fairous, some intermediately spreading others crossing these above and below in an ascending direction. Spadix two or three feet long; peduncle highly compressed. It is common all over India, all soils and situations seeming to suit equally well. It flowers at the beginning of the hot season. It is the most common palm of India. Beng. Khujur, Sansc. Tshurjura, Teling. Peddouta. Griffiths was unable to point out any distinction between this and P. dactylifera, the true date palm. It is confined chiefly to the lower plains. It begins to disappear about 20 miles North-west of Burdwan, and is scarcely seen in the hilly districts of Behar, where almost the only palms met with are Phœnix acaulis and Borassus flabelliformis. P. dactylifera is closely allied to P. sylvestris, and with P. farinifera, forms a complete transition from P. sylvestris to P. acaulis. P. sylvestris yields Tari, or palm wine during the cold season. The method of extracting it destroys the appearance and fertility of the tree. The fruit of those that have been cut for drawing off the juice being very small. The mode of extracting this juice is by removing the lower leaves and their sheaths and cutting a notch into the pith of the tree near the top, from thence it issues and is conducted by a small channel made of a bit of the palmyra tree leaf, into a pot suspended to receive it. On the coast of Coromandel this palm juice is either drunk fresh from the tree, or boiled down into sugar, or fermented for distillation, when it gives out a large portion of ardent spirit. Mats and baskets are made of the leaves. The Bengalees call this tree Khujur. They also boil the juice into sugar. In the whole province of Bengal about A. D. 1842, fifteen thousand maunds, or about five thousand tons was made annually. At the age of from seven or ten years, when the trunk of the trees will be about four feet high, they begin to yield juice, and continue productive for twenty or twenty-five years. It is extracted during the cold months of November, December, January and February; during which period, each tree is reckoned to yield from one hundred and twenty, to two hundred and forty pints of juice, which averages one hundred and eighty pints; every twelve pints or pounds is boiled down to one of goor or jagari, and four of goor yield one of good powder sugar, so that the average produce of each tree is about seven or eight pounds of sugar annually. Another statement presented to Griffiths gives the average produce of each tree as sixteen pints per day, four of which will yield two pounds of molasses, and forty of molasses will yield twenty-five pounds of brown sugar. This difference is so great, that he could not reconcile them, but he was inclined to give most credit to the first.

Phœnix paludosa, Griffiths. This palm forms very elegant impenetrable tufts. Trunk twelve or fifteen feet high, three and a half inches in diameter, annulate at the base, otherwise covered with the brown, retiferous, armed petioles. Leaves gracefully spreading, eight or ten feet long. Petiole covered with scurf, brownish-glaucescent, in the lower three feet, bearing irregularly spreading, hard, brown, triangular, channelled, rather long spines. It grows in the Sunderbuns, where it forms a considerable portion of the impenetrable woods which completely cover that extensive tract of country. Along the Salween, between Amherst and Moulmein, Penang, where it is known by the name Dangsa, Sanscrit name Hintala; Bengal, Hintal. The trunks of the smaller trees serve for walking sticks, and the natives have an idea that snakes get out of the way of any person having such a staff. The longer ones serve for rafters to their houses, and the leaves for thatch. It is well worth cultivation on account of its elegance, and its being adapted for bank scenery.

Areca.—Spathe 1 or 2 complete. Flowers monœcious in the same spadix, one feminine between too masculine. Stamens 3, or indefinite. Ovary 1 to 3 celled-Ovula 1. fruit drupaceous or somewhat like a berry, sometimes oblique, one-seeded. Albumen ruminated. Embryo near the base. The areca palms are arboreal trees or shrubs, often unarmed. Trunk ringed. Leaves pinnately divided, seldom twice divided or bipinnate. Sheath coriaceous, striated. Spadix, axillary paniculate or racemosely divided, rarely simple, often broken. Flowers often distichous or ranged in two rows, with a centrifugal expansion or evolution. Anthers lincar. Fruit either drupes or berries, the former ovate, often orange, the latter globose and of bluish colour.

Areca catechu.

Foolfool,	ARAB.	Pinang,	MALAY.
Gooa,	BENG.	Goorvaka,	SANS.
Soopara,	HIND.	Poka chettu,	TEL.

This is the most elegant of the Indian palm The male flowers are delightfully fragrant. Th trunk grows remarkably straight, often fro forty to fifty feet high, and in general abou twenty inches in circumference, equally thic in every part, and smooth. On the Malabar coa the common black pepper vine is usually traine up to this tree, which renders it more useful those parts than any other. It is common cultivated, especially to the eastward, whe it attains a much larger size than in Benga It is very extensively cultivated in most the warmer and more humid parts of Indi especially towards the sea, near which alo it comes to perfection. It thrives much mo luxuriantly on the Tenasserim coast, and the Straits of Malacca than in Bengal; t nut is also much more immoderately used the Burmese and Malays than the Bengalle Several varieties with particular names ex among the Malays, and merit perhaps as mu attention as those of the cocoanut.

Areca triandra, Roxb.—is shrubby, thro ing out offsets at the base. The stem is fi to seven feet high, green, distinctly annula one and a half inch in diameter. It grows in the woods of Chittagong, Rungpore. Bengallée names Bungooa, Ramgua, Runi supari, in flower most of the year.

Areca laxa, grows in the Andaman Islands, Buchanan Hamilton states that it is closely allied to A. triandra, and that the nuts are used instead of the betel-nut by the convicts confined on the island.

Areca nagensis, Griffith.—Trunk thirty or forty feet high, attached to the soil by innumerable black fibrous roots. Grows in Assam? and the Naga hills up to an elevation of eight hundred feet above the level of the sea, affecting banks of rivers. Name of the tree in Naga, Tal-pat; Singhpo name, Tangtaw; by its roots and fruit. This appears distinct, it is very scarce, and courts high situations generally on river sides.

Areca cocoides, Gr., is a lofty palm. Trunk forty feet high. Crown dark-green, ample. Leaves pinnate, petiole scurfy plano-convex: lamina eight or nine feet long, four or four and a half broad, in outline lanceolate acuminate. Cultivated at Malacca, but not commonly. It occurs in a garden at the Dutch Redoubt; also half way to Malim. Malayan name, Pinang Punowur. The aspect of this palm is very different from that of A. catechu, the size being much greater, the crown blackish-green, the leaves stiffer, and at a distance having a truncate appearance. The fruit is considered a medicinal kind of betel-nut, its native place is not traced, it may be Pinanga Calapparia of Rumphius?

Areca pumila. Gr. Stems ten or twelve feet in height, $1\frac{1}{4}$ to $1\frac{1}{2}$ inch in diameter, distinctly annulate. Leaves eight or nine feet long; sheaths subventricose, about two feet long, inside of a shining chesnut colour. Growing in a ravine of the dense forest near Ching, Malacca. Its Malayan name is Pinang Jirong, it is closely allied to A. malaiana, but is at once distinguishable by tetrastichous, not distichous, inflorescence, the sepals, number of stamens and the orange, not sanguineous, colour of the fruit.

Areca malaiana. Gr. An elegant palm, eight to twelve feet in height, having the appearance or habit of the preceding. Stem distinctly annulate, in diameter scarcely an inch, internodes generally subclavate. Crown composed of five to eight spreading leaves. Grows in forests, at Ayer Punnus, and Rhim, Malacca, where it is not uncommon. Malayan names, that of Malacca, Pinang Booreng; of Pinang, Kurdoo. This species is at once distinguishable by the colour of the spadices and fruit; its nearest affinities are with A. disticha and Dicksoni. It varies in the degree of compression of the spikes, and also somewhat in size.

Areca dicksoni, grows to the height of sixteen or eighteen feet, with a very straight, simple trunk, of about two inches in diameter.

Areca gracilis, *Roxb.*, is the Seaforthia gracilis of Martius' palm. It grows on the hills near Sylhet, (where it is called Gooa, Supari and Ramgoa), Chittagong and the Eastern border of Bengal. Goalparah, Assam, where it is called Girgoa? also, about Kujoods, and Ningrew in Upper Assam, where it fruits in January; and in the mountains below Darjeling.

Areca disticha, Roxb. Its stem is arundinaceous with distinct subclavate lengthened joints; varying in height from one and a half to three or four feet, parts lately exposed scurfy. It grows in Malacca in dense forests, at Ayer Punnus, not uncommon; and Pinang. Malayan name, Pinang Boorang Paday. It also occurs in the Khasyah mountains, at an elevation of 4,000 feet. Moosami, near Churra Punjee: also Griffiths thinks in Assam. It is closely allied to A. disticha, but is distinguishable by the more branched stouter spadix, the tetrastichous fruit, its larger size, and distinctly mammillate apex. The stigma, judging from one abortive pistillum is also 5-lobed. This plant varies much in size, Roxburgh describes the branches of the spadix as woolly: his drawing also, represents the petals as acute, not cuspidato-acuminate. In the Assam and Khasyah plants, the stem and leaves are much the same as in A. gracilis. The spadices more slender, and three or four times branched.

Areca paradoxa. Stem slender, five to seven feet high, three or four lines in diameter, annulate, upwards roughish with ferruginous down. Crown consisting of six or eight leaves. Dense forests near the base of Goonoong Miring, Mount Ophir, in fruit February 1841. The specimen is scarcely distinguishable, except in the form and structure of the fruit and seeds, from A. disticha. That structure, however, is so different as to suggest the probability of its constituting a new genus.

Areca tigillaria, Griffiths, is a very elegant palm. Trunk thirty or forty feet high, distinctly annulate, armed, surrounded with offsets at the base. Crown dense and graceful. Spadix of the fruit having branches one or two feet long, pendulous, purplish sanguineous, with an articulated appearance. It grows on the borders of paddy swamps, in Malacca where it is common. Malayan name, Nibong. Also in forests at Laincar to the South of Mergui. The trunk of this palm is in much request for house posts. Jack says, that there is only one spathe, and that the flowers are one male to two females, but that author does not notice any obliquity of the fruit.

Areca horrida, Griffiths, is the A. Nibung, *Mart. Palm*, *t.* 153, f. v. It is an elegant palm, thirty or forty feet in height, sending off offsets at the base. A third species of the section Enoplus, with the habit of this species but smaller, is common on the cliffs of the sea-shore a little to the north of Koondoor, near Malacca. Its Malayan name is Nibong Paddy.

Areca nibung, as a name, is scarcely tenable, the true Nibung being Areca tigillaria, *Jack*. A. horrida grows in Malacca. Common in densely-wooded valleys and ravines, at Ching and on wooded hills, at Laydang Soobubis, but rare. In woods at the base of Battoo Bakar. Malayan name Bhyass. This species is allied to A. tigillaria, but is very distinct in the spathes and fruit. The flowers also are much more crowded, and generally appear to have the usual arrangement, viz., one female between two male. The young spadices (from the contrast in colour between the spathes and their spines and the waviness and adpression of these) have the appearance of tortoise shell.

Bentinckia coddapana, Griffiths, is an elegant, slender palm, about twenty feet high. The trunk is about an inch in diameter. It grows in the mountains of Travancore (***Roxburgh** and Wight.*) Flowers in June, seeds ripen eight or nine months afterwards. Telinga name, Coddapanna.

Slackia geonomaformis. The stem is slender two to four feet high, about half inch in diameter, and distinctly annulate. It is scarcely distinguishable at first sight from Areca disticha, and like it varies much in the size and shape of the pinnules.

Arenga.—Flowers monæcious, generally but not always in different spadices. Stamens indefinite. Ovary trilocular. Berry depressed and three-cornered at the apex, imperfectly three-seeded. Albumen even. Embryo dorsal. The species of Arenga are handsome arboreous palms flowering only once, seldom with creeping stems. Trunk ringed towards the apex surrounded by the scaly bases of the petioles. Leaves pinnate with copious black rigid fibres intermixed with the petioles, sometimes prickly. Pinules linear fasciculate and in several rows, or solitary and in two rows with auriculate or lobed base, and eroded, truncate, dentate or bilobed apex, lower surface white. Spadix nodding pendulous, Spikes pendulous often in bundles (fastigiate) like the tail of a horse. Flowers large. Anthers mucronately apiculate. Berries green, round and large. Seed (cohering to the endocarp) often berried. Juice acid.

Arenga saccharifera, Labillardiere.

Saguerus gomutus, *Rumph.*
Saguerus Rumphii, *Roxb.*
Borassus gomutus, *Lour.*
Gomutus saccharifer, *Spreng.*

This is a handsome palm, reaching to the height of thirty or forty feet. Crown oblong, very dense, of a sombre aspect. Leaves very large, twenty feet (or more) long, and ten broad, outline oblong ovate. Petiole very stout, channelled at the base, sprinkled with blackish scurf, grows in Malacca province, generally cultivated, but less common in the littoral districts. It is the Anowe of the Malays. It succeeds sufficiently well in British India, flowering throughout the year. This is one of the handsomest and most useful Malayan palms. It is very commonly cultivated in the interior, at Malacca, in lines of trees recalling to mind the form of gothic arches. The parts chiefly employed for useful purposes are the black fibres forming the rete, the juice and the young albumen; the former are twisted into ropes and cordage, renowned for its power of resisting wet; the juice is either drank as toddy or made into sugar, which appears to be in great demand. The young albumen preserved in syrup forms one of the well-known preserves of the Straits. Mr. Lewis informed Griffiths that trees that have died after the ripening of the whole crop of fruit, which is the natural course, are almost hollow, and particularly adapted for making troughs, spouts or channels for water, and that they last extremely well underground.

Arenga westerhoutii, Griffiths. Leaves ample, linear-oblong in outline, twenty feet long, ten feet across in the broadest part, rete as in A. saccharifera. Grows in the Malacca peninsula at Naning, Pinang; Malayan names, Anoæe kutaree of Malacca; the Langkup of Penang. The chief difference from A. saccharifera is in the leaves. A. obtusifolia, ***Bl.***, has the petioles furnished with marginal aculei. The langkup of Pinang may be distinct, the pinnæ being smaller and more truncate, the branches of the fruit spadix spreading short, and the fruit larger and more oblong.

Arenga wightii, is a monœcious palm, form ing by means of suckers dense clumps, Trun stout, as thick as a man's thigh, generally thr to five feet high, rarely eight feet. Leav eighteen to twenty-eight feet in length; th lower naked part of the petiole is six or eig feet long. Dense forests on hills about Coim batore. This species approaches in its infl rescence closely to A. Westerchoutii. It wa the first species found on the continent of Britis India, and was dedicated to Dr. Wight.

Caryota,

Leguster major, ***Rumph.*** | Schunda-panna, ***Rheed***

This genus has flowers monæcious, one fem nine between two masculine. Stamens inde nite. Berry somewhat dry, often one-seede Albumen ruminated. Embryo dorsal. Th Caryota species are elegant palms often loft frequenting woody mountains, and floweri but once, sometimes perennial. Trunk close ringed. Leaves bi-pinnate, large, reticulated, fibres slender. Pinnules wedge-shaped, obliquely eroded, on both sides of the same colour. Spadices nodding, pendulous. Spikes pendulous, often hanging down in bundles like the tail of a horse. Flowers feminine with three rudimentary stamens. Berries subglobose somewhat red, juice sour.

Caryota urens, is a lofty and elegant palm. The trunk is a foot in diameter, and thirty-five or forty feet high, with distinct distant annuli. The crown is rather thin, consisting of several ascending gracefully curved bi-pinnate leaves, of great size, being eighteen or twenty feet long and ten or twelve broad. It grows in sandy places in Malabar, (*Rheede.*) On hills at Cavilacutty, with teak and wild mango trees, at Velater in Malabar, where it is called evim-pannah, and at Dinagepore in Bengal and Assam, a native of the various mountainous parts of India, flowering time the hot and rainy season. Telinga, name Jeroogoo; the Dinapore name Ramguoah, Bon-khejur; Assam name, Bura flawan. This and the Phœnix sylvestris when allowed to reach their full size unmutilated, are two of the handsomest and most useful palms of the peninsula of India. This tree is highly valuable to the natives of the countries where it grows in plenty, it yields them, during the hot season, an immense quantity of toddy or palm wine. Griffiths was informed that the best trees will yield at the rate of one hundred pints in twenty-four hours. The pith or farinaceous part of the trunk of old trees, is said to be equal to the best sago; the natives make it into bread, and boil it into thick gruel; these form a great part of the diet of those people; and during a famine, they suffered little while those trees lasted. Griffiths believed this substance to be highly nutritious; the gruel, is fully as palatable as that made of the sago from the Malay countries.

Caryota obtusa, Griffiths, is a very large palm; the diameter of the trunk being one and a half or two feet. The leaves are very large, pinnules cuneate, very unequal-sided, coriaceous, when dry remarkably striato-plicate; the outer side scarcely at all produced; the teeth short, and very obtuse. It grows on the Mishmee mountains in woods about Yen. A second species inhabits the Mishmee mountains, with the inflorescence of an orange-yellow colour. The "Semoong-koong" of Sikkim, is probably a species of Caryota.

Caryota sobolifera, is a very elegant palm, forming by its offsets very thick compact tufts. Stems twelve to fifteen feet high, and four or five inches in diameter, of greenish colour and distinctly annulate. It grows about Malacca and on Pulo Bissar in woody places. Malayan name, Tookkus, Doodoor of Penang, according to Mr. Lewis. It was introduced into the Botanic Garden in 1816 from the Mauritius, where it flowers during the greater part of the year. Griffiths found no distinction between the Malacca and the Botanic Garden specimens, the former, however, were not observed to be soboliferous.

Harina caryotoides, a palm of Chittagong, where it is called Chilputta or Belputta, (*Roxb.*) This is a very elegant palm forming thicker tufts than the preceding, but the leaves are rather larger, and the lower ones are spreading; the petiole is much the same as that of the preceding. It grows in Assam, Sub-Himalaya, Darjeeling. Cultivated in the H. C. Botanic Gardens, flowering in May and June.

Harina nana, is a small erect palm, from three to five ft. in height. The trunk is slender, throwing out roots from the base, and covered with the sheaths of the leaves. Grows in Lower Assam, in woods about Gowhatty. Flowers in July and August. This species appears to be allied to Orania regalis, *Blume*, *Rumphia*, p. 85, and Orania porphyrocarpa, *Mart. palm*, p. 157. It differs from both in the number and the irregular shape of the pinnules, the crowded flowers, and three petalled females. In the shape of the fruit it is nearly intermediate.

Macrocladus sylvicolia, is a handsome palm, about forty feet in height with somewhat the habit of Cocos nucifera. Crown subhemispherical, dense. Leaves pinnate, ample, twelve to fifteen feet long, spreading in every direction. Grows in Malacca, in forests at Ching. Malayan name, Ebool.

Zalacca edulis, Remusat.
Z. rumphii. *Wall. Pl. Asiat. Rav. p.* 14.
Z. wallichana.
Calamus zalacca, *Roxb. F. I.* 3. *p.* 773.

This is a tufted short stemmed palm. Leaves varying in size, in marshy shady places being 18 to 20 feet in length. This species is common in swampy places about Malacca, the Tenasserim Provinces, as well as in Burmah. It is the Salac-koombar of Penang, according to Mr. W. T. Lewis. Male specimens of this species exist in the Botanic Garden Calcutta, but no female plants.

Zalacca affinis, found at Malacca near Ching, where it is known under the name of Salak batool, which means the true Salak.

Zalacca secundia, grows in forests about Kujoo, in Upper Assam. The Mishmee mountains, and on the lower ranges of hills on the borders of Upper Assam.

Zalacca macrostachya, grows in marshy, damp and exceedingly shady places at Ching near Malacca. It is the Rungum of the Malays of that place.

Zalacca glabrescens, grows in Penang where it is called salak.

Zalacca conferta, flourishes in very shady wet places in the great forests of Malacca, as at Ching and Katawn, where they are found in flower and fruit during most part of the year. It is the Asam-komber of Penang, and the Asam-paiah of the Malays of Malacca.

Sagus konigii.

Metroxylon sago, *C. Koning, An. Bot.* 193.
M. læve. *Mart. Palm*, p. 215. (Excl. syn. Rumph at Roxb.
Sagus rumphii, *Hort. Kew.* 5. 281.

The appearance of these palms is somewhat peculiar and not like that of the Cocos nucifera or cocoanut. This tree is called Rumbiya, it is cultivated about Malacca, generally on the edges of rice swamps. It is very common about Rumbiya, between Malacca and Ayer Punnus, whence the name of the place. It appears to differ sensibly from S. lævis, of Dr. Jack, in the pairs of flowers consisting of a male and a hermaphrodite, in the size and exsertion of the flowers, the coadunate ovaria, and the comparatively long style. It appears to differ from S. Rumphii, of Professor von Martius, chiefly in the spadices being smooth, and in the teeth of the calyx ; but taking the phrase "spadicibus lævibus" in what appears to have been the general acceptation in which it was employed, it may be the S. Rumphii of Willdenow, and Blume. Rumphius' figure of Sagus, (Hb. Amb., 1, t. 17,) quoted by all authors as S. Rumphii, gives a very fair idea of this species. S. Rumphii, petioles spadicibusque armatis, floribus exsertis masculo et fœmineo, dentileus calycis ovatis acutis, staminibus floris fœminei anantherii, fructu depresso globoso.

Sagus lævis, Rumph, grows in Sumatra and Malacca, *W. Jack*. In habit and character this tree recedes considerably from the true Palmæ. Its propagation by radical shoots exactly in the same manner as the common cultivated plantain, is peculiar, and is not observed in the true palms. The terminal inflorescence, and death of the tree after fructification, is another peculiarity. It is allied to Calamus by its retroversely imbricated fruit. This species of sago is abundant in many parts of Sumatra and at Malacca, and is employed in the preparation of sago for food. Considerable quantities are made at the Poggy Islands, lying off the west coast of Sumatra, where, in fact, it forms the principal food of the inhabitants. The sago of Siak is remarkably fine, and is also, Griffiths believed, the produce of this species. At the Moluccas the spinous sort is considered superior to this, but he was doubtful whether it exists in Sumatra. For making the sago, the tree must be cut before fructification commences, as it then becomes hard and dry.

Calamosagus laciniosus, appears to be intermediate between Calmussagus and Zalacca, having the habit of the former, the inflorescence of the second, and in some measure, the seed of the last-mentioned genus, to which it approaches, as also the succeeding through Zalacca glabrescens and Z. secunda. A gummy matter is secreted from wounds in the spadix of this species. It grows in woods along the sea shores of the islands of the Mergui Archipelago.

Calamosagus harinæfolius, a palm of Malacca, brought by Griffiths from a place called Kussan, under the name of Rotang simote.

Calamosagus ochriger, is a climbing palm of a general glaucous tint. The diameter of the stem, including the sheath, is only five or six lines. It grows at Malacca under the Malayan name of Rotang donam.

Calamus castaneus, is a palm with a short erect or decumbent stem, forming thick bushy tufts.

Calamus macrocarpus, grows near Koreahparah, one of the Bootea dooars.

Calamus schizospathus, Grows in the Khassya Hills, also Darjeeling,.

Calamus arborescens, is a very elegant palm, in some cases stoloniferous. It grows in Pegu from whence the male plant was obtained by the Rev. Dr. Carey, and introduced into the Honorable Company's Botanic garden, Calcutta, in 1810, and called C. hostilis. It is a very handsome and well-marked species, distinguished by its erect stems, dark brown almost black spines, and the leaves which are white underneath, long and pendulous, and by the male spadices with the primary spathes armed. Griffiths was inclined to refer it to Roxburgh's C. erectus, had the whiteness of the under surface of the pinnules been mentioned in his description. It is closely allied to C. longisetus.

C. scipionum, Mart., is the well known cane. The plant does not appear to occur about Malacca itself, and Griffiths was informed that the canes are imported chiefly from Siak, on the opposite coast of Sumatra.

Calamus ornatus, Blume, is a very well marked species, especially by its stature and inflorescence : it appears to be more nearly allied to C. schizospathus than any other. Grows in the forests of Malacca, as about Durion Toongull. Its Malayan name, Rotang Ruga Bodak.

Calamus flagellum, is allied to C. ornatus, between which and C. longisetus it should at present be placed. It is also closely akin to C. schizospathus, which may probably be more of the same section.

Calamus exilis is a very slender species, the stem without sheaths being only about the thickness of a goose quill, with the sheaths three and a half to four lines in diameter. Grows at Malacca, Goonong Ladang. Malayan name, Rotang Goonoong.

Calamus royleanus is a small elegant species, forming impenetrable bushes. It is the only species that extends so far north as to come within the limits of the Seharunpore and Dhoon Flora. It grows in the denser, moister parts of the jungles of Dehra Dhoon, chiefly towards the eastern extremity of the valley, as at Kurruck.

Calamus Roxburghii, grows in Bengal and the Coromandel coast, flowers during the rains, fruit ripens during the cold season. "Sanscrit, Vetro, vetus; Bengal, Bet, or Sanchi-bet." C. Roxburghii, is (C. Rotang of Roxb.) Its most obvious distinctions from the Soondee-bet, (C. Mastersianus) are in the size and colour, of the fruit, which in the latter has broad brownish lines, so as to look checquered with brown. The spikes and the branches too, are different.

Calamus tenuis, Roxburgh, is a beautiful delicate species; when divested of the sheaths of the leaves and cleaned, it is not thicker than a common quill, and of the colour of the common rattan. Flowering time, the rainy season. It grows in Eastern Bengal as at Sylhet; Assam, where it is known as the "Bet" proper.

Calamus leptospadix, grows in Khasya hills, between Nunklow Naogong, in flower and fruit, in November 1835. In the same locality the Areca gracilis, Harina caryotoides, and Caryota urens were observed.

Calamus fasciculatus. Stems rather slender, and not very long: sheaths at first covered with white meal, afterwards smoother and green, armed with spreading strong flat spines, solitary or in short series. Grows in Bengal (common about Calcutta in bamboo jungles), also at Cuttack, and many other places; Roxburgh says he never saw it to the southward of Ganjam. It is the Bura-bet of the Bengalees and grows in small thick bushy tufts. This species is easily distinguished from all the others by its habit, by the direction of the pinnules (in which respect it approaches to Zalacca), and by their spinous margins and keels. The male spikes are shorter and broader than in any other species Griffiths was acquainted with, and in the distinctness of the bracteoles it appears to be singular.

Calamus gracilis, is a native of the forests of Chittagong, where Roxburgh found it climbing over trees and bushes to a great extent, and in flower in the month of May. This species is uncommonly slender, when divested of the sheaths of the leaves and dry, scarcely as thick as a common quill, in texture firm and elastic, covered with a smooth straw-coloured crust as in the common rattan. Grows at Chittagong, is the Mapoori Bet of the hindoos of that district. From the tropical climates of Southern Asia, and from myriads of islands which form the various Archipelagos, products of palms are sold in every city of the colder regions of the world; where they are ever beheld with unabated curiosity. The cordage and rigging of the ships, and thick mattings used on staircases are spun and woven from the husk of the cocoanut, and many articles of furniture are made from the woods of palms. Toys and ornaments are made from the kernels of the vegetable ivory palm of S. America. The stearic candles so well known, are composed of the fatty substance extracted from the oil palm and the cocoanut. The sago which ministers so powerfully to the recovery of the sick, and which is seen in such varied guise on our tables, is the pith of palms that flourish in many tropical regions. Everywhere we meet with numerous products of palms, either in a raw state or turned by the ingenuity of man to some useful purpose; and millions of people who never saw a palm are benefitted by the products of these useful trees. But if this be felt in remote regions of the cold north, in the tropical regions of Asia, Africa, America and Australia, where these elegant members of the vegetable kingdom flourish in all their native splendour, the inhabitants derive from them many of the necessaries, comforts, and luxuries of life, and come more or less in contact with them in almost every action of daily life. In one region, the door of the house is made of the split stems of the Pashiuba palm (Iriartea exorrhiza), and in another the thickly matted leaves of the cocoanut and palmyra serve as a door for the gardens and parterres. The harpoon for catching the cow-fish, is formed of the black wood of the Pashiuba barriguda (Iriartea ventricosa.) The people eat the fruits the produce of many of this tribe of trees, and in the palm-wine and arrack from the various palms, they enjoy palatable, refreshing, and stimulating drinks. At least 440 palm trees are now known, whilst at Linnæus' death only 15 species were known. In Ceylon there are fifteen species, viz.:—

Areca,	4	Calamus,	5	Corypha,	1	Cocos,	1
Caryota,	1	Borassus,	1	Phœnix,	2		

The date is cultivated in Beluchistan and Southern Affghanistan up to 4,500 feet, and a dwarf palm Chamærops ritchiana of Griffiths, perhaps identical with the Chamærops humilis of Europe, occurs abundantly in many places, but with a somewhat local distribution. A species of Chamærops is, very closely allied to, if not identical with P. martiana of Nepal, ascends to 8,000 feet in the western Himalaya, where it is annually covered with snow: it is not found in Sikkim, but an allied species occurs in Affghanistan, called P. ritcheana. The dwarf palm of Southern Europe is a fourth species. There are upwards of twenty kinds of palm in the Khassya district, including Chamærops, three species of Areca, two of Wallichia, Arenga, Caryota, three of Phœnix, Plectocomia, Licuala, and many species of Calamus. Besides these there are several kinds of Pandanus, and the Cycas pectinata. Palms of the Khassya hills amount to fourteen, of which the Chamærops and Arenga are the only genera not found in Sikkim. A species of Calamus, is the " Renoul" of the Lepcha. The fruit of all the Calami are eaten by the Lepcha and the stems of larger species are applied to various economic purposes. One species, climbs lofty trees, and extends some 40 yards through the forest: 6,500 feet is the upper limit of palms in the Sikkim Himalaya, and one species alone attains so great an elevation. Four other Calami range between 1,000 and 6,000 feet on the outer hills, some of which are found 40 miles distant from the plains. Among the other palms of Sikkim is the " Simong"—a species of Caryota, which is rare, and ascends to nearly 6,000 feet. In the Old Testament, the palm-tree is first mentioned as the tamar, in Ex. xv, 27 but afterwards frequently. Psalm xcii, 12, 13 and 14 says the righteous shall flourish like a palm tree, and in Canticles vii, and 7, the erect and slender form of woman is compared to the palm; how framed, O my love, for delights! Lo, thy stature is like a palm-tree, and thy bosom like clusters of dates. In the temple of Solomon were pilasters made in the form of palm-trees. A branch of a palm was a signal of victory, and was carried before conquerors in the triumphs. Allusion is made to this in Revelations vii, 9, and in this view they were borne before Christ in his way to Jerusalem, as in John xii, 13.—*Burton's pilgrimage to Meccah, Vol.* ii, *p.* 175; *Powell's Hand-book, Vol.* i, *p.* 512; *Hartwig*; *Griffith's Palms of British East India, Roxb. Fl. Indica*; *Seeman on palms*; *Hooker, Him. Journ., Vol.* ii, *pp.* 267, 280-81; *Schow in Jameson's Edinburgh Philosophical Journal; Mr. H. Robinson, in Cal. Cat. Ex., of* 1862; *Voigt Hortus suburbanus Calcuttansis: Royle, Ill. Himm. Botany*; *Birdwood's Bombay Products*; *Hogg's Vegetable Kingdom.*

PALMA BRAVA, Nibong, Tagala of Mindoro, used by the wild tribes of Mindoro to form their bows and point their arrows.

PALMA CHRISTI.

Castor oil palm,	ENG.	Jarak,	MALAY.
Ricinus communis,	LAT.	Tangan-Tangan,	TAG.
Kaliki, MADURESE;	SUNDA.		

The Castor oil plant, is called Palma Christi, Christ's palm, because where the true palms are not found, it is carried on Palm Sundays.

PALMA INDICA MAJOR, *Rum.* Syn. of Cocos nucifera, *L.* Cocoa-nut palm.

PALMANAIR, in lat. 13° 12′ long., 78° 45′ in the Carnatic, a large town on an open plain, west of Chittoor. The dâk bungalow is 2,618 feet above the sea. It is situated twenty-five miles north of the Railway station of Goriattum, with a driving road the whole way from thence. As regards fever, occasional instances have given it a bad name, which the general statistics of health among Europeans and natives, if published, would rectify :—

Range of Thermometer at Palmanair in Dec. 1861.

De	6 A. M.	9 A. M.	Noon.	3 P. M.	6 P. M.	9 A. M.	
22nd	61†	70	72	74	72	66*	† 7 o'clock, in veranda
23rd	57	—	—	—	72	65	* In veranda.
24th	56	67	71½	73	71	67	
25th	56½	68	72	73	71	66	
26th	55	68	71	73	71½	64	
27th	54	66	70½	72½	71	66	
28th	56†	66½	70½	74	71	64	† At 7 A. M.
29th	60*	67	72	74	71	66	* Inside at 7 A. M.
30th	56‡	66	70½	72½	71	64	‡ At 7.
31st	57	—	—	—	—	—	At 7½.

—*Schl., Herm.*

PALM BOOKS. The books and separate leaves employed for writing on in Asia, are made from the leaves of the Taliput tree Corypha umbraculifera, also from the Tara, Tareet, or Tallier of the Bengalese C. taliera, *Roxb.*, and from the leaves of the Palmyra palm. All the Burman books are made of the leaf of a species of corypha, but the orders that are issued from the Burmese courts are written on strips of palmyra palm-leaf. Those used in Southern India for school-boys' books, for the accounts of shop-keepers, the orders of Collectors and village accounts are made of the leaf of the palmyra. The Ola, of the Tamil people, is the dried palmyra leaf prepared for writing on with a style.—*Mason.*

PALM-CAT, Paradoxurus typus, *F. Cuv.*

PALMETTO, see Chamærops ritchiana.

PALM-HOUT, DUT. Palm wood. See Boxwood.

PALMINE, may be prepared from castor oil and possibly from other oils also, by treating them with nitric or nitrous acids. A process is given in Brande's Manual of Chemistry, Vol. xi, p. 1257, and is supposed to be the substance which was about A. D. 1857 patented for the use of railway carriages in this country, and whether as regards its origin, the facility of making it, the abundance of the castor oil plant in India, its consistence and cheapness, it well deserves attention. The nitric or nitrous acid, Shore ka tezab is usually obtained by distilling nitre, Shora, HIND., with sulphuric acid, Gundhuc ka tezab; of which two materials, various proportions are employed. When nitrous or nitric acid is made to act upon castor oil, it is converted into a solid wax-like substance and a similar, though much more rapid, result takes place when olive oil the Zeitoon ka tel of the bazaars, is similarly treated with nitrate of mercury; but it deserves notice that castor oil is the only one of the drying oils which is susceptible of this species of solidification. On adding nitrous acid to castor oil a yellow liquid is at first formed, and the time required for its solidification varies with the quantity of acid employed; when about a twentieth part of acid is used, it solidifies in seven or eight hours, and this or somewhat less, is the best proportion. If too much acid be used, a third part, for instance, or a half, the temperature rises to 130° or 140°; effervescence ensues and the oil becomes opaque, and instead of indurating remains viscid. Palmine thus obtained is yellow, but when purified by solution in boiling alcohol, it is white, of a waxy fracture and requires a temperature of about 150°, for its fusion. When this is kept for some months it occasionally acquires a resinous appearance and presents an almost vitreous fracture. A large and profitable trade might be had in Palmine made from the cheap oils of Southern Asia, the difficulty of transporting which is well known. The same effect is produced on this oil and on olive oil by adding the nitrate of mercury.

PALMIRAS POINT, a projecting headland in the north-western side of the Bay of Bengal.

PAL-MODECA, MALEAL. Batatas paniculatus.

PALM OIL.

Huile de palme,	FR.	Aceeite de palma,	SP.
Huile de senegal,	„	Panam yenne,	TAM.
Palmol,	GER.	Thati nuna,	TEL.
Olio di palma,	IT.		

This is a fatty substance, obtained from the fruit of several species of palms, as well as from that of the Elais guineensis, growing on the western coast of Africa. It has the consistence of butter, a yellowish colour, and scarcely any particular taste; and becomes rancid on being kept for any length of time. It is chiefly used in England for the manufacture of toilet soap, pomade-perfumery; also in medicine and surgery. The African palm oil of commerce, so much imported into England for the manufacture of Prices' patent stearic candles, is the produce of this Elais guineensis; *Linn.*, a native of Africa. Another species, E. melanococca, *Gœrtn.*, is a native of America: both species might be profitably introduced into India. The Cocos butyracea, and Cocos nucifera also yield palm oils.—*Seeman*; *McCulloch's Commercial Dictionary*.

PALMER, a term applied to the pilgrims from Palestine from the staff of the date palm branch which each brought back.

PALM-SUGAR, sugar made from the sap of palms. See Jaggery, Sugar.

PALM-TREE WOODS, the stems or trunks of palms, obtained from the East and West Indies, and imported to a small extent into Britain for fancy use. The palms furnish a great variety of woods, black, brown, prickly brown, and speckled. Notices of the palm woods will be found under the names of their respective trees, the principal of which are the Areca catechu; Borassus flabelliformis; species of Calamus; Cocos nucifera; species of Corypha, many products of which—their woods leaves and fruits—are largely used in India. The palm woods are, however, sparingly employed in England for cabinet and marquetry work and sometimes for billiard cues which are considered to stand remarkably well; they are also turned into snuff boxes, &c. The smaller kinds are imported under the names of Partridge canes (called also Chinese or fishing canes), Penang canes from the island of that name, together with some other small palms which are used for walking sticks, the roots serving to form the knobs or handles. The knobs of these sticks exhibit irregular dots something like the scales of snakes, these arise from the small roots proceeding from the principal stem; which latter shows dotted fibres at each end of the stick, and streaks along the side of the same. The twisted palm sticks, are the central stems or midribs of the date palm; they are twisted when green, and stretched with heavy weights until they are thoroughly dry: they are imported from the Neapolitan coast but are considered to be produced in Egypt. The shells of the cocoa-nut and coquilla-nut, and the kernels of the areca or betel-nut, and those of the corosos or ivory-nut have likewise their uses in English workshops. But, only two or three varieties of the several hundred species are imported into Great Britain from the East and West Indies. They are known in England by the names, palm, palmetto palmyra, and nutmeg, leopard, and porcupine wood, &c., from their fancied resemblances; for, when they are cut horizontally, they exhibit dots like the spice, and when obliquely, the markings assimilate to the quills of the porcupine. The trunks of palms are not considered by physiological botanists to be true wood, they are all endogenes, and all grow from within, and are always soft and spongy in the centre, but are gradually harder towards the outside: they do not possess the medullary rays of the proper woods, but only the vertical fibres, which are held together by a much softer substance like pith or cement, so that the horizontal section is always dotted, by which they may be readily distinguished from all true woods. The colours and hardness of the two parts differ very materially.

The *Areca catechu*, or betel-nut palm, is remarkably perpendicular, it grows to the height of about 30 feet, and rarely exceeds 4 or 5 in diameter, it bears a small tuft of leaves, and the fruit is in clusters like grapes. The betel-nut is chewed along with quick-lime and the leaf of the piper betel, in the manner of tobacco. The general colour of the wood is a light yellow brown, the fibres are large, hard, and only a few shades darker than the cementitious portions.

The *Cocos nucifera*, or cocoanut palm, flourishes the best in sandy spots near the seabeach, and sometimes grows to 90 feet in height and 3 feet in diameter, but is generally less; it is rarely quite straight or perpendicular, and has broad pendant leaves from 12 to 14 feet long, in the midst of which is a sort of cabbage, which, as well as the fruit, the cocoanut, is eaten: the husk of the nut supplies the material for coir rope and matting. No part of this interesting tree is without its grateful service to the native of the tropic, the leaves are used for making baskets, mats, and the covering of his dwelling; he also obtains from this tree, oil, sugar, palm-wine and arrack, and although the upper part of the trunk is soft and stringy the lower supplies a useful wood, the fibres of which are of chesnut brown, and several shades darker than the intermediate substance; the wood is employed for joists, troughs for water, and many purposes of general carpentry.

The *Niepere palm*, Caryota urens, wood is much darker than either of the preceding; the fibres are nearly black and quite straight, and the cement is of a dark brown, but in other varieties with these black fibres, the softer part is very light-coloured and so friable that it may be picked out with the fingers; at the Isthmus of Darien, they use the fibres of some of the palms as nails for joinery work.

Palmyra wood, or that of Borassus flabelliformis, is largely used in Ceylon and the Eastern parts of the Peninsula of India, for the construction of flat roofs, the joists of which consist of two slabs, the third or fourth part of the tree, bolted together by their flat sides so as to constitute elliptical rafters. They are covered first with flat tiles, and then with a white concrete called chunam, consisting of shell lime, yolks of eggs, and jaggery (sugar,) beaten together with water in which the husks of cocoanuts have been steeped.

The *Piclypole* the Cocos guianensis of Jamaica, &c., a palm growing 40 feet high, and of small diameter, is said to be very elastic, and fit for bows and rammers. As before mentioned, the smaller kinds are imported into Great Britain under the names of Partridge canes (called also Chinese or fishing canes,) Penang canes from the island of that name, together with some other small palms which are used for walking sticks, the roots serving to form the knobs or handles. The knobs of these sticks exhibit irregular dots something like the scales of snakes, these arise from the small roots proceeding from the principal stem; which latter shows dotted fibres at each end of the stick, and streaks along the side of the same. The twisted palm sticks are the central stems or midribs of the date palm; they are twisted when green, and stretched with heavy weights until they are thoroughly dry; they are imported from the Neapolitan coast but are considered to be produced in Egypt. The shells of the cocoanut and coquilla-nut, and the kernels of the areca or betel-nut, and those of the corosos or ivory-nut, have likewise their uses in English workshops.—*Symonds*; *Tredgold*. See Palmyra and Porcupine wood.

PALM WINE, or Toddy.

Tari, Sendi, Narelli,	HIND.	Nera,	MALAY.
Tuwak,	JAV., MALAY.	Kulloo,	TAM., TEL.

The fermented sap of several species of palms. Of those in the E. Indies, the chief are:

Arenga saccharifera.
Borassus flabelliformis.
Caryota urens.
Cocos nucifera.
Phœnix dactylifera.
„ sylvestris.

When first drawn, palm-wine is refreshing, but in a short time passes on to the vinous or acetous fermentation, and in these stages spirits are distilled, sugars are made or vinegar obtained. In the prevailing dialects of the E. Indies, the spirit is called arrack, it is the cha of the Chinese, the sagwire of the Philippines the tuba of Manilla and Mindoro, and the tuac of Timor and the Moluccas, the sap of the palm, converted by distillation or fermentation into spirit or vinegar. When the spathes of the fruit bearing palmyra trees appear, the toddy-drawer climbing to the top of the tree, binds the spathes tightly with thongs to prevent their further expansion and thoroughly bruises the embryo flowers within to facilitate the exit of the juice. For several succeeding mornings, this operation of crushing is repeated, and each day a thin slice is taken off the end of the raceme to facilitate the exit of the sap and prevent it bursting the spathe. About the morning of the eight day, the sap begins to exude, when the toddy-drawer again trims this truncated spathe and inserts its extremity into an earthen pot to collect the juice. These vessels are emptied morning and evening and the palmyra will continue for four or five months to pour forth its sap at the rate of three or four quarts a day but once in every three years, the operation is omitted and the fruit is permitted to form, without which the natives assert that the tree would pine and die. The tree during the first part of the season, yields a pretty large quantity of toddy or palm wine. This is either drank fresh drawn from the tree, or boiled down into a coarse kind of syrup called jaggery, or it is fermented for distillation. The palm wine of the date tree Phœnix sylvestris, is obtained by notching the tree. The palm wines receive local names, according to the trees from which they are obtained.

Palmyra wine.

Dom? Tafi,	ARAB.	Tal-gaha,	SINGH.
Tali,	BENG., HIND.	Pannang-kulloo,	TAM.
Tari,	HIND.	Puttoo-toadi,	„
Lontar,	MALAY.	Tati-kulloo,	TEL.

Caryota urens.

Bherli,	MAHR.	Kittul,	SINGH.

Cocoa-nut tree.

Narjil,	AR.	Narikela,	SANS.
Narikel,	BENG.	Tenga,	TAM.
Nareli,	HIND.	Ten-kaia,	TEL.
Nur-kalapa,	MALAY.	Nari-kadam,	„
Tenga,	MALEAL.	Kobbari kulloo,	„

Wild date palm.

Send'hi,	HIND.	Eetchum pannay,	TAM.
Khajoori,	SANS.	Eeto,	TEL.

Palm-wine is mentioned in Exodus xxix, 40, and xxviii, 7, and it seems to be the same as the strong drink of Isaiah v, 11, and xxiv, 9. The Hebrew name is Siker, the Sikera of the Greeks from which seemingly comes the Saccharum of the Romans, all the palm-wines having a sweetish taste, though according to Jerom, in Hebrew, any intoxicating liquor was Sikera, obtained from grain, the juice of apples, honey, dates or any other fruit.

PALMYRA, also called Tadmor, a city built by king Solomon in the desert, to the S. E. of Jerusalem. Concerning the origin of Palmyra, rendered celebrated by the actions of Zenobia, whose capital it was, and by the reported magnificence of its existing remains, little certain is known. We read in Kings, i, 9 and Chron. ii, 8, that Solomon built "Tadmor in the Wilderness"; and Josephus assures us that the city, which was subsequently known under the name of Palmyra, by the Greeks and Romans, was one and the same place. It has again recovered its original appellation, being known to the wandering Arabs under that of Tadmor or Tadmoor. Notwithstanding this remote origin, it were idle to attribute an earlier date to the existing ruins of palmyra, than that of the establishment of the Greeks in Syria. The first mention of it in Roman history, is under Mark Anthony (see Appian, De Bello Civil, lib. 5), at which time it appears the inhabitants were noted for their riches and their commerce with the eastern nations. The description which Pliny gives of its situation, as compared with its present appearance, is singularly correct. He says, Palmyra is remarkable on account of its situation, the richness of its soil, and its agreeable streams. It is encompassed on every side by a vast desert of sand, which completely separates it from the rest of the world, and it has always maintained its independence between the two great empires of Rome and Parthia, whose constant endeavour it is, during their wars, to bring it over to their respective interests. It is distant 337 miles from Seleucia on the Tigris, 203 to the nearest part of the coast, and 176 from Damascus. He describes the first view of the ruins as singularly romantic, and remarkable on account of their great extent, but, on closer inspection, not answering to their first impressions. This opinion is confirmed by Burckhardt, who travelled in 1810. The entire ruins of Palmyra, when seen at a certain distance, is infinitely more striking than those of Balbec; but there is not any one spot so imposing as the interior view of the temple of Balbec. The temple of the sun at Tadmor is upon a grander scale than that of Balbec, but it is choked with Arab houses, which admit only a view of the building in detail. The architecture of Balbec is richer than that of Tadmor. From the time of Solomon till after the captivity of the Roman emperor Valerian by the Persians but little is known of it. It rose to the highest opulence and splendour under Odenatus, whose dominions extended from the Euphrates to the Mediterranean. But its chief interest is connected with the wife of Odenatus, Zenobia queen of the east. The increasing power attracted the notice and jealousy of Aurelian who having defeated her in two pitched battles, laid siege to Palmyra. Soon after the surrender of the city, the Palmyrenes revolted against the emperor, who in consequence entirely destroyed the city, and put the greater part of the inhabitants to death. He afterwards restored the temple of the Sun, and gave permission to the remnants of the Palmyrenes to re-build and inhabit their city. The pile of building on the left is the temple of the Sun, consisting of an immense court, of which the ruins are spread over a space of 220 yards. It is surrounded by a stately wall, adorned with pilasters within and without. Two rows of marble columns, of which about sixty remain entire, formed a colonnade within the court, which is now occupied by the Arab huts. The great colonnade which forms the principal feature in the drawing, extends more than half a mile in length, and probably was the main street in the city, from which others branched out laterally; it was entered by an archway, and terminated by a large building, of which the portico alone remains. Innumerable columns and ruins of temples, are scattered over the plain. Its peculiar interest is not confined merely to architectural details, but to its position in the desert, and its utter loneliness. Lord Lindsay says "an awful stillness,—a lifelessness pervades the ruins,—they stand as lonely and silent as when the last of the Palmyrenes departed and left the city of Zenobia to silence and decay."

PALMYRA:

Dom? Tafi,	AR.
Tar,	DUK.
Fan-leaved Borassus,	ENG.
Brab-tree,	,,
Tal; Tar ka jhar,	HIND.
Borassus flabelliformis,	LAT.
Lontar,	MALAY.
Ampana: Karimpana,	MALEAL.
Tala,	SANS.
Tal-gaha,	SINGH.
Panna maram,	TAM.
Tatti chettu,	TEL.

This tree is very abundant, especially in sandy tracts near the sea. Its wood is used chiefly for rafters, joists and reapers, when of good age the timber is very valuable for this purpose, the trunk is split into 4 for rafters, into 8 for reapers, these are dressed with an adze. Those of the Jaffna palmyras are famous, and were largely imported in former times. From the structure of the fibres, it splits easily in the direction of its length, but supports a greater cross strain than any other wood: iron nails, however, rust rapidly in it. The fruit and the fusiform roots of the young trees are used in the Northern Circars as an article of food by the poorer classes. The leaves are used for thatching and coarse fibre. Jaggery and toddy are extracted from the tree, the former is extensively used in the manufacture of sugar in Vizianagrum and Rajahmundry. Very neat baskets of palmyra leaf are manufactured at Tinnevelly. Some clean but brittle fibres were exhibited at the Madras Exhibition of 1855, by the Tinnevelly, Madura and Travancore Local Committees and well twisted rope accompanied most of the samples, but the material is said to be stiff, brittle, and liable to rot when wet. Its chief uses are for securing thatch and tying bamboos, in building native huts. The palmyra tree is to be seen in almost all parts of India, and occasionally as far as 30° N. lat. It is, next to Caryota urens, the largest palm on the Madras coast, and it seems to thrive equally well in all soils and situations. The seeds when young are eaten by the natives, being jelly-like and palatable. The tree, during the first part of the season, yields a pretty large quantity of toddy (palm-wine). This is either drank fresh drawn from the tree, or boiled down into a coarse kind of syrup called jaggery, or it is fermented for distillation. The wood, near the circumference of old trees, is very hard, black, heavy and durable. The dried, prepared, leaves are universally used for writing upon with an iron style. They are also employed for thatching houses, for making small baskets, mats, &c., and some also are formed into large fans, The fibres of the leaves are employed on the Madras side for making twine and small rope. They are about two feet in length, strong, wiry, and not unlike those of the Esparto of Spain. Near the base of the leaves is a fine down, which is used for straining liquids through, and also for stopping bleeding from wounds. The Palmyra wood, or Porcupine wood, is from the palmyra tree. The Poonatoo of the Singhalese, is the dried pulp of fruit of the palmyra tree, dried in the sun, then smoked in their houses, and eaten as cakes, for soup or in curry, the centre and its top are soft and spongy, containing a kind of coarse farina, intermixed with the under fibre, and in Ceylon, these parts are laid out to attract for the sportsman, hares and wild hog. The palmyra forests of Tinnevelly form a distinctive feature in the scenery of the province. And unromantic looking as is the palmyra, there is no tree in Indian forests so thoroughly useful to man. Its young root is as edible and nutritious as a carrot; from its leaves are manufactured mats, fans, beautiful basket-work of every description, sandals, hats, umbrellas, sieves, thatch, water buckets, and the most lasting substitute for paper used by the natives. The juice is a pleasant nutritious drink; and from it is produced an excellent sugar, and superior sugar-candy. The fruit when roasted is a wholesome food, and the pulp is, in hot weather, a most grateful refreshment. From the fibre of the leaf stalk, is manufactured an excellent cordage; the timber of the trunk supplies the natives with a durable wood for building purposes, the refuse of the leaves, is their ordinary firing and the huge root of the old tree, when covered with a sheep-skin, forms an excellent drum! Thousands of people subsist on the produce of this palm; a considerable portion of the revenue of the province is derived from the tax upon it, and no small portion of the time and the patience of the Magistrates are wasted upon the quarrels and disputes of which it is a most fruitful source. There are about five millions of palmyras bearing tax, and the sum thus realised by Government grants is one lac and a half of Rupees, or about one Rupee per thirty trees. Proprietorship in palmyras consists of four classes, viz., 1. The ryot who is owner of the trees and the land upon which they grow. 2. The palmyra-climber who holds a puttah for trees growing on the land of another. 3. The climber who holds a puttah for trees growing on land belonging to Government, lying waste but capable of being cultivated; and 4. Climbers who hold puttahs for trees on land belonging to Government, but which cannot be cultivated, such as road-sides, &c. From this diverse proprietorship, from the manner in which the tax is assessed, oftentimes being in excess of the land tax, and from the practice of inspecting and assessing the tax once in three years, the proprietors are subjected to considerable inconvenience, and the Collector and his assistants to very much labour. The palmyra is of two sorts, the male which yields juice only, and the female which yields juice and fruit, and for doing which generous act, it is taxed exactly double the amount levied on the male. One-fourth of the population of the northern provinces of Ceylon are supported by the produce of this tree.

Palmyra is a Sanscrit word corrupted, and affords the etymology of Solomon's city of the desert Tadmor. The p, by the retrenchment of a single diacritical point, becomes t; and the (l) and (d) being permutable, Pal becomes Tad or Tal, the palmyra, which is the Mor or chief of trees; hence Tadmor from its date trees. In Sanscrit, tal or tar, is the 'date-tree;' mor signifies 'chief.' In British India there are more than one 'city of palms' (Talpoor) and the tribe last ruling in Hydrabad, on the Indus, was called Talpoorie from the place whence they originated——*Tennent's Ceylon M. E. J. R.*;. *Royle's Fib. Plants, p.* 39; *Mason*; *Robinson's Travels, Vol.* ii, *pp.* 242, 352-354; *Tod's Rajasthan, Vol.* i, *p.* 97. See Semitic races.

PALMYRA-WOOD, is the trunk of the palm-tree Borassus flabelliformis, which is largely used in Ceylon and Southern India for rafters, joists, reapers, and other building purposes. The fruit and the fusiform roots of the young trees are used as food by the poorer classes. The leaves are used for thatching, and from the coarse fibre very neat baskets are made. Jaggery, coarse sugar, and toddy are made from the sap. Palmyra is sometimes called nutmeg-wood by turners. Its fruit, of the size of an ostrich egg, grows in clusters. But the trees from which the toddy or palm wine are drawn, cannot bear fruit. The fibres of the petioles of the leaves (Palmyra nar) are employed on the Madras side for making twine and small rope. They are about two feet in length are strong and used for wood.—*Simmond's Dictionary.* See Kelingu, Olay, Punatu, Porcupine wood.

PALMYRA CLIMBER, Eng. Anabas scandens.

PALNAUD, the N. W. corner of the Guntoor collectorate, grows cotton.

PALO—? Hind. The starchy extract of root and stem of Tinospora cordifolia, *Miers*, the stem of which is macerated, and the solution evaporated to dryness.—*Simmond's Dict.*

PALO DE CAMPECHE, Sp. Logwood.

PALO DEL BRASILLO MARILLO, Sp. Fustic.

PALO DE VACA, Sp. The Cow-tree.

PALODHERI: · the Po-lu-Sha of Hwen-Thsang may be identified with Palo-dheri, or the village of Pali, which is situated on a dheri, or "mound of ruins," the remains of some early town.—*Cunningham's Ancient Geog. of India, p.* 51.

PALOGPONG IKAN, or ari-ari-ikan of the Malaya, loo-pa of the Chinese, appears to have formed an article of exportation from the islands of the Indian Archipelago as early as they became visited by the Chinese. When these people commenced to settle in the Straits, they not only collected fish-maws there but also from distant localities, and Bombay, Ceylon, Madras, Bengal, Tenasserim and most of the Malayan islands contribute to the annual supply, which is bought up by Chinese dealers at Penang, Malacca, and Singapore, and re-exported to China. Since 1842, Mr. W. T. Lewis, Assistant Resident Counsellor of Pinang, made some very successful attempts to improve the production of isinglass in Prince of Wales' Island.—*Journal of the Asiatic Society of Bengal, p.* 445.

PALOLO, the name given to Balti, by the Dard race. See Balti, Bolor, India.

PALO MARIA, Calophyllum inophyllum.

PALONG. The Pa-long, Pa-on or Za-baing tribe are partially subject to, and located to the east of, the Mo-Meit (Mung Myit, Moung-m-ri) beyond the Ka-ren-ni, and along the Chinese frontier, as far as the latitnde of Ba-mo (Mang-mo.) They are civilized and remarkably industrious, being good carpenters, dyers and blacksmiths. Their dhas or swords are exclusively used in and around Bamo. The Chinese who carry on the trade between Yun-nan and Burmah, by Ba-mo, describe the route, as passing across a range of hills inhabited by Ka-Khyeng and Palong, and then entering a Shan country, the Ko-pyi-doung of the Burmans. The Pa-long inhabit the valley south-east of Ba-mo, beyond the first mountain range. They approximate to the Shans, of whom they are probably an offshoot, they wear the same dress and are buddhist, but they have affinities with the Kha-khy-eng. The Pa-long seems to resemble the Anamese, in some respects. A race of the same name (Panong), but to which the Siamese apply the generic name of Ka or Kha, inhabit the mountains of Laos, bordering on Kambojia. They are a coarse and debased variety of the Anam and the Kambojian type. On the same side of the Mekong basin, but towards the sea, between 11° and 12 N. L., a hill tribe called Chong, preserve more of the ancient Australo-Tamulian character than the surrounding tribes. In the Chong, the hair, instead of being stiff or harsh as in the Mongolian, Tibetan and prevalent Ultra Indian and Malaya-polynesian race, is comparatively soft, the features are much more prominent and the beard is fuller. The Moi or Ka-moi, who, on the opposite side of the Mekong, occupy the broad expansion of the Anam chain towards Kamboja and appear to extend northwards along these mountains, marching with the Lau on the westward, are said to be black savages, with negro features. The Kambojans style them Kha-men. They are the Kho-men of Leyden and the Kha-men of Gutzlaff. See India, Paloung.

PALOO, Singh. Mimusops hexandra, *Roxb.*

PALOO, a hard, fine, close-grained, heavy Ceylon wood: heart-wood deep red brown, recent layers reddish yellow; its compact, even structure, indicates that it is admirably adapted for turning work.—*Exhibition of* 1851.

PALOO-BANSH, Beng. A species of bamboo.

PALOOD, see Pabut.

PALOO-PAGHEL-KODI, Tam. Momordica dioica.

PALOS, see India.

PALOSA, Hind. Acacia modesta.

PALOUNG, or Pa-loa, a tribe with Shans, and Ka-Khyen on the north, with Burmans on the south, between 97 and 98° of N. L., and in 23¼° of N. L. The Paloung tribe are kindred to the Shans, and inhabit the hills east and north-east of the ruby mines, on the border of Burmah and China. They are an industrious and hospitable race, good dyers, carpenters and blacksmiths. They are short athletic men with fair skins; many of them have large grey eyes; and all have a small flat nose, much distended towards the nostrils. They wear a dark jacket and short breeches in the Shan style.—*Yule, p.* 169.

PALPA. West of the Palpa are the Thaksya, Sunwar, and Sarpa, the dialects of Kumaon and Gurhwal, which carry us on to the Milchan of Kunawar, the Hundisi, and Tibarskad' north of it.

PALRAPATI, a river of Baitoul,

PALSAM, Hind. Pinus excelsa.

PALSAMUDRAM, in lat. 13° 57′, long. 77°41′, in Mysore, 4 miles west of the Chittra. The dak bungalow is 2,279 feet above the sea. —*Schl., Herm.*

PALSEROO, Tel. Dalbergia paniculata.

PALTA, Tel. Mimusops hexandra.

PALTU, Hind. Prunus prostrata.

PALU, Hind. Pyrus kumaonensis.

PALU, Tel. Milk.

PALU ABHISHEKAM, see Hindoo.

PALUDDAR, Hind., or Diar of Hazara and Kaghan: Cedrus deodara, Deodar or Himalayan cedar.

PALUDAR, Hind., of Hazara; Picea webbiana, Picea pindrow, the silver fir.

PALUDINIDÆ, a family of Prosobranchiate gasteropodous Mollusca, inhabitants of fresh water. They embrace Lamarck's family of Peristomians. The genera included in it are Paludina, Valvata, Ampullaria, Amphibola, and Bithinia. Through Ampullaria the family is allied with Neritidæ.

The genus *Paludina*, (Lam.) Is found in Europe, Asia, Africa, and America. The number of recent species of Paludinæ given by Woodward is 60, and of fossil species 50.

Genera.—Paludina, River snail, *rec.*, 60 sp., *fossil*, 50 sp.
Sub-genus.—Bithinia, *rec.*
Ampullaria, Apple-snail, or idol-shell, *rec.* 50 sp.
Sub-genera. Pomus,
Marisa.
Asolene, *recent.*
Lanistes, *recent.*
Meladomus.
? Amphibola, *rec.* 3 sp.
Valvata, Valve-shell, *rec.* 6 sp. *fossil*, 19 sp.

PALUDOMUS, a genus of molluscs.

PALUK, Pers. Beta vulgaris, *Linn.*

PALUMBUS ELPHINSTONEI, Palumbus torquatus, P. pulchricollis, P. torringtonii of British India and Ceylon, are wood pigeons. See Birds and P. casiotis.

PALUKA JOOI.

PALUNG, Beng. Beta bengalensis, native variety of beet-root cultivated for food.

PALUNGOO, Tam., of Madras; Hibiscus cannabinus. See Hemp.

PALUNG-SHAK,——Ixora undulata.

PALU-PAGHEL, Tam. Momordica dioica, *Roxb.*; *Willd.*

PALURR, Hind., of Chilas.

PALUSTRE, see Nasturtium.

PALUTT, Hind. In music, a treble.

PAL-VALLI, or Pal-Vulli, Maleal. Chonemorpha malabarica, *Don.*, also Ichnocarpus frutescens, *R. Brown.*

PALVAR, see Bendamir.

PALWAL, Hind., Sans. Trichosanthes dioica.

PALWAN, Hind. Andropogon annulatus.

PAM, also Pashm, Hind., of Kashmiri wool.

PAMA, also Thelu, Hind. Juniperus religiosa, J. squamosa, the creeping juniper, J. communis and J. excelsa.

PAMAN, Hind. A kind of wheat, also called vadanak.

PAMANKE, Hind. Boucerosia aucheri.

PAMA-RATTI, Tam. Anisomeles malibarica, *R. Br.*

PAMAROONG or Dondrekin island in Macassar strait, near the coast of Borneo, is in lat. 0° 54′ S., long. 187° 36′ E.—*Horsburgh.*

PAMBAH, Pers. Cotton,. Gossypium indicum, *Lam.*

PAMBAN MANCHE, Tam. Snake-boat of Cochin See Boat.

PAMBASH, Hind. Rheum emodi.

PAMBHAN KANAK, Hind. Triticum durum.

PAMBU, Tam. A snake, a serpent. See Serpent.

PAMBU PARANDU, Tam. Circaætus gallicus, *Gmel.*

Pamboo thalai neer cakai, Tam.

The Darter, Plotus melanogaster, or snake headed Water-crow, has three, sometimes fou eggs; young fledged and on the wing, some i January, others not till April.

PAMIR, a plateau at the headwaters of th Indus, almost 16,000 (15,600) feet above th sea. It was encamped on by Lieut. Wood, of the Indian Navy. It is an extensive tract of elevated table land, known also as the Bam-i-danya or Roof-of-the-world, and is occupied by the black tents of the pastoral and free-booting Kirghiz, who occupy also the plain to the east of Badakhshan. The elevated expanse of Pamir, to the north of Hindoo-Koosh, observes Humboldt, is not only a radiating point in the hydrographical system of Central Asia, but is the focus from which originate its principal mountain chains, being common to India, China and Turkestan; and from it, as from a central point, their several streams diverge. The Pamir range is a grand branch of the Indian Caucasus. Chund, the bard, designates the range as the "Purbut Put Pamer," or Pamer. Lord of the Mountains. From Pahar and Pamer, the Greeks may have compounded Paropamisan, in which was situated the most remote of the Alexandrias. Baron de Bode names 19,000 feet as the altitude of the Pamir, or Tartaric Caucasus. From this plateau, the Oxus, Jaxartes, rivers of Yarkand and Kashgar, and the Gilghit branch of the Indus derive their head-waters.—*Tod's Rajasthan*, *Vol.* i, *p.* 130; *Baron Clement A. De Bode's Bokhara, its Amir*, *p.* 24; *Yule Cathay*, ii, *p.* 562; *Humboldt*. See Kashgar, Kush or Cush, Mountains.

PAMI, Tel. Turmeric.

PAMIDI PATTI, or Paidi patti, Tel. Gossypium, *R.* Pamidi means "valuable."

PAMIDI TANGEDU, or Paidi tangedu, Tel. Poinciana pulcherrima, *L.*

PAML, Beng. Bignonia suaveolens, *Roxb.*

PAMPANGA, see India.

PAMPARA PANASA, Tel. Citrus decumana, *Linn.*, *W. & A.*, *Roxb.*

PAMPARA PANASA, or Pamplimos, Citrus decumana, *L. W. & A.* 343—*R.* iii, 393.

PAMPENA, or Dundilapu chettu, Calosanthes indica, *Bl. W. Ic.*, Bignonia ind., *R.* iii, 110.

PAMPELMOUSE, or Pampelmose, Citrus decumana, the pumalo.

PAMPHOONEA, Urya. Bignonia chelonoides, *Linn.*

PAMPI, Tel. Curcuma longa, *Roxb.* Turmeric.

PAMPKIN or Pumpkin, *White.* Lagenaria vulgaris, *Ser.*

PAMPOSH, Hind. Nelumbium speciosum.

PAMU, Tel. Snake, serpent.

PAMUKH, Hind. Verbena officinalis.

PAMULA GEDDA, Tel. Circaætus gallicus, *Gmel.*

PAN, Hind. Chavica betel; betel-leaf, Piper betel, seriboo, *Miq.* This famous eastern masticatory, is a narcotic which takes the place of opium and tobacco in many Asiatic countries. Slices of the areca nut are wrapped in the fresh leaves of the betel-pepper vine, with a small quantity of quicklime. The masticatory has an herbaceous and aromatic but astringent taste. All classes, male and female, chew it, and they allege that it strengthens the stomach, sweetens the breath, and preserves the teeth. It gives the lips, tongue, and teeth a reddish tinge. Piper betel, Betel pepper, is cultivated in spots by itself; it requires much water and care.—*Simmond's Dict.*; *Riddell.*

PAN, see Avataram, Rama, Saraswati.

PAN, also Paik hsan, Burm. Crotolaria juncea.

PAN-SHAW, Burm. China grass, Rheea; Boehmeria nivea.

PAN or Pun, Hindi. In Indian currency, is the fifth part of an anna. A sum of 80 Cowri shells: also a land measure of 3¾ cubits. It is the source of the Anglo-Indian coin, Fanam, and seems to be derived from the Sans., Pana, money in general.—*Wilson.*

PAN, Sans. Leaf; pan and pat are the Sanscrit for a leaf; and hence panna, 'a leaf or sheet of paper,' and patera 'a plate of metal or sacrificial cup,' because these vessels were first made of leaves. There is a coincidence between the Sanscrit and Tuscan panna. That lovely subject by Raphael, the "Madonna impannata," in the Pitti palace at Florence, is so called from the subdued light admitted through the window, the panes of which are of paper. —*Tod's Rajasthan*, *Vol.* i, *p.* 661.

PAN, Hind., of Murree and Hazara, Rhus cotinus.

PAN, or Krok of Kanawar, Picea webbiana, Picea pindrow, the silver fir.

PANA, Urya. A wild predatory tribe, on the south borders of Orissa.

PANA, Beng. Pistia stratiotes, also Salvinia imbricata.

PANAGŒUS, one of the Coleoptera of Hong Kong.

PANAI-NAR, Tam. Borassus flabelliformis.

PANAI MARAM, Tam. Borassus flabelliformis.

Panai maram kotte, Tam. Kernel of palmyra fruit.

Panai-nar, Tam. Fibre of Borassus flabelliformis.

PANAK, Hind. A painted stick for extending a web during weaving.

PANALA. The fort of Panala, with its sister fort of Pawungadh, stands on a ridge about 12 miles to the N. W. of Kolapur, forming part of, though more or less divided from, a range of hills that runs nearly due east from the Ghauts. Its elevation above the plain of Kolapur is calculated at 975 feet and that above the level of the sea at 2,772 feet. In the buddhist period, Panala and the neighbouring hills seem to have been favourite seats for Troglodyte recluses.

PANA MARA, Maleal. Borassus flabelliformis.

PANAMBOO-VALLI, Maleal. Flagellaria indica.

PANAM KALANG, Tam. Root or young shoot of the palmyra Borassus flabelliformis.

PANAM OLAY, Tam. A palm leaf prepared for writing on. See Olay.

PANANG, see Negros or Buglos islands.

PANASA CHETTU, Tel. Artocarpus integrifolia.

PANASA PANDU, Sans., Tel. Fruit of Artocarpus integrifolia.

PANAVERA TJERANA, also Karim-pola, Maleal. Trapa bispinosa.

PANA WOOD, Anglo-Tam. Calosanthes indica, *Blume ; W. Ic.*

PANA WOODACHI MARAM, Tam. Calosanthes indica.

PANAX, a genus of the Ivy tribe of plants, of the natural order Hederaceæ, viz.

aculeata, *Ait.*, China.
cochleata. *DC.* Java, Moluccas.
digitata, *Roxb.*, Sylhet.
fragrans, *Roxb.*, Khassya
fruticosa, *L.*, Java, Moluccas.
palmata, *Roxb.*, Chittagong.
quinquefolius, China. ?

The species are herbs and shrubs and trees, having the leaves and inflorescence variable. The plants of this family are not possessed of very decided medical properties, though the ginseng, produced by Panax quinquefolium, has been more celebrated than plants of greater value. This plant produced in the mountains of Chinese Tartary, between 39 and 47°, was recognized from the description in Canada and Virginia, whence it is now exported to China. Subsequently the same plant or a species so closely allied to it, that Dr. Wallich has called it Panax pseudo-ginseng. The roots of all are said to possess medicinal qualities, and are much esteemed by the Chinese for their beneficial influence on the nerves.—*Eng. Cyc.*; *Riddell, Voigt.*; *Pl. As. Rar. t.* 137 ; *Roule's Ill. Him. Bot., p.* 233.

PANAX FRAGRANS.

Gooti-soona, Hind.

A shrub, with fragrant flowers of a green colour, a native of Nepal.—*Riddell.*

PANAX FRUTICOSUM, *Linn.*

The shrubby pana, is a native of the Moluccas and Java. It is used in China and Cochin-China as a febrifuge, and as an astringent tonic. It has a shrubby unarmed stem. It is a native of the islands of Ternate, Java, and Amboyna. Commonly grown in Indian gardens, and easily propagated from cuttings.—*Lindley's Flora Medica* ; *Burnett's Outlines of Botany in Eng. Cyc.* ; *Riddell.*

PANAX GUMMI, Ger. Opoponax.

PANAX OBTUSUM, a shrub, cultivated in gardens.—*Riddell.*

PANAX PSEUDO-GINSENG. Dr. Wallich has discovered inNipal this species of Panax i closely allied to P. quinquefolius and he publi ed an account of it in the 4th volume of Transactions of the Medical and Physi Society of Calcutta and in his Plantæ Asia Rarior, vol. ii, p. 30, t. 137.

PANAX QUINQUEFOLIUS.

Aureliana Canadensis.	5 leaved panax.
Ginseng, Chin.	

The roots are about the thickness of th finger, like those of parsley, of a whitish ye low colour externally, white within, two three inches long, wrinkled, or with ring often divided into two branches, rarely in three or four, and these presenting a sligh likeness to the human form, whence the Chine name is derived : the parencheme is formed a horny and compact tissue, displaying som resinous points. Above the neck is a knott twisted tissue formed by the remains of th old stalks. The odour is sweet, and weak aromatic, the taste saccharine, somewhat li that of liquorice, subsequently bitter, an rather aromatic. The root of an umbelliferou plant, the Sium ninsi, is often mixed, in th druggists' shops, or mistaken otherwise for th ginseng ; the essential difference consists in th ginseng having the neck covered with fibro threads, the remnants of the cortical part the stalk. The root abounds in gum and starch and has a little resin and essential oi The plant is about a foot high, with glabrou straight, simple stalks, terminating in thre leaves, each composed of six uneven leafle a little pedicelled, oval, lanceolate, acute, an toothed at the edge. The flowers are borne a central peduncle, and disposed in an umbe The berries are kidney-shaped, red, compresse crowned with the calyx and stones, and con taining two semi-circular seeds. The ginse root is one of the substances which, withou any obvious cause, has attained the highes celebrity and esteem among mankind for i alleged medicinal virtues. The Dutch wer the first nation who made it known in Europ where they brought it from Japan in 1640 The Japanese themselves were indebted for i to China. The plant grows in the great forest of Tartary between the 39th and 47th degre of north latitude ; it is also found in abundanc in Virginia and Canada, a circumstance whic has rendered the roots so common that the are now cheap in China, where they once sol for their weight in gold. The Chinese i their hyperbolical phraseology name the root " the pure spirit of the earth," the " recipe o immortality," the " queen of plants," &c., and regard it as a panacea for all the diseases to whic they are liable. It has a fusiform roo more or less branched, of a whitish colour and terminating in fibres. The stem is smooth round and green, often with a tinge of red, divided at the top into three petioles with a flower-stalk in their centre. The petioles are round, smooth, and swelling at their base. The leaves ternate, quinate, or septenate. The berries are kidney-shaped, of a bright red colour, and contain 2 semi-circular seeds. The flowers are of a yellowish colour. In China, it has been considered an invaluable drug from time immemorial. In A. D. 1709 the emperor of China commissioned 10,000 Tartars to go in quest of as much of this root as they could find: each one was to give two pounds of the best of it to the emperor, and to sell the rest for its own weight in fine silver. The roots enter into the composition of every Chinese medicine. It is reckoned a stimulant and restorative, and both rich and poor consider it a remedy for every disease. By Europeans and Americans however it is comparatively disregarded, and looked upon as a mere succulent, similar in its qualities to liquorice; hence the question arises, is the Chinese plant the same as the North American? For we cannot regard all that the Chinese say and practise as merely imaginary. The common names of the plant, are Genseng, Jinchen, or Nindsin, and signify 'wonder of the world,' or the 'dose for immortality;' and the Chinese firmly believe that its powers are almost miraculous.—*Eng. Cyc.*; *Royle's Ill. Him. Bot.*: *O'Shaughnessy, pp.* 373-74; *Smith.* See Ginseng.

PANAY, see India.

PANAY ISLAND, is a large island north of Negros, one of the Philippines, in lat. 10° 25′ and long. 122° 6′ E.

PANAYALA, Beng., Duk. Flacourtia cataphracta, Tam.? in Malabar Eriodendron anfractuosum. Panawla in Bombay, Flacourtia sapida.

PANAY-MARAM. Borassus flabelliformis.

PANAY PYROO, Tam. Phaseolus radiatus.

PANBOOL, Arab. Piper betel.

PANBURRI, a branch of the Koli race in the west of India. The Mullar or Panburri or Choomli Koli, is respectable. He is employed in every Dekhan and Kandesh village as a member of the third division of the Balottah and supplies water to travellers, wearing on his head the choomli or twisted cloth, hence the name, on which to rest the water pot. This Koli is also found in the Hyderabad Balaghat, extending eastward to Khanbar, Indore and Bodin, between the Godavery and Hyderabad, also near Naldrug, and down the banks of the Bhimah and Kistnah to Alpur near Kurnool. The Mullar Koli are looked on as the most respectable tribe, and the Dhour the most degraded: the latter do not scruple to eat the flesh of animals that have died natural deaths. In Bombay island, as well as in Bassein, Salsette, Tanna, &c., are christian Koli who formerly belonged to the Sone section, but were converted to the christian faith by the Portuguese during the time the latter had possession of Bombay. These Koli are cultivators, toddy-drawers, &c., and a great many of them sell game, which they snare and carry to Bombay. They are generally habited in a coarse jacket, which extends down to their back, and a small skull cap, cut in front, in the shape of a cone, with a lungotee to hide their persons.

PANCH, Hind. Five, from the Sanscrit. Pancan; hence, Pani, the hand, Pente, Gr., Quinque, Lat,, Cinq, Fr. Panch is a frequently occurring word in compounds, as,

Panchait, a court of five, voluntarily assembled.

Panchala, the five artizan castes, goldsmith, carpenter, brazier, blacksmith, and stone cutter; also, five inferior castes, carpenter, weaver, barber, washerman and shoemaker.

Panchama, the 5th lunar day of each month.

Pancham Bandham, five servile tribes in Karnata, of whom are the Pareya, Bulwan, Chaklar and Toty.

Pancha maha patika, in hinduism, the five heinous sins, viz., killing a brahman, stealing gold, drinking spirits, intercourse with the wife of a spiritual preceptor and association with a person who has committed these sins.

Panchanga, a calendar, of five anga or subjects, 1 tethi or lunar day; 2 vara or solar day or day of the week; 3 nakshatra or lunar asterism of each day; 4 yoga, transits, conjunctions of the planets, eclipses, and 5 the karana or sub-divisions of the lunar day.

Panch, five, is said to be the origin of Punch who has himself, Judy, the dog, the devil and the child, also of the drinking punch with its five ingredients, spirits, water, sugar, the lemon and spice, or, according to another account, spirits, tea, sugar, lemons and water.

Panch Dravid, and Panch gaur are usually taken to indicate the hindoo arrangement of the Dravida and Gaur tongues also the Dravida and Gaur brahmins. The pandits named the five Dravira tongues, the Telinga, Kanatika, Mahratha, Gurjara, and Dravida or Tamil proper, but at present Dr. Caldwell displaces the Gurjara or Gujarathi and the Marathi, and considers the Dravida proper or Tamil, the Telinga, Talunga, or Telugu, and the Karnataka, Kannada or Canarese, to be the three principal languages of the Dravidian family, and he adds thereto the Malayalam, the Tulu, and the uncultivated Toda, Kota, Gond and Ku, making altogether nine Dravidian or Tamilian tongues.

PANCHA GANGA GHAT, the five hindoo rivers to which pilgrimages are made. See Ramanandi or Ramawat.

PANCHA KARTTA, the five great gods or lords, the five faces of Siva.

PANCHAM, HIND., the dominant fifth in the musical scale.

PANCHA VADDIUM, five musical instruments of Malabar, viz., Jenta, Chengalam, Ilatalom, sounded three times daily, before hindu princes.

PANCHADARA, TEL. Sugar.

PANCHA SHEGAM, a hindoo ceremony which consists of pouring milk on the lingam. The liquor is afterwards very carefully preserved and some drops are afterwards given in the Pancha Shegam to dying people, that they may merit the delights of the Kalaisson.—*Sonnerat's Voyage, pp.* 159-160. See Abishegam.

PANCHAEAN ISLAND, see Yavana.

PANCHAJANYA, see Sankasura.

PANCHA KAVIA, see Hindu or hindoo.

PANCHAL, Panchala or Pancham bandam, the five artizan castes of the hindoos, viz.

	Canarese.	Hindustani.	Mahratta.	Tamil.	Telugu.
Goldsmith ...	Aksala.	Sonar.	Sonar.	Tăttăn.	Aosal uru, Kamsala vadu.
Blacksmith...	Kămbăra.	Lohar.	Lohar.	Kărumăn.	Kămr uru.
Coppersmith.	Kăntsăgăra.	Tambagar.	Tambatgar.	Kănnăr.	Kantsar uru.
Stone cutter.	Kassigara.	Sangtrash.	Gondi.	Kŭl-tăchăn.	Kassi uru.
Carpenter. ...	Bargia.	Barhai.	Sutar.	Tătchăn.	Wad'l oru.

In the south of India hindoos arrange themselves into right and left hand castes,

Left hand,

Panchala, five in number, viz.

Kammaranu or blacksmith.
Badige or carpenter.
Kansagar or brazier.
Kallurutiga or mason.
Akasale or goldsmith.

Beri-sethi, traders.

Devangada, weavers.

Ganigar, oilmakers.

Gollur, cashkeepers.

Paliwan and Palawan, cultivators.

Beda, hunters.

Madiga, leather workers.—*Wilson's Glossary.*

PANCHALA, an ancient race who were ruling in India at the time of the Kuru and Pandava strife. They extended through the whole southern doab beyond Benares, as far as the river Karmanvati, which was for a time considered the frontier line of the two tribes. Canacubya, the modern Canouj, is one of the most ancient places in India; it gave rise, and gives a name, to one of the greatest divisions of the brahmin class. Its capital was perhaps the wealthiest visited by the first mahomedan invaders, and its wars with the neighbouring state of Delhi contributed to accelerate the ruin of hindoo independence. This kingdom appears in early time to have been called Panchala. It seems to have been a long, but narrow territory, extending on the east to Nepal (which it included), and on the west along the Chambal and Banas, as far as Ajmir. We know little else of its early history, except through the Rajput writings and traditions collected by Colonel Tod, and the inscriptions examined by Professor Wilson, with those translated and discussed by Principal Mill. The former relate that it was taken from another hindoo dynasty, A.D. 470, by the Rathor rajputs, who retained it until its conquest by the mahomedans in A.D. 1193, when they withdrew to their present seats in Marwar. The identity of Canouj and Panchala is assumed in Menu 11, 19. Its limits, as assigned in the Mahabharata are made out by connecting notes (vol. iii, p. 135, vol. iv, p. 142,) in the "Oriental Magazine." These boundaries, enlarged a little on the south and on the west, are the same as those assigned by Colonel Tod to the same kingdom at the time of the mahomedan invasion. According to the Mahabharata, the great kingdom of Panchala extended from the Himalaya mountains to the Chambal river. The capital of North Panchala, or Rohilkhand, was Ahi-ch'hatra and that of South Panchala, the Central Gangetic Doab, was Kampilya, now Kampil, on the old Ganges between Budaon and Farokhabad. Just before the great war or about 1430 B.C., the king of Panchala, named Drupada, was conquered by Drona, the preceptor of the five Pandu. Drona retained North Panchala for himself, but restored the southern half of the kingdom to Drupada. According to this account, the name of Ahi-chhatra, and consequently also the legend of Adi-Raja and the serpent, are many centuries anterior to the rise of buddhism. It would appear, however, that the buddhists must have adopted and altered the legend to do honour to their great teacher, for Hwen Thsang records that outside the town there was a Naga-hrada, or "serpent tank" near which Buddha had preached the law for seven days in favour of the serpent king, and that the spot was marked by a stupa of king Asoka. At present, A. D. 1870, the only existing stupa at this place was called Chattr, and General Cunningham infers that the buddhist legend represented the Naga king after his conversion as forming a canopy over Buddha with his expanded hood. He thinks also, that the stupa erected on the spot where conversion took place would naturally have been called Ahi-chhatra, or the "serpent canopy." A similar story is told at Buddha Gaya of the Naga king Muchalinda, who, with his expanded hood, sheltered Buddha from the shower of rain produced by the malignant demon Mara. The great mound of ruins called Atranji-Khera is situated on the right or west bank of the Kali nadi, four miles to the south of Karsana, and eight miles to the north of Egta, or on the Grand Trunk Road.—*Bunsen*, *Vol.* iii, *p.* 554; *Elphinstone's History of India*, *Vol.* i, *p.* 402; *Cunningham's Ancient Geography of India*, *pp.* 360, 365. See Canouj, Canyacubya, Manu.

PANCHALI-KUDU, TEL. A native of Panchala.

PANCHAMI, see Naga, Serpent, Snake.

PANCHAMI RISHI, a hindoo festival, held about the beginning of September and is supposed to be in honour of seven Rishi or sages, represented by the seven stars of Ursa major or the Pleiades.

PANCHA PANDAVA, the five Pandava, whose war with the Kuru is celebrated in the Mahabharata.

PANCHA RATRAVA, see Vaishnava.

PANCHA-TANTRA and Hetopadesa, are books in use throughout India, in all its languages, read by every hindu. They contain the original fables which Bed-pai, a brahmin, wrote for the benefit of Dabishlim, his king. They were translated into Pehlevi, in the 6th century in the time of Nousherwan, from that into Arabic by Abdullah bin Makaffa, about the middle of the 8th century, then into Persian, by Rudaki, about the close of the 9th century, who received 80,000 dirhems for his labours. About the middle of the 12th century (A. D. 1150) in the time of Bahram shah, a Persian prose translation was made and a subsequent second translation was made by Kashifi, and named the Anwar-i-Soheili. A Greek version was made by Simeon Seth, at the command of Alexis Commenes, and they appeared in Hebrew and Aramaic, Italian, Spanish, and German. The first English edition was in the 16th century then in French in 1644 and 1709, and they are the foundation of Æsop's fables. Joannes Damascenus, a father of the Christian Church, lived at the court of the Khalif-al-Mansur, for whom Abdallah-ibn-al Mokaffa had translated the fables of the Pancha-tantra from Pehlevi into Arabic. Joannes wrote a religious novel called Barlaam and Josaphat into which he introduced a number of Eastern fables and took his principal hero Josaphat from the "Lalita-vistara," the life of the Buddha or enlightened, a portion of the sacred canon of buddhists. The story of Barlaam is, in its most striking points a mere repetition of the story of the Buddha, and Josaphat, the hero of the story, has been raised to the rank of a saint, both in the Eastern and Western Churches. And thus, though under a different name the sage of Kapela-vastu, the founder of a religion, which in the purity of its morals is nearer to christianity than any other religion and counts even now after an existence of 2,400 years, 455,000,000 of believers, has received the highest honours which the Christian Church can bestow. If Buddha lived the life which is there described, few saints in the Greek or Roman churches, are the equals of St. Josaphat, the prince, the hermit and the saint.—*Max Muller in Proc. Roy. Inst. Gr. Brit.*, *June* 1870.

PANCHAYAT or Panchait, a native court of arbitration, originally consisting of, as the name implies, five members, but which may consist of any number. The Panchayet of India is identical with the Hebrew and Roman custom of elders sitting at the gate, the γερουσια of the Greeks, in Ceylon, it is the Gam-sabawa.—*Tennent's Ceylon.* See India.

PANCHE BUNJEKA WANDLU, a Sudra race in Bellary. See Jungum.

PANCHE CHETTU, TEL. Celosia argentea, *L.*—*W. Ic.* 1767—*R.* i, 678.

PANCHGHAR, has ten small towns, it is celebrated for its groves of date trees, is occupied by the Gitchki tribe of Brahui of peaceful and agricultural habits.

PANCHI, TEL. Conocarpus acuminatus, *Roxb.*, *Royle.*

PANCH MUKI, five-faced, a name of Mahadeva.

PANCRATIUM AMBOINENSE. The Bunga Si-kudip, as it is called by the Dyaks of the southern branch of the Sarawak river, and amongst whom it is held in the greatest esteem, though known to all the tribes, is the plant described by botanists as the Pancratium Amboinense or Eurycles coronata, a native of the Moluccas and other islands to the eastward; but as far as is at present known, a stranger to the flora of Borneo, in the western parts of which, the order Amaryllideæ, to which it belongs, is only represented by one species of Crinum, which is found on the muddy banks of the river. By the Si-booyah Sea Dyaks, this plant is called Si-kenyang. By the Dyaks of the southern river, the bulbous roots of this plant are preserved with jealous care, being always taken up when the rice is ripe, and preserved amongst it in the granaries, to be planted again with the seed-rice in the following season. It bears a beautiful crown of white and fragrant flowers, which rise about a foot above the bulb.—*Lowe's Sarawak, pp.* 273-304.

PANCH SHIM, Beng. Lablab cultratus, *DC.* Kidney-beans.

PAND, Hind. Loranthus longiflorus, also Viscum attenuatum.

PANDA, Hind. Ailurus fulgens, *Cuv.*

PANDA, or Punda, Beng., Hind. A hereditary priest of a hindoo temple, under whom the pujari serves. The proprietary or presiding priest of a hindoo temple of Siva usually though not invariably a brahman. The office is hereditary, and in some places, as at Benares, the Panda officiates only on particular occasions, the duties of daily worship being performed by inferior priests or pujaris in his employ. The term Panda is also applied to a priest who is stationary at any particular place or shrine. The word has been multiplied by the British, since the revolt of 1857, 8 and 9, Pandy being applied to all the rebels, from the circumstance of the first one who was executed at Barrackpore being of the name Mungul Pandy.

PANDAL, Anglo-Tam, from Payal, Tam. an awning formed of grass, or leaves, or branches, or cloth, a platform, a canopy, a stage.

PANDAN, Hind.? A tree of Chota-Nàgpore, furnishing a hard, red timber.—*Cal. Cat. Ex.* 1862.

PANDAN, Hind. A betel box.

PANDAN, Malay: Screw-pine.

PANDANACEÆ, *Lindl*, an order of plants comprising, 2 gen., 16 species, viz., 12 Pandanus; 4 Freycinetia. The Pandanaceæ or Screw-pines abound in the Mauritius, Bourbon, India, the Straits and Burmah.—*Royle, Voigt.*

PANDANG. Celeb., Ananas sativus. *Schult.*

PANDAN ODORIFERANTE., Fr. Pandanus odoratissimus.

PANDANUS, a genus of plants of the order Pandanaceæ, of which the following species are known.

P. amaryllifolius, *Roxb.* Amboyna.
P. candelabrum, *Pal. Beauv.* Guinea.
P. caricus, *Rumph.* Moluccus.
P. drupaceus, *Pet. Th.* Mauritius.
P. edulis, *Pet. Th*, Madagascar.
P. elegans, *Pet. Th.* Mascarhenas.
P. fascicularis, *Lam.* Moluccus.
P. fœtidus, *Roxb.* Bengal.
P. furcatus, *Roxb.* Malabar, Chittagong, Pegu.
P. humulis, *Rumph.* Moluccas.
P. leram, *Jones*, Nicobar.
P. marginatus, *Roxb.* Mauritius.
P. moscatus, *Rumph.* Amboyna.
P. odoratissimus, *L. fil.* All S. Asia.
P. utilis, *Bory.* Madagascar.

The Screw-pines are remarkable for their gigantic Bromelia-like leaves, arranged in a spiral manner. Though abounding most in Mauritius and Bourbon, species are also found in the southern parts of India, as well as in the Straits and Burmah. The leaves are composed of tough longitudinal fibres, white and glossy, which enable them to be employed for covering huts, making matting, as well as for cordage, in the South Sea Islands; and in Mauritius for making sacks for coffee, sugar, and grain. The species which is best known in India is the Keora or Ketgee, the Caldera bush of the Madras Peninsula, called Pandanus odoratissimus by botanists, on account of the exquisite perfume of its flowers. This plant, as well as some of the other species, in the Mauritius is known by the name Vacoa or Baquois. It appears to be the Pandanus sativus of Du Petit Thouars, but which Mr. Henley mentions as P. Vacoa. He having observed the valuable uses to which the plant was applied in the Mauritius, recommended its introduction into India. P. odoratissimus grows to the height of thirty feet, when permitted to do so: but in general, the cropping of the leaves, which commence in the third year, keep the plant down to the height of from six to ten feet. The plant is remarkable for the fibrous aerial leafless roots which it sends down as supports for its stem, and which are employed for making brushes for common purposes. The leaves are cut every second year, beginning when the plant is three years old, and each plant yields enough for two large bags. The preparation must begin with the leaves immediately they are removed from the trees, and consists, first in splitting the leaves into fillets, which are from three-fourths to one inch broad at the base, but they taper to a point, and are from three to four feet in length. One of them will support the weight of a bag of sugar, or about 104 lbs. without breaking. The leaves of the other species with which there is acquaintance comparativly weak. On many of the Burmese boats, sails are made of large narrow leaves, sewed together. They are the leaves of a species of screw-pine that has a trunk like a palm, which is very abundant and usually grows near the sea. The fruit is used by the Karens to hackle their thread.—*Mason; Jour. Agric. Soc. of India*, 1843, *p.* 92, *in Royle, Fib. pl., p.* 35*; Royle, Illustrations, Himalayan Botany, p.* 408*; Roxb. Fl. Ind. Vol.* iii, *p.* 741.

PANDANUS ODORATISSIMUS, *Linn.*

Anthrodactylis spinosa, *Forst.*
P. sativa, *Petit Thovars.*
Kaida, *Hort.*
Kildaro, *Rheede.*
P. vacoa, *Henley.*

Keder, AR.
Kadhi, „
Koori, Kea kaida, BENG.
H'sat-ta-phu, BURM.
Kewura, DUK.
Green spined screw pine.
Screw pine; caldera bush.
Sweet scented pandanus.
Pandan odoriferante, FR.
Vaqois, „
Pandanus wohlreich, GER.
Keora, HIND.
Gaganphool, „
Pandan; Pandang, MALAY.
Thala; Kaida, MALEAL.
Kildaro of Rheede, „
Leram, NICOBAR.
Wharra tree, OTAHEITE.
Gul-i-kivea, kavondi, PERS
Keteka, SANS.
Wœti-keyiya. SINGH.
Talum; Thale, TAG.
Talay, TAM.
Moghili, TEL.
Gedangi mogali, „
Gajangi, „
Gojjangi, mogali; ketaki, „

Its flowers.

Keure ka phool, DUK.
Katuca, SANS.
Talum pu, TAM.
Mogili puvvu, TEL.

Its leaves.

Kewari-ki-pat, HIND.
Talay elle, TAM.
Moghili-aku, TEL.

This grows along the coasts of the Peninsula of India, and its leaves are extensively manufactured into mats, baskets and hats, at Pulicat, and other localities. The fibre of the leaf is white, soft, glossy, but possessed of little strength, and though but ill suited for cordage, it has been found well adapted for the preparation of a good quality of paper, also for mats, and sacks, good sacking is made from its leaves. Its fibrous aerial roots are much employed as paint-brushes. The leaves are cut every second year, beginning when the plant is two years old. Immediately on its removal from the trees, they must be split into fillets, three to four feet long from three-fourths to one inch broad at the base, tapering into a point. The people of the Mulgrave Archipelago, live almost exclusively on the juicy pulp and the pleasant kernels of the fruit. The dried leaves serve as thatch, the wood is hard and durable, the flowers are used in garlands and the red and yellow nuts as ornaments. Magulik is the Telinga name of the male plant and Goz doogoo that of the female. Caldera is the name they are known by amongst Europeans on the coast of Coromandel. It is a native of all the warmer parts of Asia: all soils and situations seem to suit it equally well; it flowers chiefly during the rainy season. This plant is much employed to make hedges, for which it answers well, but requires too much room. It grows readily from branches which renders it rare to find the full grown ripe fruit. The lower yellow pulpy part of the drupes is sometimes eaten by the natives during times of scarcity and famine; the tender white base of the leaves is also eaten raw or boiled, during the same melancholy periods. The fusiform roots already mentioned are composed of tough fibres which basket makers split and use to tie their work with, they are also so soft and spongy as to serve the natives for corks. The leaves are composed of longitudinal, tough, useful fibres like those of the Pine apple. This plant is of extensive use in most parts of the island of Mauritius for its leaves, which are employed for the purpose of package bags for the transportation of coffee, sugar and grain from one plase to another and for exportation. The preparation of the leaves for working into matting is simple and short: as soon as gathered, the spines or their edges and dorsal nerve are stripped off, and the leaf divided into slips of the breadth proper for the use they are required for: this operation is performed with the blade of a common straight knife, they are then laid in the sun for a few hours to dry when required for working into mats, the slips are passed under the blade of a knife applied with a moderate pressure to remove all asperities on their surface which gives them a polish and makes them plain and more convenient to the hands. The natives are fond of the scent of the flower which they place among their cloths: in the District of Ganjam, the flowers are said to be frequently tenanted by a small and very venomous snake. This plant grows abundantly in Travancore along the backwaters and canals, the fibres are extensively used, being good and strong. With the leaves, the natives of Southern India, and the inhabitants of the Friendly islands make a fine kind of mat to sleep on, which they stain yellow and red with Cassia leaves and Vattinga cuttay. They are also used to make the common kind of umbrellas, called by the Tamools Talay elley kedri. Dr. Roxburgh, in his "Coromandel plants," tells us that the yellow, pulpy part of the drupe of this plant is sometimes eaten by the Indians, in times of scarcity, the fusiform roots are composed of tough fibres with which basket makers use to tie their work. They are, at the same time so soft and spungy as to be employed as corks. It is in mats of these leaves, that the fine furnitures of Madras are packed. The male flowers of the fragrant pandanus or screw-pine, are exceedingly fragrant, and great favourites with the Burmese. The flower is of a pale yellow colour and is offered up at the shrines of Mariama (Mariatale) and Vishnoo, but is supposed not to be acceptable to Siva. The flower is constantly referred to by the Sanscrit poets, by the name Ketaka, and as the Keora and Ketgee of the hindoos. The Arabs call it Kazee, and Avicenna describes it under the name of Armak. Oil impregnated with the odour of its flowers called Keore-ka-atr, costs two rupees the tola, and the distilled water are highly esteemed both for their odour and their medicinal use as stimulants. Dr. Roxburgh states that it is the tender white leaves of the flowers, chiefly those of the male, which yield the very delightful fragrance for which this plant is so celebrated. The lower pulpy part of the drupes is sometimes eaten, as is also the terminal bud, like that of the cabbage-palm, and likewise the tender white base of the leaves, either raw or boiled, during times of scarcity. The leaves are composed of tough longitudinal fibres, white and glossy, a quality which adapts them for covering huts, making matting, as well as for cordage in the South Sea Islands, and in Mauritius for making sacks for their coffee, sugar and grain. This tree is often alluded to in select specimens of the Hindoo Theatre. In "Malati and Madhava" the latter says :—

Night ever friend to love now spreads its shade;
Faint in the east the gentle moonlight gleams,
Pale as the palm's sear-leaf, and through the air
The slowly rising breezes spread around
The grateful fragrance of the Ketaki.

M. De Buffon calls it Arbre indecent. The hindoos use the flowers in all the ceremonies made in honour of Pulliar, Subramaniar, and Vishnu, but never in those of Siva.—*Eng. Cyc.; Graham's Catalogue of the Plants growing in Bombay and its vicinity, p.* 227; *Chow-Chow, p.* 299; *Calcutta, Cat. Exhibition of* 1862; *Madras Ex.; Juries Reports; Singapore, Cat. Ex.* 1862; *Sonnerat's Voyage, p.* 9; *Roxb.; Rohde, MSS.; M. E. of* 1857; *Ains. Mat. Med., pp.* 145-159; *Mason.* See Cordage, Cable, Mats, Sandbinding plants.

PANDANUS, Highland screw-pine. Smaller and finer mats in common use are fabricated from the leaves of this species of screw-pine, that grows in Tenasserim, on the highlands above tide-waters.—*Mason.*

PANDANUS FURCATUS, *Roxb.* Tha-bau, also Ta-gyet, also Tau-ta-kyet, BURM. Lowland screw-pine. The large coarse mats in universal use in Tenasserim, are made from the leaf of a species of screw-pine, that grows abundantly on the lowlands near tide-waters.

The Burmese give the following names to other species of Pandanus.

H-sat shwa gyee, BURM., Pandanus, *sp.*
Yæ ta kyet, BURM,. Pandanus, *sp.*
—*Mason.*

PANDANUS SATIVUS, Baquais or Vacoa, is the general name given in the Mauritius to a species of Pandanus, the screw-pines. One of these appears to be the P. sativus of Du Petit Thouars, but, according to Mr. Henley, is P. Vacoa. It is described as growing to the height of 30 feet, when left unpruned. The leaves are cut every second year, beginning when the plant is three years old, and each plant yields enough for two large bags. The preparation of the fibre must begin with the leaves, immediately they are removed from the trees. This consists first, in splitting the leaves into fillets which are from three-fourths to one inch broad at the base, but taper to a point, and are from three to four feet in length. One of them will support the weight of a bag of sugar, or about 140 lbs. without breaking. Mr. Henley states that the leaves of the other species with which he is acquainted, are comparatively weak. Dr. Roxburgh has described the purpose to which the species most common in the Mauritius is applied, and having observed the valuable uses to which the plant was put to there, he recommended its introduction into India, in some of the dry southern parts of which, it would, no doubt, though slow of growth, be a valuable acquisition, from the facility with which good sacking may be manufactured from its leaves. This has never yet been effected. The plant is remarkable for the aerial leafless roots which it sends down to support its stem, and which are of so fibrous a nature as to be employed for making paint brushes for common purposes. —*Fib. Pl. Royle, p.* 36; *Fl. Ind.*, c. iii, p. 741.

PANDANUS WOHLREICH, GER. Syn. of Pandanus odoratissimus.

PANDARAM, a devotee of the Siva sect, the officiating priest at the temples of Siva. This word seems properly to be Panduranga, or pale-complexioned, from these individuals smearing themselves with ashes. Pam also means song. In the South of India they are hindoos of the Sudra section worshippers of Siva of whom many are professed mendicants. The Siva worshippers among the Tamil are called Pandaram. These are not Vira Siva, nor do they wear the lingam or adore Basava. *Brown, on the Creed, Customs and Literature of the Jangams, p.* 7.

PANDARWASH, HIND. Boerhaavia diffusa.

PANDU. Vichitra Virya is said to have married Amba and Ambahka, daughters of the king of Kasi, who had issue, after his death, by his half brother Krishna dwaipa yana, or Vyasa, Dhritarashtra and Pandu, whose wives bore the five Pandava, viz :—

1. Yudishtira.
2. Arjuna, father of Parikshita.
3. Bhima.
4. Nakul and ⎫ who founded the Magadha
5. Sahadeva, ⎭ line.

Vichitra Virya had no male offspring. Of his three daughters one was named Pandea; and Vyasa being the sole remaining male branch of the house of Santana, took his niece and spiritual daughter, Pandea, to wife, and became the father of Pandu afterwards sovereign of Indraprest'ha. Arrian gives the story thus: "He (Hercules) had a daughter when he was advanced in years, and being unable to find a husband worthy of her, he married her himself that he might supply the throne of Indra with monarchs. Her name was Pandea, she caused the whole province in which she was born, to receive its name from her." This is the very legend contained in the Purans of Vyasa (who was Heri-cul-es, or chief of the race of Heri) and his spiritual daughter Pandea, from whom sprang the grand race the Pandua, and from whom Delhi and its dependencies were designated the Pandua sovereignty. Her issue ruled for thirty-one generations in direct descents, or from 1120 to 610 before Christ; when the military minister, connected by blood, was chosen by the chiefs who rebelled against the last Pandu king, represented as "neglectful of all the cares of government," and whose deposition and death introduced a new dynasty. Two other dynasties succeeded in like manner by the usurpation of these military ministers, until Vicramaditya, when the Pandua sovereignty and era of Yoodishtra were both overturned. Vichitra Virya died childless, and Vyasa begat two sons by his two widows, and a third son by a slave girl, whom the third widow, Ambika, substituted for herself. This practice of a relative raising children for a deceased childless relative is sanctioned by Manu, who says "on failure of issue, by the husband, the desired offspring may be procreated either by his brother or some other near relative, called Sapinda, on the wife who had been duly authorised." Pandu, also, when lamenting his childlessness, says to Pritha "in distress men desire a son from their oldest brother-in-law. Manu regarding the choice of a husband enjoins parents to select a handsome son-in-law, and adds, three years let a damsel wait, though she be marriageable, but after that term let her choose for herself a husband of equal rank. In the days of the Pandus, one mode of selecting a husband was the Svayamvara or self-choice; where a girl chose her own husband. In the Mahabharata, the cases are mentioned of Pandu with Pritha, Yudhishthera with Devika, Sahadeva with Vijaya, Sivi and Devaki, Nala and Damayanti, Draupadi and Arjuna. Manu describes eight modes of marriage, viz., Brahma, Daiva, Arsha, Prajapatya, Asura, Gandharva, Rakshasa and the eighth and worst Paisacha, the first six for a brahmana, the four last for a warrior, and the same four, the Rakshasa excepted, for the third and fourth class. The five Pandava brothers married Draupadi, at the town of Kapila, or at one known as Kampilya. After being won by Arjuna, at her Swayamvara or tournament, she was taken to the house of their mother Kunti, who desired the brothers to retain her as their wife. Between that time and the interval of her marriage, Draupadi performed the usual household duties and ultimately, Kunti and Draupadi in one car and Yudhishthra and his brothers in another, the family proceeded to the town of Kampilya where the marriage ceremony was performed. The five brothers had each a house and garden of his own, and Draupadi dwelt with each of them in turn for two days at a time, and it was agreed upon that another brother, under pain of being exiled for 12 years, should not enter where Draupadi was staying. But Arjuna broke the rule, and became exiled.

Virat, the capital of Matsya, is celebrated in hindoo legends as the abode of the five Pandu during their exile of twelve years from Dilli or Indraprastha. The country was famous for the valour of its people, as Manu directs that the van of an army should be composed of "men born in Kurukshetra near Indraprastha, in Matsya or Virata, in Panchala or Kanya Kubja, and in Surasena of the district of Mathura. The residence of Bhim Pandu is still shown on the top of a long low rocky hill about one mile to the north of the town. The hill is formed of enormous blocks of coarse gritty quartz which are much weather-worn and rounded on all the exposed sides, some of these blocks have a simple straight face passing onwards, the result of a natural split, of which advantage has been taken to form small dwellings by the addition of rough stone-walls plastered with mud. Such is the Bhim-gupha or Bhim's cave which is formed by rough walls added to the overhanging face of a huge rock about 60 feet in diameter and 15 feet in height. Similar rooms, but of smaller size, are said to have been the dwellings of Bhim's brothers.

On the death of Pandu, his nephew, Duryodhana, asserted the illegitimacy of his children, at Hastinapur, but Yoodishtra succeeded, and was invested in that capital with the seal of royalty, the five brothers, however, to escape Duryodhana's plots, abandoned their capital and sought shelter in various countries near the Indus, and it was while at the court of king Droopdeva in Kampil-nagara of Panchalika kingdom, that Arjuna's skill in archery carried of his daughter Droopdevi, who became the bride of the five brothers. On the occasion of Krishna visiting his Pandava relatives at Hastinapura, accompanied by his wives and singing and playing women, Satyabhama speaking with Draupadi, the polyandric wife of the Pandava, remarked to Draupadi, we who are so many thousands in number have all but one and the same husband in Krishna and we are all happy with him; how comes it then that you have five husbands and are not ashamed before men? To this Draupadi replied you are every one jealous of each other and are always talking of your suspicions one of another. But I never speak one word which all my five husbands may not hear alike and which would give to either the smallest offence. In hindoo mythology the five Pandu are regarded as five heroes or demi-gods, descended from the ancient sovereigns of the countries of Hindustan bordering upon the Jumna, thus called "Panduan Raj, or the kingdom of the Pandu. Pandu, the father of the five heroes, was the son of Vyasa and Pandea. Their mother's name was Koonti, the sister of a prince of Mathura, who was the father of Heri and Baldiva, the Indian Hercules. Koonti, in consequence of the sius of the ancestors of herself and her husband, was doomed to experience the greatest curse that can befall a hindoo female, sterility. However, by a charm, she contrived to remove the anathema by enticing the gods to her bed. Thus, says Colonel Tod, from whose disquisition on the Hindoo and Theban Hercules has been extracted this account, she had by Dharmaraja, (Yama, or the Minos of the Greeks), Yudishtra; by Pavana, (Eolus) Bhima; by Indra, (Jupiter Cælus) Arjuna, and Nycula and Sydiva by Aswini Kumara (the Hindoo Esculapius,) or the sons of Surya, the twins of the Hindoo zodiac.—*Cunningham's Ancient Geography, pp.* 340, 342*; Mahabarata in Wheeler's Hist. of India, p.* 228; *Westminter Review, April* 1868; *Tod's Rajasthan, Vol.* i, *p.* 31*; Cole's Myth. Hind., p.* 248. See India, Krishna, Kurukhet, Mahabharata, Polyandry.

PANDE, Hind. A branch of the Bharadwaja gotra of Kanouj brahmans, but used to designate brahmans generally of Hindustan.— *Wilson.*

PANDEA, see Hercules, Pandu.

PANDEGAON, see India.

PANDERAN, see Kelat.

PANDERICA PILOSA, Bui-kalan, Hind.— *Powell's Hand-Book, Vol.* i, *p.* 372.

PANDERPUR, in Lat. 17° 41′, Long 75° 21′, in the Dekhan, on the right bank of the Kistna river, a sacred place of hindoo pilgrimage. It is 1,378 feet above the sea.

PANDHRI, a local tax levied on the non-agricultural classes.

PANDI, Tel. Sus indicus, *Schinz.*, the hog.

PANDI, the distinctive title of a particular caste of brahmans. See Pande, Panda.

PANDIA, an ancient hindoo kingdom in Southern India. See Pandya.

PANDIAVANAK, Maleal. Ricinus communis, *Linn.*

PANDI GADDA, or Parike gadda, Tel. Trapa bispinosa, R. i, 428. Brown has "pig-nut" which would apply better to some of the roots on which the wild hogs are fond of feeding but he adds the syn. Sringatakamu which is undoubtedly Trapa though Wight makes it Spondias, the Hog-plum.

PANDI KOKA, Tel. Pig-rat, the Bandicoot of Europeans.

PANDIKI, Tel. Kydia calyina, R. iii, 188; —*W.* and *A.*—*W. Ic.* 879—880.

PANDILI DOSA, or Dosa, Tel. Cucumis utilissimus, *R.*

PANDI MUKKA DUMPA, Tel. Dioscorea pentaphylla, *L.*—*R.* iii. 806.—*W. Ic.* 814.

PANDION, see Pandiya.

PANDION FLUVIALIS, Syn. of Pandion haliætus, *Linn.*

PANDION HALIÆTUS, *L.* The Osprey.

P. indicus, *Hodg.*		P. fluvialis, *Savi.*	
Mach-moral,	Beng.	Macha rang,	Nepal.
Bala,	„	Verali-addi-pong,	Tam.
Mach-manga,	„	Kora-min-gedda,	Tel.
Pantiang,	Lepch.	Hegguli, of Yerkala.	

The Osprey or Fish-hawk, is spread over all Europe, Asia and Africa. It is common along all the large rivers of India, and at most of the large lakes and tanks even far inland. It plunges from a great height into the water and can take up a fish of considerable size but the Haliætus leucogaster frequently robs it of its prey. A northern poet says—

Soon as the sun, great ruler of the year,
Bends to our northern climes his bright career,
And from the caves of ocean calls from sleep
The finny shoals and myriads of the deep;
When freezing tempests back to Greenland ride,
And day and night the equal hours divide;
True to the season, o'er our sea-beat shore,
The sailing osprey high is seen to soar,
With broad unmoving wing; and circling slow,
Marks each loose straggler in the deep below;
Sweeps down like lightning! plunges with a roar!
And bears his struggling victim to the shore.
The long housed fisherman beholds with joy,
The well-known signals of his rough employ,
And as he bears his net and oars along,
Thus hails the welcome season with a song;

The Fisherman's Hymn;

The osprey sails above the sound,
The geese are gone, the gulls are flying;
The herring shoals swarm thick around,
The nets are launched, the boats are plying;
Yo ho, my hearts! let's seek the deep,
Raise high the song, and cheerily wish her,
Still as the bending net we sweep,
"God bless the fish-hawk and the fisher!"

She brings us fish,—she brings us spring,
Good times, fair weather, warmth, and plenty,
Fine stores of chad, trout, herring, ling,
Sheepshead, and drum, and old wives' dainty,
Yo ho, my hearts! &c.

She rears her young on yonder tree,
She leaves her faithful mate to mind 'em;
Like us, for fish, she sails to sea,
And plunging shows us where to find 'em,
Yo ho, my hearts! &c.—*Wilson, p.* 83.

PANDION INDICUS, *Hodg.*, syn of Pandion haliætus, *Linn.*

PANDION LINEATUS, *Jerd.*, Syn of Polioætus ichthyætus, *Horsf.*

PANDI-PAVEL, Mal. Momordica charantia, *Linn.*

PANDIT, Sans. A learned brahman.

PANDITI VANKAIA, Tel. Calonyction Roxburghii, *G. Don.*

PANDIYA, probably a word of Sanscrit origin, is the Pandion, the Oi Pandiones, of the Greeks, and was the titular name of an ancient dynasty in Madura: the race were the Pandi or Pandiya; the king, the Pandyan or Pandiya Deva. The Pandyan capitals were at Kurkhi, Kalyanapura, Kulasekara pattanam and Madura. The site of Kurkhi or Horkai is still a matter of dispute. It has been considered to be the Kolkhi of the Periplus identified by D'Anville with Kilakarai near Ramesseram, and by others with Korkai or Gorkai near the mouth of the Tambraparni. Two embassies were sent by the Pandyan king to Augustus, the first of which he received at Tarragona, the second is mentioned by Strabo. The friendship of the Romans was sought by only one other Hindoo prince, O Kerobothros, the king of Chera or Kerala, who was also a Dravidian. Strabo, Pliny, vi, 20, and Ptolemy, vii, mention that the Pandyan king sent an embassy to Augustus, and in the letter which the ambassadors took to Augustus, the Pandyan king of ancient Dravira, described himself as holding sway over six hundred kings. He sent valuable and curious presents, a man without arms and a serpent ten cubits long and Zarmanochegus accompanied the embassy.

The Chera was an ancient dynasty in the south of the Indian peninsula, the rise and fall of which, as also the extent of their dominions, are only vaguely known. They seem to have risen on the fall of the Pandya sovereignty, and to have ruled over Travancore and Coimbatore, and parts of Salem. The Chera princes seem to have been first established at Scandapura on the Malabar Coast; and subsequently at Talcad or Dalavanpura on the Cauveri and Mudugonda patnam, perhaps the same as the modern village of Mudugondoor on the road from Seringapatam to Koonghal. The site of Scandapuram is unknown. Talcad is described by Buchanan as a place of some extent containing many buildings nearly covered with sand. The Carura regio Cerebothri has been supposed to indicate that Caroor in Coimbatore was one of the earliest sites.

The ancient kingdom of Kerala on the Malabar Coast was for some time subject to the Chera princes.

The whole of the early history of these southern dynasties, their wars, alliances, intermarriages and conquests; their relations with Ceylon and with the Mahomedan colonies of Maabir and the Malabar Coast, are very little known. Elphinstone says that two persons of the agricultural class founded the kingdoms of Pandya and Chola, and that the first of these derives its name from its founder. It is uncertain when they first flourished, but there seem good grounds for thinking it was from the fifth century before Christ. As Strabo mentions an ambassador from king Pandion to Augustus, this appears from the "Periplus" and Ptolemy to have been the hereditary appellation of the descendants of Pandya. The Pandion of the time of the "Periplus" had possession of a part of the Malabar coast; but this must have been of short duration; the Ghats in general formed the western limit of the kingdom, which was of small extent, only occupying what we now call the districts of Madura and Tinnevelly. The seat of the government, after being twice changed, was fixed at Madura, where it was in Ptolemy's time, and where it remained till the beginning of the 18th century. The wars and rivalries of all the Pandyan princes were with the adjoining kingdom of Chola, with which they seem, in the first ages of the Christian era, to have formed a union which lasted for a long time. They, however, resumed their separate sovereignty, and were a considerable state until the ninth century, when they lost their consequence and were often tributary, though sometimes quite independent, till the last of the Naeks (the dynasty with which the line closed) was conquered by the Nabob of Arcot in 1736. The several capitals of the Chola, were at Conjeveram, Wori-ur, Combaconum, Gangondaram and Tanjore. The whole history of this for sometime the most important power of the peninsula, is involved in great obscurity. There is no reliable information anterior to the ninth century, yet they must have been exercising sovereignty anterior to the time of Ptolemy who makes mention of Arcati Soren; and, in the Mahawanso, there are frequent references to transactions with the Chola during the earliest periods of the Singhalese annals. The Tamil traditions also abound with stories of Adonda Chakravarti, who appears to have been a soldier of the prior Kurumbar tribes, but there are untrustworthy records forthcoming of his origin and actions neither have there been obtained any authentic accounts of the overthrow and extinction of any of the great southern States.—*Mr. W. Elliot*; *Elphinstone's History of India, pp.* 412-413. See Baroach, India, Kerala, Narapati, Pandiva, Pandiya.

PANDJIE—? see Tin.

PANDO, Hind. Whiting, artificial, or plaster of Paris.

PANDOL, Panj. Trichosanthes anguina, *L.*

PANDOO, a river in the Cawnpore district of the N. W. Provinces.

PANDOODUREH, see India.

PANDOR, Hind.? A tree of Chota-Nagpore, with a soft, white wood.—*Cal. Cat. Ex.* 1862.

PANDORA, a genus of molluscs of the family Pyloridæ.

PANDRAI, Hind. Chilrau of Sutlej, &c. Picea webbiana, also Picea pindrow, the silver fir.

PANDRI CHIKKI, of Bombay, Cucurbita hispida, *Willde.*, *Ainslie*, PANDU, see Pandava.

PANDU also Kaia, TEL. Fruit of a tree.

PANDU-KURI, or Pandu-kuli, the popular Tamil term applied to the tumuli or tombs found all over India.—*W. E.* See Cairns.

PANDUNG, TOUNG-YO-THA, sons of the mountain range, a barbarous race in the interior, east of Ava.

PANDUR, HIND. See Kotgarh.

PANDURANGA, see Pandaram.

PANEANI MANCHE, see Boat.

PANECHI KAI, TAM. Diospyros glutinosa.

PANEE DOORVA, BENG. Sporbolus tenacissimus.

PANEE JUMA or Panee-jama, BENG. Salix tetrasperma.

PANEE-KI-SHUMBALI, DUK. Vitex trifolia.

PANEE-KULA, BENG. Ottelia alisnoides, also Dysophylla verticillata.

PANEE-KANCHURA, BENG. Commelyna salicifolia.

PANEE-MULUNGA, BENG. Cyperus distans.

PANEE-MARICH.—?

PANEE-NAJUK, BENG. Desmanthus natans.

PANEEOLLO, URIA. A tree in Ganjam and Gumsur, of extreme height 40 feet, circumference 2 feet, and height from the ground to the intersection of the first branch, 8 feet. Tolerably common and burnt for firewood. The bark is used medicinally.—*Captain Macdonald.*

PANEE PHAL, BENG., HIND. Trapa bispinosa.

PANEEPUT, see Paneput.

PANEER, HIND., PERS. Cheese.

PANGAH, BURM. Terminalia chebula, *Retz.*

PANEER MAYA, GUZ., HIND., PERS. Rennet.

PANEE-SHIRA, BENG. Hemarthria compressa.

PANEE-SARA, BENG. Grewia sepiaria.

PANEI MARAM, TAM. Borassus flabelliformis.

PANEEYALA, BENG. Flacourtia cataphracta, *Roxb.*

PANEI-ERI, TAM. Anabas scandens.

PANEL, SIND. The leaves and stalks of the Pogostemon patchouli of Lepellitier, which are used as a perfume.—*Simmond's Dict.*

PANELA, a cake made of Indian corn meal.

PANEOLA PLUM. Flacourtia sapida.

PANE-TIGA, TEL. Cassyta filiformis, *Linn.*

PA-NGAN, BURM. A compact white wood of Amherst, used for boats and oars and for making musical instruments. It seems to be Gmelina arborea.—*Captain Dance.*

PANGAN, see Semaug.

PANGARA, MAHR. Erythrina indica, *Lam.*

PANGASINAN, see India.

PANGERAN MAHOMED, see Kyans.

PANG-GILING, MALAY. Ant-eater,

PANGHULU, see Johore, Kedah or Quedah.

PANGI, TAM. Gossypium. Cotton.

PANGIACEÆ, *Lind.* A natural order of plants comprising two species of Hydnocarpus.

PANGIUM EDULE, see Kapyang.

PANGIUM RUMPHII. A tree of Java and the Moluccas.

PANGKAL-PINANG, see Tin.

PANGKONG, a district in lat. 33 to 34 N., and long. 78 to 79 E. On its south-east is part of lake Tso-Mogna Lari. See Tsho Rul.

PANGERAM KUNING, see Kyan.

PANGKONG LAKE, in Ruthog or Rudog, in N. L. 33° 43′, is 85 miles long and about three miles in average breadth. The area is 250 square miles. The water is clear and extremely salt. The Rudok country lies to the east of Ladak and Rukchu. The lake stretches about eighty miles from east to west,—the whole length of the country,—at an elevation of 14,200 feet above the sea. The area of Rudok is 4,800 square miles, and its mean height 14,500 feet.

Tso-mo-ri-ri lake appeared to Moorcroft to be deeper and less clear than the lake of Pangkung. It contained no fish, and was not much frequented by wild-fowl: the taste of the water was brackish. Mr. Gerard afterwards visited this lake which he calls Chuinonenil: he places it at an elevation above the sea of fifteen thousand feet, and observes, that whilst it is fed by several considerable streams, it has no efflux, and is kept at its level entirely by evaporation.—*Moorcroft's Travels, Vol.* ii, *p.* 51; *Cunningham; Thompson.*

PANGLIMA GAJAH, MALAY. The first word means a governor, or superintendent, and the other elephants. The office of superintendent of elephants at a Malayan court was one of considerable dignity.—*Journ. Ind. Arch.*

PANGOL, TAM. Literally boiled rice, a festival in the Tamil countries at the winter solstice, in which each family boils rice and on coming a boil proclaims Pongol! Pongol! Indra is worshipped in the South of India, in the Pongol.

PANGONG-TSO. The Changpa is a semi-nomade tribe, near the Pangong Tso pass. They dwell, in their grazing grounds under huts (gal-kol) made of yak hair. The people there call themselves Bot.

PANGOLIN.

Badjar-kita,	BENG.	Manis,	LAT.
Ling-li,	CHIN.	Tanggilin,	MALAY.
Ant-eater,	ENG.	Tarang-giling,	„
Manis,	„	Pang-giling,	„
Scaly Ant-eater,	„	Arialer,	TEL.
Pangolin,	JAV.		

The Pangolin of India, belonging to the Edentata, gets its Indian name from its Malay designation. The genus is common to Africa and South Eastern Asia, and in India is not rare, though from their habit of appearing abroad after sunset they are not often seen, Manis Javanica of Desmarest inabits the Malayan Peninsula, Pinang, Borneo and Java. M. crassicaudata of Tickell (the M. pentadactyla of Linnæus, the M. Macroura of Demarest) is found in several parts of India but also in the lower part of the Himalaya. This species has been known ever since the expedition of Alexander the Great and is mentioned by Ælian under the name *φατταγη*.

The Order of the Edentata, the Tardigrada or Sloths and the Effodientia or Burrowers, may be shown as under :

Fam.—MANIDIDÆ. Pangolins.

Manis pentadactyla, *Linn.*, *Blyth.*

Pholidotus indicus, *Gray*	M. brachyura, *Erxleb.*
Manis crassicaudata,	M. laticaudata, *Illiger.*
Griff., *Ell.*	M. inaurita, *Hodgson.*
M. Macroura, *Desmarest.*	Pangolinus typus, *Less.*

Shalma,	BAORI.	Bajra-kapta, SANS.,	HIND.
Keyot-mach,	BENG.	Armoi,	KOL.
Kat-pohu,	„	Kaulimah,	MAHR.
Ling-li,	CHIN.	Kowli-manjra,	„
Ban-rohu,	DUKH.	Kassoli manjur,	„
Sillu, Sal, Salu,	HIND.	Alangu,	MAL.
Sukun-khor,	„	Alawa,	TEL.
Bajar-kit,	SANS., „		

Indian scaly ant-eater of all India,

Manis aurita, *Hodg. Blyth.*

Pholidotus dalmanni, *Gray.*	M. leucura, *Hodg.*
	M. dalmanni, *Saunder.*
M. Javanica, *Bly.*	

Sikim scaly ant-eater.

This scaly ant-eater, the Manis javanica of naturalists, is met with in Harpeh, Kiangnan, and the southern Chinese provinces. It is dark-coloured, more than two feet long, and covered on the back, limbs, tail and every part of the body, except the belly, with moveable imbricated scales. The tail is long, and the tongue very mobile. It lives on flies, ants, &c., by catching them upon its out-stretched tongue. Sometimes it lies down as if dead, and as the flies collect upon its body, it closes on them with its scales, and entering the water feasts upon the prey which floats upon the surface of the water, drowned by the manœuvre. The scales, (Chuen-shan-kiah CHINESE), are roughly triangular, concavo-convex, and marked at the attached end with fine grooves, like those on shell-valves. They are brown and semi-transparent, those of the tail being the finest. They were formerly given in all sorts and conditions of disease, not excluding skin diseases. The principal use at the present time is to scratch itching surfaces, for which purpose they are fixed upon a length of bamboo as a kind of curry-comb. No ill consequences are said to follow the use of this instrument, which is largely called for amongst the prurient Chinese.—*Tickell*; *Elliot, Jerdon, Mammals of India; Wallace, Archipelago; Smith's Chinese Materia Medica*, p. 166.

PANGOOTARAN, in lat. 6 ° 15′ N. long. 12° 40′ E. is the most northerly and westwardly island of the Sooloo Archipelago.—*Horsburgh.*

PANGRA, HIND. Erythrina indica.

PANGSHURA, a genus of fresh water tortoises which may be thus shown :

SEC. A. Cataphracta, Shielded Reptiles.

ORDER. Chelonia.

FAM. Testudinidæ.

Testudo indica, *Gmel.* Galap.
„ radiata, *Shaw.* Maday.
„ stillata, *Shaw.* Vizag.
„ platynotus, *Blyth.* Burdwan.
„ elongata, *Blyth*, Arrakan, Tenasserim.
„ elegans, *Schopff.* Peninsula of India, Ceylon
„ horsfieldii, *Gray.* Afghanistan.
Homopus horsfieldii, *Gray.* Afghanistan.

Fam.—Emydidæ.

Manouria emys, *Gray.* Moiden.
Geoemyda grandis, *Gray.* Tenasserim.
„ tricarinata, *Blyth.* Chailassa.
Geoemyda spinosa, *Gray.* Tenasserim, Pegu.
Cuora amboinensis, *Daud.* Malacca, Tenasserim.
„ flavomarginata, *Gray.* China, Formosa.
„ trifasciata, *Gray.* China.
Cyclemis oldhami, *Gray.* Mergui, Gamboja.
Cyclemis orbiculata, *Bell.* Burmah.
Tetraonyx lessonii, Calcutta, Tenasserim, *Dum, Bell.*
Pyxidea mouhotii, *Gray.* Cochin-china.
Notochelys platynota, *Gray.* Singapore.

Emys ocellata, *D. & B.* Tenasserim, Pegu.
„ bealii, *Gray.* Southern China.
„ thurgi, *Gray.* Bengal, Pinang.
„ mutica, *Cantor.* Chusan.
„ nigricans, *Gray.* Southern China.
„ crassicollis, *Gray.* Mergui, Malayan Peninsula, Gamboja.
„ reevesii, *Gray.* Cochin-china, Southern China.
„ trijuga, *Schweigg.* Peninsula of India Ceylon.
„ macrocephala, *Gray.* Siam, Gamboja.
„ nuchalis, *Blyth.* Java.
„ hamiltonii, *Gray.* Calcutta.
„ trijuga, *Schweig.* Arakan, Madras.
„ nigra, *Blyth.* Tenasserim.
„ sebæ.
Batagur baska, *Gray.* Ganges, Irawaddy, Pinang.
„ ellioti, *Gray.* Kistna River.
„ affinis, *Cantor.* Malayan peninsula.
„ lineatus, *Gray.* S. E. India.
„ thurgii, *Gray.* Calcutta.
„ dhongoka, *Gray.* Central India.
„ berdmoreii, *Blyth.* Pegu.
„ ocellata, *Dum.* Calcutta.
„ trivittata, *Dum.* Nipal.
Pangshura tecta, *Bell.* Calcutta.
„ tentoria, *Gray.* Indus.
„ flaviventer, *Gunth.* Bengal.
„ smithii, *Gunth.* Bengal.
Playtysternum megacephalum, *Gray.* Martaban.

Fam.—Trionycidæ.

Emyda granosa, *Gray.* Calcutta.
„ ceylonensis, *Gray.* Ceylon.
Trionyx gangeticus, *C. & V.* Bengal.

Trionyx guntherii, *Gray.* Arakan.
„ sinensis, *Weigm.* China, Chusan, Formosa.
„ javanicus, *Schweig.* Ganges, Deccan, Pinang.
„ ornatus, *Gray.* Siam Gamboja.
„ subplanuhs, *Scweig.* Singapore. Pinang.
Chitra indica, *Gray.* Hooghly.

Fam.—Chelonidæ

Sphargis coriacea, *Linn.* Tenasserim coast.
Caretta imbricata, *Schweig.* Bay of Bengal.
„ squamata, *L.* Coasts.
Caouana olivacea, *Eschs.* Coasts.
Chelonia virgata, *Schweig.* Bay of Bengal.
Dermatochelys coriacea, *L.* Coasts.

PANI, HIND. Water.

PANI, TAM. Earthenware.

PANIA, IT. Bird-lime.

PANIA, MALEAL. Eriodendron anfractuosum, *DC.*

PANIAH, BURM. Terminalia violata.

PANIALA, BENG. Flacourtia cataphracta, *Roxb.*

PANIALU, see India.

PANIANI RIVER, on the Malabar coast, in lat. 10° 46¾′ N., is only navigable for small vessels.—*Horsburgh.* See Kranganore.

PANIC GRASS. Panicum italicum.

PANICHE-KAI MARAM, TAM. Garcinia, *species.*

PANICHIE, TAM., PORT. A tree of Ceylon and Travancore, from thirty to sixty feet high, and ten to twenty-four inches in diameter. In Ceylon it grows tall and straight, in Travancore it is not more than twenty feet high, and is curved. It produces a fruit which resembles externally the small russet apple: when pressed it yields a very glutinous juice, which is used as a substitute for glue; and may be considered in that country as very superior to glue for the use of joiners. In Ceylon this tree is converted into masts, yards, &c., for country vessels; and the native carpenters consider it the best sort of all the jungle woods for that purpose.—*Edye, Ceylon.*

PANIAR, see Polyandry.

PANICACEÆ, the Grass tribe of plants, the Graminaceæ of Lindley, is an exceedingly numerous order, comprising both land and water plants but no marine ones. They occur in every soil, alone or along with other plants, and from the frigid zone to the tropics. Many tropical grasses are, like the bamboos, of considerable size, rising 50 or 60 feet high. It was estimated by Voigt, that the grasses in the East Indies are 1,300 in number. The grasses at the foot of the Himalaya form a jungle sufficiently high to conceal the elephant and the rhinoceros, and, in ascending the Himalaya, species of plants are met with of the same genera as found in proceeding from the equator to the poles, and many of the pasture grasses of Europe, form the grassy sward of the Himalaya. The temperature of the cold weather months of the East Indies is the most favourable for the growth of the Cereal grasses, and cattle are fed on the green or dry stalks of the following,

Paspalum scrobiculatum.
Panicum miliaceum.
„ ciliare.
„ helopus.
„ miliare.
„ italicum.
„ setigerum.
„ repens.
„ colonum.
„ frumentaceum.
Penicillaria spicata.
Sorghum vulgare.
„ cernuum.
„ saccharatum.
„ spontaneum.
Andropogon martini.
Rotbollia glabra.
Hordeum hexastichon.
Triticum æstivum.

As a rule, however, the horses are fed on the creeping stems and leaves of the Doorba grass. The principal grasses of Eastern and Southern Asia, are as under:

B. Paniceæ, *Nees.*

Paspalum stoloniferum, *L.*, Cultivated.
Helopus annulatus, *Nees.*, Bengal.
„ filiculmis, *Nees.*, Bengal.
„ longifolius, *Roxb.*, Sumatra.
„ longiflorus, *Retz.*, Bengal.
„ paradoxus, *Nees.*, France, Caucasus.
„ virgatus, *L.*, Jamaica.
Coridochloa cimicina, *Nees.*, Pen. of India.
Urochloa panicoides, *Beauv.*, Bengal.
Panicum ægyptiacum, *Retz.*, Cultivated.
„ asperatum, *Kth.*, Sumatra.
„ acariferum, *Trim.*, Garrow, Khassya.
„ costatum, *Roxb.*, Mauritius.
„ crus-corvi, *Linn.*, Bengal.
„ curvatum, *Linn.*, Pen. of India.
„ commutatum. *Nees.*, Bengal.
„ corymbosum, *Roxb.*, Coromandel.
„ filiforme, *Roxb.*, China.
„ flavidum, *Retz.*, Bengal.
„ fluitans, *Retz.*, Bengal.
„ geniculatum, *Horn.*, W. Indies.
„ helopus, *Trim.*, Bengal.
„ hispidulum, *Retz.*, Bengal.
„ helvolum, *Linn.*, Bengal.
„ italicum, *Linn.*, Cultivated.
„ interruptum, *Willde*, Bengal.
„ jumentosum, *Pers.*, Guinea grass.
„ lineare, *Linn.*, China.
„ mileaceoides, *Roxb.*,——— ?
„ miliaceum, *Willde*, Cultivated.
„ miliare, *Lam.*, Cultivated.
„ macrochætum,——— ? Bengal.
„ nepalense, *Spr.*, Nepal.
„ orthum,——— ? Bengal.
„ paludosum, *Roxb.*, Bengal, Circars.
„ patens, *Linn.*, Bengal.
„ repens, *Roxb.*, Bengal.
„ roxburghii, *Spreng*, Bengal.
„ setigerum, *Retz.*, Bengal.
„ serrulatum, *Roxb.*, India.
„ sarmentosum, *Roxb.*, Sumatra.
„ sanguinale, *Linn.*, Cultivated.
„ stagninum, *Retz.*, Bengal.
„ trigonum, *Retz.*, Bengal.
„ tomentosum, *Roxb.*, Pen. of India.
„ uliginosum, *Roxb.*, Bengal.
„ verticillatum, *Linn.*, Cultivated.
Oplismenus lanceolatus, *Kth.*, Bengal.
„ burmanni, *Rom. & Sch.*, Bengal.
„ colonus, *Kth.*, Bengal.
„ frumentaceus, *Roxb.*, Bengal.
„ strictus, *Schult*, Bengal.

Stenotaphrum dimidiatum, *W. & A.*, Pen. of India.
Trachys muricata, *Pers.*, Coromandel.
Penicillaria spicata, *Willde*, Cultivated.
„ involucrata, *Sch.*, Coromandel Mts.
Pennisetum barbatum, *Schult*, Moluccas.
„ holcoides, *Schult*, Mts. of India.

C. Sacchareæ, *Nees*.

Sorghum vulgare, *Pers.*, Cultivated.
„ bicolor, *Willde*, „
„ cernuum, *Willde*, „
„ saccharatum, *Pers.*, „
Chrysopogon acicularis, *Hort.*, „
„ filiformis——? Bengal.
Imperata cylindrica—Cultivated.
Saccharum spontanenm, *Linn.*, Arabia, E. Indies.
„ fuscum, *Roxb.*, Bengal.
„ semidecumbens, *Roxb.*, Bengal.
„ officinarum, *Linn.*, Cultivated.
„ sinense, *Roxb.*, „
„ procerum, *Roxb.*, Bengal.
„ sara, *Roxb.*, Bengal.
„ munja, *Roxb.*, Bengal.
„ canaliculatum, *Roxb.*, Bengal.
„ violaceum, *Tussac*, Cultivated.
Batratherium lanceolatum, *Schultz.*, Coromandel.
Lipeocercis serrata, *Trim.*, Bengal.
Heteropogon contortus, *Beauv.*, Pen. of India.
„ tenellus, *Schultz.*, Bengal.
Spodiopogon semisagittatus——?, Bengal.
„ conjugatus——? „
„ geniculatus——? „
Vossia procera, *Wall.*, Bengal.
Andropogon muricatus, *Retz.*, all India.
„ cymbarius, *Linn.*, Coromandel Mountains.
„ prostratus, *Linn.*, Peninsula of India.
„ arundinaceus——?, Bengal.
„ schœnanthus, *L.*, all India.
„ martini, *Roxb.*, „ „
„ iwardancusa, *Blane*, North India.
„ nardus, *Rottl.* ?, South India, Tinnevelly.
„ glaber, *Roxb.*, Bengal.
„ punctatus, *Roxb.*, „
„ bladhii, *Retz.*, „
„ pertusus, *Willde*, „
„ scandens, *Roxb.*, Bengal.
„ trispicatus, *Schultz.*, „
„ roxburghianus „ „
„ conjugatus, *Roxb.*, „
„ binatus, *Retz.*, „
„ miliformis, *Schultz.*, Lucknow.
Anthistiria ciliata, *Retz.*, Concans.
„ polystachya, *Roxb.*, Bengal.
„ scandens, „ „
„ heterocleta, „ „
Aplada aristata, *Linn.*, Bengal.
„ geniculata, *Roxb.*, „

D. Rotbolleæ, *Nees*.

Ischæum aristatum, *L.*, Bengal, Peninsula of India.
„ rugosum, *Salis.*, „ „
Hemarthria compressa, *R. Br.*, Bengal „
Thyridastachyum perforatum, *Nees.*, „ „
Ophiurus incurvatus, *Beauv.*, Europe.
„ corymbosus, *Gærtn.*, Peninsula of India.
Rotbollia exaltata, *Linn.*, East Indies.
„ glabra, *Roxb.*, Bengal.
Peltophorus granularis, *Beauv.*, E. & W. Indies.
„ myurus, *Beauv.*, Coromandel.
Oropetium thomœum, *Trin.*, Peninsula of India.
Zoysia pungens, *Willd.*

E. Olyreæ, *Nees*.

Zea mays, *L.*, cultivated.
Coix lachryma, *Linn.*, East Indies.
„ barbata, *Roxb.*, British India.
„ gigantea, *Kon.*, Circars, Bengal,
„ aquatica, *Roxb.*, Serampore.

Coix heteroclita, *Roxb.*, Serampore.
„ pumila. „ Mauritius.

F. Phleæ.

Hygroryza ciliata, *Nees.*, Bengal.
Perotis latifolia, *Ait.*, Peninsula of India.
Polypogon maritimus. *D. C. N.*, North India.
Sporobolus diander, *R. Br.*, Bengal.
„ tenacissimus, *E. & W.*, Indies.

H. Stipeæ, *Nees*.

Chætaria hystrix, *Beauv.*, Peninsula of India.

I. Oryzeæ, *Nees*.

Oryza sativa, *Linn.*, cultivated.
Potamochloa retzii, *Griff.*, Bengal, Pen. of India.

K. Pappophoreæ, *Kth.*.

Pommereulla cornucopiæ, *Linn.*, Coromandel.
Chloris barbata, *Swz.*, Bengal, Peninsula of India.
Cynodon dactylon, *Pers.*, all India, Europe.
„ filiformis——?, Pen. of India, Bengal.
Microchloa setacea, *R. Br.*, Peninsula of India.
Datyloctenium ægyptiacum, *Beauv.*, Tropical America, Africa, all India, Moluccas.
Arachne verticillata, *W. & A.*, Peninsula of India.
Eleusine coracana, *Gærtn.*, cultivated.
„ stricta, *Roxb.*, „
„ indica, *Gærtn.*, „
„ calycina, *Roxb.*, Coromandel.

M. Aveneæ, *Nees*.

Avena sativa, *Linn.*, cultivated.
„ fatua, *Linn.*, North West India.

N. Arundineæ, *Nees*.

Donax arundinaceus, *Beauv.*, S. Europe.
Amphidonax bengalensis, *Nees.*, Bengal.
„ karka, *Lindley.*, Pen. of India, Bengal.
„ bifaria „ „ „

O. Triticeæ, *Nees*.

Hordeum vulgare, *Linn.*, cultivated.
„ hexastichon, *Linn.*, „
„ distichon, *Linn.*, Tartary.
Lolium temulentum, *Linn.*, Europe.
Triticum vulgare, *Vill.*, cultivated.
„ *var.* *a* æstivum, „
„ B. hybernum. „
„ campestre, *Kit.*, Hungary.
„ spelta, *Linn.*,——?
Secale cereale, *Linn.*, cultivated.

P. Festuceæ, *Nees*.

Poa nutans, *R. & Sch.*, Coromandel, Bengal.
„ diarrbena, *R. & Sch.*, Peninsula of India.
„ viscosa, *Retz.*, „ „
„ abyssinica. Abyssinia.
„ plumosa, *Retz.*, Moluccas, Pen. of India.
„ elegantula, *Kth.*, Bengal.
„ unioloides, *Retz.*, „ Pen. of India.
„ roxburghiana, *Schultz.*, Bengal.
„ paniculata, *Roxb.*, „
„ gangetica, „ „
„ annua, *Linn.*, North Africa, Caucasus.
„ pratensis, *Linn.*, Europe, Caucasus.
„ trivialis, *Linn.*, „ „
„ cylindrica, *Roxb.*, Canton.
„ tenella, *Linn.*, Pen. of India, Bengal.
„ punctata, *Linn.*, Bengal.
„ multiflora, *Roxb.*, „
„ cynosuroides, *Retz.*, Egypt, Pen. of India, Bengal.
„ chinensis, *Retz.*, Pen. of India, Bengal.
Briza, *Linn.*, species.
Cynosurus echinatus, *Linn.*, Caucasus, England, Levant.
Festuca, *Linn.*, species.
Bromia, *Linn.*, species.

Q. Bambuseæ, *Nees*.

Beesha Rheedii. *Kth.*, Pen. of India, Chittagong Mts.
Dendrocalamus balcooa——?, Bengal.
„ tulda——?, Bengal.

Dendrocalamus strictus,—— ? Bengal.
Bambusa arundinacea, *Willd.*, Mountains of India.
„ spinosa, *Roxb.*, Bengal.
„ nana, *Roxb.*, China.
„ gigantea, *Wall.*, Burmah.
Centotheca lappacea, *Desv.*, Coromandel.
Voigt. See Graminaceæ, Grasses.

PANICASTRELLO, It., Millet.

PANICHI-KAI MARAM, Tam. Embryopteris glutinifera, *Roxb.* Diospyros glutinosa. This tree grows in Ceylon and Travancore, from thirty to sixty feet high, and ten to twenty-four inches in diameter. In Ceylon, it grows tall and straight; in Travancore it is not more than twenty feet high, and is curved. It produces a fruit which resembles externally the small russet apple: when pressed it yields a very glutinous juice, which is used as a substitute for glue; and may be considered in that country as very superior to glue for the use of joiners. In Ceylon, this tree is converted into masts, yards, &c., for country vessels; and the native carpenters consider it the best sort of all the jungle woods for that purpose.—*Edye, on the Timber of Ceylon.*

PANICKEA. Elephant hunters at Eraoor in Ceylon, who snare them with a noosed rope. They are mahomedans.—*Tennent.*

PANICLED ACACIA, Eng. Acacia leucophlæa, *Willd.*

PANICUM, the millet genus of grasses of the order Panicaceæ. The genera Eragrostris, Panicum, Pennisetum, Poa, Rotbollia, Saccharum, and Vilfa, are the grasses of the Doab. Through almost all Arabia, species of Panicum or Scirpus are used for covering the roofs of the houses. These slender coverings are sufficient in countries where rains are unfrequent.—*Birdwood quoting Royle; Niebuhr's Travels, Vol.* ii, *p.* 34.

PANICUM COMMUTATUM, *Nees.*

Panicum ciliare, *Roxb.*

Makur-jalee,	Hind.	Chenggali gaddi,	Tel.
Changali gaddi,	Tel.		

PANICUM COLONUM.

Shama, Hind.

PANICUM DACTYLON, *Linn.*, *Roxb.*, syn. of Cynodon dactylon, *Pers.*

PANICUM FLAVIDUM, *W.*

Burti of Poonah.

PANICUM FRUMENTACEUM, *Roxb.*

Shama,	Beng.	Bajri,	Hind., Pers.
Kathlee,	Dek.	Phyamaka,	Sans.
Sanwa,	Hind.	Saou,	Sindh.
Damra-shama,	„	Shamoola,	„
Soak,	Kangra.	Bonta shama,	Tel.

A wholesome and nourishing grain, an article of diet of the lower classes. There are several varieties of it, which yield from 50 to 60 fold; it delights in a light, tolerably dry, rich soil; the same ground yields two crops between the first of the rains in June, July, and the end of January, in the Circars, but only one crop in the northern provinces.

PANICUM ITALICUM, *Linn.*

Setaria italica, *Beauv.* | Pennisetum italicum, *R. Br.*

Dokhn,	Ar.	Shali; Pingi,	Kash.
Kangni; Kunjoo;	Ben., Hind.	Tenna,	Malеal.
Navanay,	Can.	Navaria?	„
Salan; Kauni;	Chenab.	Arzun; Gal,	Pers.
Shaloo;	„	Prayingoo; Kungoo,	Sans.
Ralla,	Duk.	Kerang,	Sind.
Italian millet,	Eng.	Kora-kang,	„
Kang,	Guz.	Tanahal,	Singh.
Kora: Kala-kangni,	Hind.	Kusht; Shak	of Sutlej.
Beertia? Kakoon?	„	Tennay,	Tam.
Chiurr; Kher,	Jhelum.	Koraloo? Kora,	Tel.

This Indian millet is grown in Europe. Seeds small, roundish, straw-coloured; pericarp brittle, with a round and partially pellucid grain, alimentary, but gives a heavy, disagreeable bread. The grain is however prized by the natives of India, who make cakes of it and also prepare it as porridge. For the purposes of pastry it is very little inferior to wheat, and when boiled with milk, forms a light and pleasant meal for invalids. It is grown in abundance in the southern part of Europe, particularly in Portugal, where it is termed Mitho Painco. It is rarely grown in the Punjab plains, but is commonly cultivated in the Himalaya, occasionally up to 6,500 feet.—*O'Shaughnessy, p.* 637; *Ainslie, p,* 220; *Dr. J. L. Stewart's, Punjab Plants, p.* 259.

PANICUM HELOPUS.

Julgantee, Hind.

PANICUM JUMENTOSUM or Guinea grass, has been cultivated to a considerable extent in India and Ceylon, with more or less success according to the care and attention bestowed on it. When well-manured and kept clear of weeds it grows luxuriantly and admits of being cut every six weeks or two months. A small patch, near Colombo, which, beginning with about three-quarters of an acre, was gradually extended to about an acre and a half, for seven or eight years, supplied 3 or 4 milch cows, and from 5 to 7 horses continually with all the grass required for their consumption and latterly left a surplus which was dried for bedding and hay. When first planted it frequently attains a height of even 9 feet, and a stalk taken promiscuously from a small patch planted in Combaconum measured 10 feet 4½ in length, but when cut two or three times it grows thicker but not so high. It is exceedingly excellent feeding for horses and cattle, and is generally preferred by them to the ordinary country grass, though horses which are hard-worked seem to prefer the dry grass roots supplied by the grass-cutters. It should not be given to cattle fresh but the supply for one day should be cut the day previous, and it should not be cut too close to the ground, but the stalk ought to be left 7 to 9 inches high. It is a good plan to move the ground between the roots every time the grass is cut, and the ground should be heavily manured after every three or four cuttings. It is very hardy and may be easily propagated. It requires abundant moisture but will not live in a soil which is at all marshy. It answers best planted in small tufts 1 foot 9 inches to 2 feet apart, which rapidly spread into stools from 6 inches to 1 foot in diameter.—*Spry's Suggestions p.* 15; *Mr. Caldwell, in Litteris.* See Graminaceæ, Grasses.

PANICUM MILIACEUM, *Roxb., Willde.*

Cheena,	Beng., Hind.	Cheenwa,	Kash.
Chamy,	Can.	Tsedze	of Ladak.
Anne, Cheenee,	Chenab.	Arzan,	Pers.
Salan,	„	Shamaka,	Sans.
Waree; Shamakh,	Duk.	Unoo; Veehib, heda,	„
Common millet,	Eng.	Rad	of Sutlej.
Kegros,	Gr. of Hesiod, Diosc. Hippoc.	Varugu,	Tam.
Savee, Cheena-wari,	Hind.	Varaga; Varagalu,	Tel.
Cheena-ghas,	„	Samalu,	„

A well known species of Millet, cultivated in the south of Europe and in tropical countries. Two varieties are well known, one brown, the other yellow-coloured. It is imported into Britain from the Mediterranean chiefly for feeding poultry, but forming in the south of Europe as well as in India a portion of the food of the inhabitants. In the latter country it is cultivated in the cold weather with wheat and barley, and the only one of the small grains that is so at the cold season of the year. It is imported into England from Salonica and Kaffa, for feeding cage-birds, and when husked, is used as food in puddings. It is found in the Sutlej valley between Rampur and Sungnam at an elevation of 6,000 to 9,000 feet. In the middle regions it is one of the chief crops.—*Dr. J. L. Stewart; Cleghorn's Panjab Report, p.* 66; *Ainslie Mat. Indica.*

PANICUM MILIARE, *Lam.*

Kungoo,	Hind.	Nella-shama,	Tel.
Kutkee	of Multan.	Shamaloo,	„

This is cultivated in Europe and S. Asia seeds oval, slightly compressed, brilliant, about a line in length; bark or envelope blackish, brown or fair; parenchyme, white or sweet taste, in the peninsula of India, is generally cultivated on an elevated rich soil: the seed is one of the sorts of dry or small grain which forms an article of diet of the hindoos, who inhabit the higher lands, and cattle are fond of the straw. Alimentary, but the pericarp is very difficultly separated from the grain; chiefly used in a kind of gruel or bouillie. Does not appear to be common in the Panjab, but Edgeworth mentions it at Multan.—*O'Shaughnessy, Bengal Dispensatory, p.* 637.

PANICUM SEMIVERTICILLATUM, Rott.

Lupta,	Hind.	Koodraywali chamy,	Tam.

This grain is inferior to several of those hitherto mentioned and is eaten by the poor people in the districts in which it is cultivated; such as Coimbatore, and other dry grain countries.—*Ainslie, p.* 219.

PANICUM SETIGERUM.
Bura galgantee, Hind.

PANIERE, It. Baskets.

PANIJALA, Hind. Flacourtia cataphracta.

PANI-JIKA, Maleal. Embryopteris glutinifera, *Roxb.*

PANI-KI-SHUMBALI, Duk. Vitex trifolia, *Linn.*

PANI KUTTA, Duk. water dog, Lutra nair, *F. Cuv.*

PANI LUTA, Beng. Pongamia uliginosa.

PANIMAR, Hind. Land injured by inundation or drainage floods.

PANINI, a Sanscrit grammarian, said to have belonged to the third century B.C. 350. He is the most celebrated of those grammarians whose sutras have come down to us, though he himself tells us of many who preceded him. His is the most ancient of all the Sanscrit grammars. He founded the present system of Sanscrit. He lived B.C. 350.—*Bunsen, Vol.* iii, *p.* 565.

PANIONIUM, says Herodotus, is a sacred place on Mycale, situate towards the north, which, by the universal consent of the Ionians, is consecrated to the Heliconian Neptune. Mycale is a promontory projecting itself towards Samos. On this mountain the Ionians assemble from their different cities, to celebrate the Panionia. A bull was usually offered in sacrifice to Neptune, and if he bellowed during the performance of the rite, it was accounted an auspicious omen, as such a sound, resembling the roaring of the sea, was held to be particularly acceptable to the ocean-king.—*Milner's Seven Churches of Asia, pp.* 76-77.

PANI-PHAL, Hind. Trapa bispinosa, *Roxb.* Two spined water caltrops.

PANIPUT in L. 29° 23′; Long. 76° 59,′ in Hindostan, 78 miles N. W. of Delhi, is 936 feet above the sea. Paniput was described by Jacquemont as the largest town he had seen in Northern India except Delhi. It is well known as the scene of four famous battles. It is supposed to be the site on which the Kuru and Pandu chiefs contended for their lands, about 1,300 years before the Christian era when the decisive battle, known as the Kuru-kshetra, was fought between the Kaurava and Pandava, and it has thrice since then been made the battle-field on which contests have been held, for supremacy over India. The emperor Babers fifth and last expedition, was into India, in 1525? 1526,? when, with an army of 12,000 men, led from Cabul, he encountered and completely defeated the emperor Ibrahim Khan, Lodi, at Paneeput, and in May, Delhi yielded to him without resistance, and he soon after reduced to his power all the provinces of the empire. The emperor Akbar, grandson of Baber and son of Hamayun, had to defend his claim to India against Hemu, the hindoo general of Sultan Adili. Hemu hearing of the death of Hamayun advanced with 100,000 men against Akbar who at Paneeput met Hemu completely defeated him and took him prisoner, and while bleeding from his wounds in Akbar's tent, Bahram struck off the captives head. This, the third great battle at this place, was fought in Akbar's presence by his general Bahram Khan against Hemu, a hindoo general, and the last representative of the House of Sur. The fourth decisive battle here, was fought in 1761, when Ahmed, the Abdalla, king of Cabul, inflicted a crushing blow on the Mahrattas, which indirectly cleared the way for the establishment of British supremacy. The Mahratta army at one time estimated at 500,000, lay entrenched for many weeks, during which pestilence and famine reduced their numbers, and at length when battle was given they were utterly overthrown. In the preceding operations and in the battle, their loss was estimated at 400,000 people, and it was their first great check in their career of conquest.—*Cal. Rev. Jan.* 1871; *Malcolm's Central India, Vol.* i, *p.* 59; *Wheeler's Hist. of India, p.* 275; *Rennell's Memoir, pp.* 68–9; *Asiatic Researches, London, Fifth Edition, p.* 91; *Pottinger's Travels; Beloochistan and Sind, p.* 283.

PANIAYALA, Beng., Hind. Flacourtia cataphracta.

PANICHAVAN, from pany, work.

PANICLED ACACIA, see Acacia.

PANIR, Guz., Hind., Malay., Pers. Cheese, Panir-gar a cheese maker.

PANIR, Hind. Withania coagulans. Its berries are used to curdle milk, &c. The selling price, 12 to 14 seers per rupee. The shrub is called akri. The berries are used medicinally, also to curdle milk, and given to horses. It is a small shrub with light-coloured leathery leaves, which is common west of the Indus and along the Salt Range (to 4,500 feet), and occurs in the southern Punjab, generally near houses or fields, seldom in the real desert. The Affghans use it for curdling milk to make cheese, whence its Persian name panirbad. The seeds are considered stomachic about Peshawar, and they probably possess anodyne or sedative properties. In home practice they are given to children for colic, are used in veterinary medicine, and are sold in most bazaars. Honigberger states that the bitter leaves of this plant are given as a febrifuge by the Lohani.—*Powell; Stewart.*

PANIR-BAD, Pers. Withania coagulans, —*Dun.*

PANIRAK of Trans.-Indus. Malva parvifolia, *Linn.*

PANITSJICA MARAM, Maleal. Embryopetris glutinifera.

PANI WARROOGOO, Tam. Paspalum pilosum.

PANJ, Pers. Five, Panjah, Hind., the extended hand carried on a pole in the moharrum.

PANJA, Tam., Tel. Soil.

PANJAH, Burm. Terminalia violata.

PANJAL, see Pir-panjal Range, mountains.

PAN JAMBUL, Mahr. Jambosa salicifolia.

PANJAM, Tel. A class of cotton cloths manufactured in the south of India.

PANJ ANGUSHT, Hind. Boucerosia aucheri; Nigand panw, Hind., is Ocimum basilicum; Gorakh panw, Hind., is Convolvulus pluricaulis, Heliotropium brevifolium.

PANJALI, Hind. The yoke of a plough.

PANJAY TANOBA, a class of slaves in Coorg.

PANJERA, Hind., Mahr, Erythrina indica.

PANJGHUR, a western section of Beloochistan. See Kelat.

PANJAM—? the gum of the Embryopteris glutinifera, used for paying boats, &c.—*Simmond's Dict.*

PANJI, Tam. Cotton.

PANJIRAH, Hind. Erythrina indica.—*Law.*

PANJRA or Panjur river, passes the station of Dhoolia.

PANJSHAHR, a populous valley which affords a communication with Badakshan. It contains silver mines, which were worked by Abul Fazl. Silver and other metals it is believed abound in the secondary hills of the Caucasus.

PANJ-TAN, five holy persons of the shiah mahomedans, Mahomed, Ali, Fatimah, Husan and Hussain.

PANJAROO, Hind. An armlet, made of gold, silver, crystal, or shell, &c.—*Simmond's Dictionary*, see Bangles.

PANKA. The Ganda or Panka sect of hindoos, are Kibirpanthi or followers of Kabir, who is said to have appeared in the weaver caste, in the same country and at the same time, as Rai Das, both being disciples of Ramanand, and their doctrines being similar in many respects. They cultivate the land, but they are not generally esteemed as cultivators, while the few villages they hold as landholders are miserable in the extreme.

PAN-KAKROOL, Beng. Aspidium unitum.

PANKALANG KOTA, see Jakun.

PANKHA, Hind. A fan.

PAN KEE BEERA, Hind. Betel leaf parcel.

PAN KI HURRAY BANTNA, a ceremony.

PAN-KI-JAR, Duk. Alpinia galanga, Sw. Galangal.

PAN-KOOSHEE, Beng. Phyllanthus multiflorus.

PANK KROOL, Beng. Aspidium.

PANKTI-PAVANA. This term, rendered, taking precedence at festivals, means the purifier of the row, or range, or assembly;

that is, Jagaddhara says, in the place where there is food, or, in other words, they were Agrabhojinah, the first-served at feast. He also quotes a text, without mentioning his authority, to show that the term implies a brahman who has read the Yajur, Sama, and Atharva-Vedas, and the word is similarly explained by Menu, III. 184.—*Hind. Th.*, *Vol.* ii., *p.* 11.

PAN-LOUN, BURM. In Tavoy, a close grained red wood: used for building.—*Dr. Wallich.*

PANMUHORI, seeds of Fœniculum panmorium.—*Ben Phar.*

PAN MURICH, BENG. Polygonum flaccidum.

PANNA, HIND. An emerald.

PANNA, a range of hills in Bundelcund, south of the Bindyachal plateau. Average elevation between Kuttay Pass and Lohargaon, 1,050 feet. Elevation between Lohargaon and the foot of the hills near Patteriya, about 1,200 feet. Summit an undulating platform, about ten miles wide. Where deep ravines allow examination, an enormously thick bed of sandstone is found with primary rock superincumbent, itself overlaid by volcanic rocks. See Bandair Hills.

PANNAGAL, snake charmers in the Devaloka.

PANNA MARAM, TAM. Palmyra tree. Borassus flabelliformis.

PANNAM KALANGOO, TAM. The first shoot from the planted palmyra nut, the germ of the future tree. The people of southern India and Ceylon have for many hundred years been in the habit of eating this. It is about the size of a common carrot though nearly white. It forms a great article of food among the natives for several months in the year; but Europeans dislike it from its being very bitter. Recent experiments have proved that a farina superior to arrowroot can be obtained from it, prepared in the same way, and 100 roots costing 2½d, yield one and a half to two pounds of the flour.—In Madras, 100 cost 1½d. *Simmonds' Comml. Products*, *p.* 376.

PANNAM OLI, TAM.. Leaves of the palmyra tree, prepared for writing on.

PANNAM PALLAM, TAM. Fruit of the Borassus flabelliformis.

PANNAM KHALLOO, TAM. Toddy or palm wine of the Borassus flabelliformis.

PANNAS, HIND. Artocarpus integrifolia, *L.*

PAN-NA-THA, BURM. Laurus nitida, *McC.*

PANNAY KEERAY, TAM. Celosia albida, *Linn.*

PANNAY, MEERS CARUNDOO—? Cinnamon.

PANNAY VELLUM, TAM. Sugar. See Borassus flabelliformis.

PANNEH DODANG, SINGH. Orange.

PANNEER KA PHOOL, DUK. Panneer poo, TAM., TEL. Guettarda speciosa, *Linn.*

PANNEI, TAM. Borassus flabelliformis, *L.*

PANNI, HIND. Anatherum muricatum, also Cymbopogon iwarancusa.

PANNI, HIND. Slips of leather for guilding; also the confectioners cullender or strainer.

PANNI, A servile caste of Malabar. The Panniar of Malabar are agricultural slaves.

PANNIGAR, HIND. A leather gilder.

PANNIR MARAM, TAM. Guettarda speciosa, *Linn.*, *Rheede ; Roxb.*; *W. & A. W. Ic.*

PANNIRU CHETTU, TEL. Guettarda speciosa, *Linn. ; Rheede* ; *Roxb.* ; *W. & A.*

PANNO DE LINHO, PORT. Linen.

PANO DE ALGODAO, PORT. Calico.

PANOLIA ACUTICORNIS, *Gray.*

P. eldii,	*Gray.*	Cervus lyratus,	*Schinz.*
Cervus frontali,	*McClel.*	„ eldii,	*Cal. J. N. H.*
Rusa lyratus,	*Schinz.*		
Sangnai,	HIND.	Sangrai,	HIND.

PANONG, see India.

PANOON, a large tree of Lucknow, grows spontaneously in the Taraee ; its timber is used for beams, &c.—*Cal. Cat. Ex.* 1862.

PAN-OOTHANA, HIND., a ceremony.

PANOPÆA.

PANORAMA. Panoramic representations of holy places are common in India in the form of long rolls fixed against a wall in compartments. Scenes from the Mahabharat and Ramayana, in illuminated and embellished portable scrolls, are very frequent. It is common, also, in the western provinces of India to meet with a kind of fresco-painting upon the walls of gardens, or enclosures of tanks, representing mythological or historical subjects.

PAN-PATRA, HIND., a cup, often seen figured in the hand of the goddess Devi, or Bhavani, for the purpose it is said of receiving the blood of victims.

PANRI, HIND. Stalk of the pan leaf; also shreds of the leaves dried.

PANRI, HIND. Leaves of a small plant imported from Bombay, considered refrigerant and to promote digestion : are sweet-scented and used by attars ; one seer costs one and a half rupee. —*Genl. Med. Top.*, 149.

PANIRU PUVVU, TEL. Guettarda speciosa, *L.*—*R.*, i, 686.

PANSAL, see Pir Panjal Range.

PANSARI, HIND. A drug-vendor.

PAN-SA-YEIH, BURM. Ixora coccinea, *Linn.*

PANSEE, a mahomedan tribe or sect in Yunnan, who about A. D. 1862, rebelled against the Chinese dominion. The Pansee, most likely the oppressed at first, got into a quarrel resulting in bloodshed with their numerous fellow-subjects, fled in large numbers to the jungles, and commenced a dacoity war on the Chinese towns and villages. The mahomedans all held together, and attracted as many to their side as the prospect of booty would tempt, abandoning any conquered place, to the unrestrained pillage of their forces. In A. D. 1863 their own numbers were small, not over twenty thousand, but their forces soon rose to two or three hundred thousand, among whom were Chinese, Shans and a few Ka-khyen. Any place that resisted after taking, the old and the adults were slain wholesale, the young men made musselmans or slaves, the young women only had death exchanged for the harem. The whole of Yunnan fell in their hands, and the Shan states belonging to it accepted their suzerainty, but they exasperated their Shan subjects into open hostility. Their head, or king, was called Tuwinsin and resided at Tali. The Ayebeing Bochup was the General and Commissioner in 1863, he conducted hostilities against an army of Chinese under Leesitagli, or Lioguanhan in the Naloo-kan mountains, between Mainla or Kaingai and the Pansee post Mopoo, two days from Momiru. The Commissioner of Momiru was Sophusyanjin. The Pansee seem the Panthay tribe.

PANSELA, Singh. The dwellings of the buddhist priests in Ceylon.

PANSERI from five, and ser, a weight of five seers.

PANSH-AGNI, Hind., in hindooism, five fires: that is, one towards each cardinal point, close to the devotee, and the sun, on which he constantly looks, over his head; standing with uplifted arm, without aid or support, day and night, feeding on air, immovable on his right toe, upon the afflicted earth, &c.

PAN SHEET, Burm. Impatiens balsamina, *Linn.*

PAN-SHIOOLI, Beng. Phyllanthus multiflorus.

PANSIRA, Hind. Wendlandia exserta.

PAN SOOPAREE, Hind., from pan, betel leaf, and sooparee, areca nut. In India, the handing round of these to visitors, is a ceremonial equivalent to the English custom of cake and wine. On taking leave, the ceremonial is various. With the nabobs of the Carnatic, at whose court the editor was for some years Political Agent, the nabob would put a little atr on the visitor's handkerchief, then sprinkle it with rose water; then present a rose bouquet; then a "bheri" of pan supari; and, suspending a garland of jasmine round the neck, shook hands and dismissed the visitor. At the palaces, in Hyderabad, of the nobles Vikar-ul-Umra, Shams-ul-Umra and Sir Salar-Jung, the host accompanied the guest to the door and then presented one or more little phials with rose attar. See Betel.

PANSWAH, or Panshway, Hind. A small boat attached to a budgerow, used on the Ganges and Hooghly rivers, with an awning of matting over the stern. See Boat.

PANSY, Viola tricolor, Heartsease, may be raised from seed sown at the commencement of the rains, but will hardly repay the trouble.—*Jaffrey.*

PANTALEON, a Bactrian ruler, B.C. 170. See Greeks of Asia.

PANTALU, Tel. From Pandit, a schoolmaster.

PANTASOK, in Kashmir, founded by Asoka.

PANTHA, a religious sect. See Pansee.

PAN-THAY, a mahomedan race who govern at Momin, 90 miles from Bamo, in Shan and Chinese territory.

PAN THEET YA, also Let touk, Burm? Vateria roxburghiana, *Wight.* In Tavoy, a good, white, rough wood; useful for boat-building,—*Dr. Wallich.*

PANTHEISM. See Siva.

PANTHEISTIC VEDANTA, see Vedas.

PANTHER, Leopard or pard of the E. Indies. Felis pardus, *Linn.* See Felidæ.

PANTHEUM MYTHICUM, see Saraswati.

PAN-THEY-YA, Burm. Vateria lanceolata, *McClelland.*

PANTHI, the follower of a religious sect.

PAN-THIT-YA, Burm. Vateria lanceolata, *McClelland.*

PANTHOLOPS HODGSONII. The sous or Tibetan antelope, rarely comes so far south as Tooskee lake, its favourite haunts are among the lofty ranges northwards, it is met with in herds. It has two slit-like openings in the groin, forming pouches of a size capable of containing the clenched fist. They are strange appendages, and like the infra-orbital openings their uses seem by no means apparent.—*Adams.*

PANTIANG, Lepch. Pandion haliætus, *L.*

PAN-TORASI, Beng. Œnanthe stolonifera.

PANTOR ISLAND, is about 27 miles long, and of considerable height. Its N. E. point is in lat. 8° 10′ S., and long. 124° 15′ E.—*Horsburgh.*

PANTUN, Malay. Four lines of poetry. See Ber Beit.

PANUBUR, in the Aru islands, is a basket-measure what may contain half a picul.

PANUMBIA MARUM or Vunny marum, Tam. Prosopis spicigera.

PANWAR, Hind. Cassia tora.

PANYALA, Beng., of Behar, the small leaves and shoots of the Flacourtia cataphracta, which resemble rhubarb in flavour, and are used as gentle astringents.—*Simmond's Dict.*

PAN-YEN, Burm. Andropogon muricatum, *Retz.*

PA-NYOUNG, Burm. Ficus indica, *Linn.*

PAO, Lepcha. This is a large bamboo, the prevailing plant near the base of the Sikkim valleys; it attains a height of 40 to 60 feet, and the culms average in thickness the human thigh; it is unarmed, deep green, or purplish and used as large water vessels. Besides this, there are nearly a dozen kinds of bamboo known to the Lepcha. Two species of hill bamboo, "Payong" and "Praong" of the Lepcha, replace the "Pao" of the foot of the hills. The former flowers abundantly, the culms, 20 feet high, being wholly a diffuse panicle of inflorescence. The "Praong" bears a round head of flowers at the apex of the lofty branches.

PAO, Hind. A quarter; paola, quarter of a rupee.

PAONA or Pona a quarter: when placed before another number, as pon do, or pona-tin it means a quarter less two or three, *i.e.* 1¾ or 2¾.

PAO-D' AGILA, also Pao-d' aguila. Eagle wood.

PAO DE BRASIL also Pao de rainha, Port. Brazil wood.

PAO DA RAINHA. Brazil wood. See Cœsalpinia.

PAO DE ROSADA, Port. Rose wood.

PAO DOCI, Port. Liquorice root.

PAO-HO, Bhot. Cuon rutilans.

PAO-KIA, Chin., takers of a census. The official word used in the Chinese census is yen-hu, literally fires-doors. Persons called Pao-kia, or "chiefs of ten fires," are appointed to collect the numbers of their tithing.—*Chine Moderne, p.* 187, *in Yule Cathay, Vol.* i, *p.* 117.

PAOOTEE, a kind of lamp.

PAOON MINUT or Paoon mayz, Hind., the measuring for the wedding garments.

PAON, or Panu Hind. A foot.

PA-ON, see India.

PAOPA-DOUNG, an isolated mountain in Burmah, which the Burmese regard with some superstitious dread. They say it is impossible to ascend it, and describe it as the dwelling place of Nats and Bilus.—*Yule, p.* 27.

PAOREE, itself is 5,238 feet above the level of the sea. Serinuggur, the capital of Kashmir being in a valley, is found to be not more than 1,708 feet, if ascertained by contemporaneous observations at Paoree, but 1,834 feet if compared with the barometer at Calcutta.

PAPA, Malay. Carica papaya.

PAPAS, Pers. Solanum tuberosum, *W.*

PAPAIA, Beng., Hind. Carica papaya, *L.*

PAPALI PANDU, Tel. Carica papaya.

PAPAN, Tam. Papati, fem. Tam. A common term amongst the Dravidian people for a brahman, Papan being the man and Papati a brahmini. See Par-pan.

PAPAR, Hind. A sweetmeat.

PAPAR, Hind. Euonymus fimbriata also E. hamiltonii.

PAPAR, Hind. A kind of biscuits. Papargar a maker of the papar. This is the Pappadam of the English.

PAPARA BUDAMA or Verri puchcha, Tel. Citrullus colocynthis, *Schrad.*—*W. A.* It is the Verri puchcha and Ete puchcha.

PAPARA PULIA MARUM, Tam. Adansonia digitata, *Linn.*

PAPATA or Tella papata, Tel. Pavetta indica, *L.*—*W.* and *A.* 1323—*W. Ic.* 148—Ixora pavetta. *R.* i, 385.—*Rheede*, v. 10.

PAPAT KALAM, Hind. Viburnum cotinifolium.

PAPAVERACEÆ, *Juss.* The poppy tribe of plants: they are annual or perennial herbs, rarely under-shrubs, with a milky juice. The total amount of species is 66, of which 28 have been found in Europe; 7 in the Levant; 9 in N. America; 5 in Mexico; 5 in India; 3 in Persia; 2 in Siberia; 2 in N. Africa; 3 in China and Japan; 1 in N. Holland; and 1 in S. Africa. Most of them are annuals, 21 perennials and chiefly mountainous, and 2 shrubby, of the five Indian species, two belong to Papaver, and three to Meconopsis. One of the latter, M. nepalensis, *DC.*, especially its root, is according to D. Don, (*Pl. Fl. Nep., p.* 98,) very poisonous. The other genera are: 1 Argemone; 1 Romeria; 1 Glaucium; 2 Chelidonium; 2 Chrysis. The most famed of these is the poppy, Papaver somniferum, from which opium is produced, its seeds are used in sweetmeats, its capsules used in fomentation and its pure and sweet oil is used in cooking and for lamps: an excellent lamp oil is also obtainable from the seeds of the Argemone mexicana. The E. Indian genera and species may be thus shown—

Papaver somniferum, *L.*, Morea, Egypt, E. Indies.
  var. (*a*) album.
    (*b*) nigrum.
„ persicum, *Lindl.*, Persia.
„ amœnum, *Lindl.*, N. India.
„ glabrum, *Royle*, Himalaya.
Argemone mexicana, *Linn.*, all India.

PAPAVER CROCŒUM. This species, which is almost always variegated, is sown only as a border flower, for its large and handsome appearance. The scent is anything but agreeable. The seed should be sown where the plants are to remain, and six inches, the least space, allowed between each plant. They do not bear transplanting. The common cultivated species, from the capsule of which opium is procured, is of various colours, and when sown in beds, has a very pleasing effect. The seed (khash-khash) is commonly used by natives in confectionery having the taste of sweet almonds. It is propagated by seed only.—*Riddell.*

PAPAVER RHŒAS, the corn poppy, is an unimportant species found in gardens in upper India. The petals are of a beautiful red colour, and are used to colour a syrup, the Syrupus rhoæados of the English pharmacopœia; no active or narcotic principle has been found in this species.—*O'Shaughnessy, p.* 171.

PAPAVER SOMNIFERUM, *Linn.*

var. (*a*) with black seed.		*var* (*b*) with white seed.	
Khash kash abiaz,	AR.	Banga-pion, Bunga madat,	MALAY.
Pasto,	BENG.	Khash-khash, kunar,	PERS.
Khuskush,	DUK.	Chosa,	SANS,
Poppy, Garden poppy	ENG	Kasakasa,	TAM., TEL.
Mukon,	GR.		
Koknar; Post,	HIND.		

This very important plant is a native of the south of Europe and Asia Minor, and is now naturalized by cultivation in India. It appears to have been one of the early cultivated plants, as Homer is thought to allude to it as growing in gardens. Hippocrates mentions two kinds, the black and white poppy, so the Arabs and Persians distinguish the khushhash abiaz or white, from the khuskhash aswad, or black poppy. It was early cultivated, as it still is, in Egypt, also in India, Persia, Asia Minor, as well as in some parts of Europe. The garden poppy is probably a native of Persia. It has, however, been so long grown in gardens in various parts, that it is sometimes found apparently wild, especially in the southern parts of Europe. There are two distinct varieties, which, by some botanists, are considered to be distinct species : the dark, the red-flowered, and black-seeded is called by Gmelin, P. somniferum ; and the white flowered with white seeds, P. officinale. The latter is characterised as having an ovate globose capsule ; foramina under the stigma, either none or obliterated ; peduncles solitary. The former (P. somniferum) has globose capsules, opening by foramina under the stigma ; seed black ; peduncles many. The flowers are usually red of different tints, though sometimes white. Dr. Royle states that he has seen only the white-flowered variety in the plains of India, and the red-flowered in the Himalaya, and both cultivated for the sake of the opium. The poppy is cultivated in many parts of Europe on account of its seeds, which yield a bland oil much esteemed in France ; and in England chiefly on account of the capsules, which are used medicinally. It is extensively cultivated in Turkey and Asia Minor, Egypt, Persia, and India, on account of its inspissated juice, the opium of commerce, though this is occasionally prepared also in Europe. The cultivation of the poppy is very simple, though the weeding requires care, and the plants must not be crowded too much together. They are carefully watered and manured, the watering being more copious as the period of flowering approaches, and until the capsules are half-grown. The capsules are employed in medicine for the preparation of a sedative decoction and syrup, much used for children. They are devoid of odour ; of slightly bitter taste. If collected before the concrete juice is removed, the capsules contain a minute portion of all the active principles of opium ; for medicinal purposes those should be rejected which are marked with longitudinal and parallel cuts resulting from the extraction of opium. An infusion of poppy heads in cold water should strike a red colour with permuriate of iron.

Poppy oil.—The seeds of the poppy yield by expression 56 per 100 of a bland and very valuable oil, of a pale golden colour, fluid to within 10 degrees of the freezing point of water, Sp. Gr. 939 ; it dries easily, is inodorous, of agreeable flavour, is partially soluble (8 in 1,000) in alcohol, dissolves the oxides of lead. The mass from which the seed is expressed is found to be extremely nutritious to cattle ; for all pharmaceutical purposes, this oil is equal to that of the olive, employed in European pharmacy, and accordingly recommended in Dr. O'Shaughnessy's formulæ for hospital use. The natives consider the white as articles of food but the black are deemed more powerful, and are used in coughs and special diseases.

Opium is a valuable remedy, and important article of commerce. It is most extensively used by the natives especially in eye-diseases, in which it is either applied with a pencil of antimony, or fixed on the temple with plaster. Its application in disease by Europeans, is considered a most valuable narcotic and anodyne.

The poppy is cultivated throughout British India : it is grown in only two of the eight districts of Mysore, viz., in those of Bangalore and Kolar. The quantity of opium manufactured in the districts named above, during a period of 11 months (from April 1871 to February 1872) is shown by the accounts to have been about 362 Mysore maunds of 24 lbs. each. Also in 1870-71, opium to the value of Rs. 44,400 was manufactured in the Nundidroog Division of Mysore and 80 candies of opium were exported. It is not known how many pounds a Mysore candy of opium contains, but two candies are in use in Bangalore, one of lbs. 500 and the other of lbs. 336-12-4, and it would seem to be the lbs. 500 weight that forms the opium candy. In west Berar, the poppy is largely grown in the Maiker, or, as it is now designated the Buldanah district. When the editor saw it growing between Maiker, Janiphal and Bassein, he examined the processes for making opium, in which the people were busily occupied and exhibited an expertness betokening full experience. In 1870-71, 544 acres of land in the Buldanah district were under cultivation for opium.—*Eng. Cyc.* ; *O'Shaughnessy, pp.* 171-172 ; *Powell's Handbook, Vol.* i, *p.* 325.

PAPAVERO, IT. Poppy seed.

PAPAW TREE, the Carica papaya, the Bati of the Malays, is not the pawpaw of the Mississippi valley, Porcelia triloba, but is the pawpaw of South America and the West Indies. Europeans call it papaya, from the Portuguese papayo; and by the Portuguese it was probably introduced into India. The fruit resembles a melon in appearance, and often tastes no better than a good English turnip. The fruit and leaves of the papaw, or Muh-Kwa-tree melon, are eaten, after being cooked; the Chinese are aware of the supposed intenerating property of the exhalation from the leaves of this tree, and make use of them sometimes to soften the flesh of ancient hens and cocks by hanging the newly killed birds in the tree, or by feeding them upon the fruit beforehand.—*Mason: Williams' Middle Kingdom, p.* 284.

PAPAY, also Pepya, Hind. Carica papaya.

PAPAYACEÆ, the papaw tribe of plants, are natives of S. America, and comprise one genus and six species, of which one, the Carica papaya, is cultivated in India.

PAPAYA CARICA, *Gærtn.* Syn. of Carica papaya, *Linn.*

PAPAYA VULGARIS, *Lam.* Syn. of Carica papaya, *Linn.*

PAPCONDAH. Through a pass in the gneiss mountain of Papcondah the river enters the plains of the Eastern coast. In this district the sandstone re-appears, at an elevation little above that of the sea, but basaltic hills, several hundred feet in height, in which marine fossils have recently been discovered, exist almost within the delta formed by its sediment.

PAPEETA, Beng. Nut of Strychnos sancti ignatii, *Ben, Ph., p.* 219.

PAPENBERG, an island notorious as the spot where many Portuguese and Japanese christians, were barbarously murdered.—*Hodgson's Nagasaki, p.* 33.

PAPER.

Karta,	Ar.
Chin; Ch'u,	Chin.
Papiers,	Dut.
Papier,	Fr., Ger.
Kaghul,	Guz.
Kaghaz,	Hind., Pers.
Carta,	It.
Charta,	Lat.
Kartas daluwang: Dalanchang,	Mahr.
Papel,	Port., Sp.
Bumaga,	Rus·
Kartas: Kaedum,	Tam.
Kakitum,	Tel.

Nearly eighteen centuries have rolled away since the art of making paper from fibrous matter, reduced to a pulp in water, was first discovered by the Chinese. The leaves of some trees, and the skins and intestines of animals, had previously been made fit for writing on; wherever the Egyptian papyrus was introduced, all these things fell into disuse, except parchment. But when the Saracens conquered Egypt, in the seventh century, papyrus could no longer be procured in Europe, and parchment became extremely dear. In China, paper is largely made from the inner bark of the bamboo, from cotton and linen rags, and from rice-straw. Anciently, in China, bamboo-leaves scorched before a flame were used to write upon, and this material still contributes largely to the manufacture of the finished article of the present day. In the times of the Ts'in and Han monarchs coloured threads of silk were used to record events, and the Chinese written character in constant use still retains the radical for silk. In the reign of the Han emperor Ho-ti, the bark of certain trees came into use, being boiled to a pulp, along with silk, old fishing-nets and hemp-fibres, to make a paper which came into general use. Then, as now, the materials employed varied greatly according to the locality. The use of printing-blocks in China, in the sixth century after Christ, led to the extensive making of paper, in which the Chinese have ever since continued to excel. The delicacy of their best proof-paper forming the original. "India-proof" of former days, the elegance, cheapness and general use of their commonest stationary-materials are amongst the most satisfactory proofs of a true civilization. Chinese paper is made from bamboo, rice-straw, wheat-straw, cotton, hemp, the bark of the Ailanthus, Broussonetia and other trees, and the refuse of silk-cocoons. Ho-chi, is rice-straw paper used for sacrificial burnings. Pi-tsze, is the mulberry-bark paper which has been long used in the Hankow Mission Hospital as a substitute for lint and old rag. It comes from Wu-chang-fu and Yun-yang-fu in Hupeh. Wan-tsai hien, Fung-sin hien and Lin-chang hien, all in Kiangsi, make a paper called (Piau-sin) used for packing. Lin-yang hien in Hunan also supplies this article. Hwa-tsien paper from Fuhkien, and Sinchang hien (Kiangsi) is a rough paper for packing up drugs in. Hwang-pian paper, made in Kwang-sin-fu (Kiangsi) is the same as the Ho-chi, used in burning for the dead. Ta-tseh, Chung-tseh, made in Kwang-sin-fu, are used for account-books. Mau-pien and Lien-chi, are fine papers made in northern Fuhkien and in Yuen-shan hien (Kiangsi) and used for writing, printing and mounting pictures or scrolls. Kai-lien-chi, is a good, yellow, thin paper useful for wrapping up powders in dispensary-practice. Lah-tsien, is a waxed note-paper. Seven-lined and eight-lined paper, divided by perpendicular red lines, and stamped with curious coloured devices, are sold everywhere in great variety at small cost. The ashes of paper are given as an astringent, and the paper of an old book, or letter, after cutting out the printed characters, held in such commendable veneration in China, is a remedy for barren women! Much interesting matter on paper is to be found in Mr. Drew's "Kin-kiang Report of Custom's Revenue" for 1869, to which Dr. Smith was much indebted.

The Arabians, in the seventh century, either discovered or learned from the Chinese the art of making paper from cotton; this they carried to Spain, where they also made paper from linen and hemp. The oldest manuscript on cotton paper is one which Montfaucon saw in the French king's library, bearing the date of 1050, but supposed to belong to the ninth century. In Spain, flax being grown, linen rags were substituted for cotton, because the latter was only to be obtained by importation. Mr. Ottley, however, contends that paper was manufactured from mixed materials from a very early period; and that the notion of distinguishing the kinds by one sort being made of linen, the other of cotton, rags, is wrong; for one is as ancient as the other, and they were often intermixed. In the Tower of London, is a letter addressed to Henry III, (between 1216 and 1222) upon very strong paper, and certainly, in Mr. Ottley's judgment, was made, of mixed materials; while in several of the time of Edward I, written upon genuine cotton paper, of no great thickness, the fibres of cotton present themselves everywhere at the backs of the letters so distinctly that they seem as if they might even now be spun into thread. The antiquity of linen paper is a much disputed question. The earliest distinct instance found by Mr. Hallam, and believed by him to have been hitherto overlooked, is an Arabic version of the aphorisms of Hippocrates, the manuscript bearing the date of 1100. It does not appear whether it were written in Spain or brought from Egypt or the east. Peter, abbot of Clugni, in a treatise against the Jews, speaks of books "ex rasuris veterum pannorum," interpreted "of linen rags." "And," says Mr. Hallam, "as Peter passed a considerable time in Spain, about 1141, there can remain no rational doubt that the Saracens of the peninsula were acquainted with that species of paper, though perhaps it was as yet unknown in every other country," ("Literature of Europe," vol. i, p. 58). Andrés asserts, on the authority of the members of the Academy of Barcelona, that a treaty between the kings of Aragon and Castile, bearing the date of 1178, and written upon linen paper, is extant in the archives of that city. Andrés refers the invention to the Saracens of Spain, using the flax of Valencia and Murcia; and conjectures that it was brought into use among the Spaniards themselves by Alfonso X of Castile. Bagford speaks of a letter from the king of Spain to Edward I, which is on what he calls "a species of paper," and is of an earlier date by twenty years than any paper that had fallen under the notice of the Rev. J. Hunter, ("Archæologia," xxxvii, p. 448). In this article, from the great abundance of accounts written on paper coming into England from the Aquitanian possessions, and the small number of documents originating in England in the same early period, written on any other material than parchment or vellum, Mr. Hunter concludes that paper was a substance much more familiarly known in the south of France than in England; whence arises a strong probability that it is to the connection with the Aquitanian provinces, especially with Bordeaux itself, that is due the first introduction of this most valuable substance into England. Indeed, paper having the same mark being found in documents prepared at nearly the same time at Bordeaux and in England, seems to show either that England received paper from Bordeaux, or that Aquitaine and England were supplied from the same market. Whence we may also infer that we are to trace this most ingenious and admirable invention through Spain, and possibly the Moorish provinces, to the people, not yet ascertained, with whom it originated. ("Archæologia," xxxvii, p. 453–4). Mr. Hallam records his having seen in the Chapter-house at Westminster, a letter written from Gascony, about 1315, to Hugh Despenser, upon this paper, to all appearance made like that now in use, and with a water mark.. Among the Cottonian manuscripts several letters are written on parchment; and paper does not appear, at soonest, till near the end of the reign of Edward III, Sir Henry Ellis has said that "very few instances indeed occur before the fifteenth century of letters written upon paper." It is remarkable that the earliest linen paper was of very good manufacture, strong and handsome; and the first printed books are frequently beautiful in the quality of their paper. From Spain linen paper passed into France, about 1270, thence into Germany about 1312, and from Germany to England about 1320 or 1324. We may here remark that the use of linen or cotton, or the two intermixed, is the radical distinction of our modern paper from the other substances (such as the papyri, the palm-leaves, the fabric supposed to be formed from fibrous matter found in the mummies of Egypt) which were in ordinary use in Europe. It is commonly thought that Dartford is the place where paper was first made in England; but it is proved beyond doubt that a paper-mill existed in England almost a century before the date of the establishment at Dartford. In the "Household Book" of Henry VII, we read—

1498. For a rewarde geven at the paper mylne, 16s. 8d.

1499. Geven in rewarde to Tate of the mylne, 6s. 8d.

And, in the English translation of "Bartholomœus de Proprietatibus Rerum," printed by Wynkyn de Worde, in 1495, we read of John Tate the younger having lately, in England, made the paper which was used for printing this book. The lines, which occur at the end of the volume, are as follows:—

> And also of your charyte call to remembraunce
> The soule of William Caxton, first printer of this boke,
> In Laten tonge at Coleyn (Cologne) hysself to avaunce,
> That every well-disposed man mote (may) be broke,
> Which late hathe in England doo make this payer thynne,
> And now in our Englysshe this boke is printed inne.

We also gather from an early specimen of blank verse, entitled "A Tale of Two Swannes," written by William Vallans (it is believed, a native of Ware), and printed in 1590, that the mill belonging to John Tate was situated at Hertford. One of the notes in the poem states, that, "in the time of Henry VIII, viz. 1507, there was a paper-mill at Hertford, and (?) belonged to John Tate, whose father was Mayor of London." The author, however, is here mistaken in his chronology, as Henry VIII, did not begin to reign till 1509. The extract from the privy purse expenses of Henry VII, under the date of May 25, 1498, "for a rewarde geven at the Paper Mylne, 16*s*. 8*d*.," most clearly has reference to this particular mill, as the entry immediately preceding shows that the king went to Hertford two days before, viz., on the 23rd of May. And, in Herbert's edition of Ames's "Typographical Antiquities," we read that "this mill was where Seel or Seal Mill is now at the end of Hertford town, towards Stevenage; and that an adjoining meadow is still called Paper Mill Mead. This Seel Mill, so denominated from the adjoining hamlet, was erected in the year 1700, and is noted for being the first that made the finest flour, known by the name of Hertfordshire White. It stands upon the river Bean, in the middle of three acres of meadow-land, called Paper Mill Mead, so denominated in the charter of King Charles the first to the town of Hertford, for the fishery of a certain part of that river"—*A. Grayan, "Notes and Queries," No.* 117, *in Once a Week.*

The paper-mill at Dartford was established at least 110 years later than that at Hertford, in 1588, by John Spilman, "jeweller to the Queen," who was pleased to grant him a license "for the sole gathering, for ten years, of all rags, &c., necessary for the making of such paper." The particulars of this mill are recorded in a poem by Thomas Churchyard, published shortly after its foundation, entitled, "A description and playne discourse of paper, and the whole benefits that paper brings, with rehearsal, and setting forth in verse a paper-myll built near Darthforth, by an high Germaine, called Master Spilman, jeweller to the Queene's Majyestie." The writer says:—

> "(Then) he that made for us a paper-mill,
> Is worthy well of love, a worldes good will,
> And though his name be *Spill*-man by degree,
> Yet *Help*-man now he shall be calde by mee.
> Six hundred men are set at work by him, [bread;
> That else might starve, or seeke abroade their
> Who now live well, and go full brave and trim,
> And who may boast they are with paper fed."

Sir John Spielman was knighted by Queen Elizabeth. He is buried in the church at Dartford, beneath a sumptuous tomb, which, in 1858, was restored by the "Legal Society of Paper-makers," the funds being subscribed by the trade in different parts of England, especially in the county of Kent. But we find a paper-mill mentioned by Shakspere, who, in his play of Henry VI, the plot of which appears laid at least a century previously, refers to a paper-mill. In fact, he introduces it as an additional weight to the charges which Jack Cade is made to bring against Lord Say, "Thou has most traitorously corrupted," says he, "the youth of the realm in erecting a grammar school; and whereas, before, our forefathers had no other books but the score and the tally, thou hast caused printing to be used, and, contrary to the king, his crown and dignity, thou hast built a paper-mill." Mr. Herring tells us that North Newton mill, near Banbury, in Oxfordshire (then the property of Lord Say and Sele,) had been set down as the first paper-mill erected in this country, and that referred to by Shakespere. Upon hearing this, Mr. Herring communicated with Lord Say and Sele, as to the plausibility of the supposition, when his lordship at once terminated the probability of this mill taking the precedence, even of Sir John Spielman's by informing him that the first nobleman succeeding to that title who had property in Oxfordshire, which he acquired by marriage, was the son of the first Lord Say, to whom Shakspere makes reference: "Sir Richard Baker (who died in 1607) has an entry in his "Chronicle," that in the reign of James I, "coarse paper, commonly called white brown paper, was first made in England, specially in Surrey, and about Windsor." The making of paper in England had, however, made little progress even so late as 1662, when Fuller complained that the manufacture was not sufficiently encouraged, "considering the vast sums expended in our land for paper out of Italy, France, and Germany, which might be lessened were it made in our nation." But, in 1690, an Act was passed to encourage the making of paper for writing and printing in England, the manufacturers being taught by French refugees. Thomas Watson, a stationer, by the introduction of foreign improvements, in 1713, gave a great impulse to the manufacture.

Paper continued to be made by hand until early in the present century, when the Fourdriniers completed their self-acting machinery, which imitates and improves the hand-process, and makes paper of any size or length with a rapidity which leaves the other mode at an immeasurable distance. The invention was perfected at Tewin Water, in Hertfordshire, at a cost of 60,000*l.* Their patent right was, however, invaded, and they lost a considerable sum of money due to them from the imperial treasury of Russia; though, to enforce his claim, Henry Fourdrinier, at the age of seventy-five, with his daughter, made a special journey to St. Petersburgh. The Fourdriniers then petitioned the British government, the revenue having benefited half a million a year by their inventions, when their claim was inadequately recognized by a parliamentary vote of 7,000*l.* It was then resolved to purchase, by the subscription of the paper-makers, annuities for the surviving patentee and his two daughters; ere this was done the father died, in his eighty-ninth year; but his two surviving daughters receive a small pension from the Crown. A sheet of paper nearly three miles long and four feet wide was made at Whitehall mills, Derbyshire, in 1830. Down to the beginning of the eighteenth century, cotton, flax, and hemp were the only materials, except rags, used in the manufacture of paper. Cotton and linen rags are now chiefly used for this purpose, because they are more easily and cheaply converted into pulp, and furnish a better article when finished than other fibrous materials. But the comparatively high price of rags, and the enormous demand for cheap paper, have compelled manufacturers to turn their attention to other sources of supply; and for a century and a half, past efforts have been unceasingly made to manufacture paper from the fibres of different species of vegetable substances. "The Exchange," for 1832, remarks regarding the attempts made to obtain paper from other materials than rags, that many thousands of inventors and manufacturers, many years of incessant labour, and millions of pounds sterling, have been expended in experiments upon wood, straw, and similar substances; but the problem of obtaining good paper, at a moderate cost, from raw vegetable fibre, is yet only partially solved. Neither straw, nor wood, nor any similar material, has superseded linen and cotton rags. The raw fibre of papyrus was used for thirteen centuries; the reign of rags has now lasted twelve and a half centuries; and it appears probable that the time for returning again to some cheap vegetable fibre is fast approaching. Probably the most practical of the above substitutes was straw, the first useful paper from which was made in 1800, and used in a book printed by Burton, of London, a copy of which was presented by the Marquis of Salisbury to king George III. The work is entitled "An Historical Account of Substances used in Paper-making." Cobbett, in 1828, employed, experimentally, some paper made from the husks of Indian corn, but with little success. The substitution of straw in 1800 was regarded of great national importance, and highly deserving support. It was neglected for many years, but straw is now extensively used in paper-making in England, and on the Continent of Europe. New Zealand flax (Phormium tenax) has lately been tried, and found admirably adapted for making paper, which it is declared is superior both in strength and capability of finish, to the paper made from most of the rags now used.

Paper-making by machinery may be thus briefly described. The pulp is first made to flow from the vat upon a wire frame, or sifter, which moves rapidly up and down. Having passed through the sifter, the pulp flows over a ledge in a regular and even stream, and is received upon an endless web of wire-gauze, which moves forward with a shaking motion from side to side, assisting to spread pulp evenly, and allow the water to pass through the wire, by which means the pulp solidifies as it advances. Before the pulp quits the plane of the wire, it is pressed by a roller covered with felt, and is then taken up by an endless web of felt, which, gradually moving forward, absorbs a further portion of the moisture. It is again pressed between rollers, and after being passed over cylinders heated by steam, it is cut by machinery into sheets. Thus in two or three minutes the pulp, which is introduced upon the web at one extremity of the machine, is delivered at the other in the state of perfect paper. By this process twenty-five square feet can be made in one minute; or 15,000 square feet in a working day of ten hours. The average value of paper manufactured in Great Britain may be set down at 4,000,000*l.*

The subject of water-marks assists in elucidating the history of paper-making, and the mark of the manufacturer has often been found of use in detecting literary forgeries, and frauds in the falsification of accounts. One of the oldest water-marks in existence is an open hand, whose middle finger is connected by a straight line or stem with a star. This appears on a sheet of paper of the manufacture of Flanders, which at that time supplied all the paper needed for the correspondence of England. Upon a sheet of paper is written a letter, preserved in one the museums at Venice, which was addresse to Francesco Capello, by king Henry VI from "our manor of Woodstock," on the 20t of July 1502. Mr. Herring, however, states its introduction at 1530, adding that it gave the name to "Hand" paper. Note paper once bore a tankard, but it has now the royal arms in a shield without motto or supporters. Post is marked with a postman's horn, in a shield with a crown. Copy has a fleur-de-lys only. Demy and several larger sorts, a fleur-de-lys in a crowned shield. Royal, a shield with a bend sinister, and a fleur-de-lys for crest. Mr. Herring traces the term cap to the jockey-cap, or something like it, in use when the first edition of Shakspeare was printed. The date given to Foolscap in the "Archæologia," xii, is 1661, and the traditional story related of its origin is that, when Charles I, found his revenues short, he granted certain privileges, amounting to monopolies; and among these was the manufacture of paper, the exclusive right of which was sold to certain parties, who grew rich and enriched the Government at the expense of those who were obliged to use paper. At this time all English paper bore in water-marks the Royal arms. The Parliament under Cromwell, made jests of this law in every conceivable manner; and, among other indignities to the memory of Charles, it was ordered that the Royal arms be removed from the paper, and the fool's cap and bells be substituted. These were also removed when the Rump Parliament was prorogued; but paper of the size of the Parliament's journals still bears the name of "foolscap."

Mr. Herring relates that the practice of blueing the paper-pulp had its origin in an accidental circumstance. About the year 1790, at a paper-mill belonging to Mr. Buttenshaw, his wife was superintending the washing of some fine linen, when accidentally she dropped her bag of powder-blue into some pulp in a forward state of preparation, with which the blue rapidly incorporated. On Mr. Buttenshaw's inquiring what had imparted the peculiar colour to the pulp, his wife, presuming that no great damage was done, took courage, and confessed the accident, for which she was afterwards rewarded by her husband, who, by introducing to the London market the improved blue cake obtained for it an advance of four shillings per bundle.

The Chinese affirm that eighteen centuries ago they had discovered the secret and means of manufacturing paper; before that invention, they used to inscribe written characters on strips of bamboo, or sheets of metal, using a style, or pen of iron for the purpose of marking the characters; and this, they assert, had been the practice of their nation from the most remote ages. Before the art of paper-making had arrived at perfection, the Chinese adopted the practice of writing upon white silk, or cotton, with a bamboo pen; this was found a more convenient method than writing either on strips of bamboo or sheets of metal, as the silk or linen could be folded into a small compass. Paper is manufactured in China from various materials, each province or district having its own peculiar manufacture, in Fokein province, paper is made from young soft bamboo, in the province of Che-keang, it is made from paddy straw, in the province of Kiang-nan, it is made from the refuse silk, and this paper is very fine and delicate, being highly valued for writing complimentary inscriptions upon. To size the paper and render it fit for ink, they make a glue, somewhat similar to isinglass, from fish bones, these they chop up very small, and soak the mass in water which is continually renewed: when all oily impurity is extracted they add a due proportion of alum, which has been dissolved. Over the vessel in which this mixture is, a rod is laid, a cleft-stick is used for holding the sheet of paper during the process of dipping; as soon as the paper has been sufficiently saturated, it is withdrawn, by gently rolling it round the stick which has been laid over the vessel; the sheet of paper is afterwards hung to dry either near a furnace, as before described, or in the sun. The Chinese are generally acknowledged to have been the first to have made paper from pulp. The Egyptian paper, or Papyrus, was made by gumming slices of vegetable tissue together under pressure, and what is called the Rice paper of China consists only of thin slices of the cellular tissue of a plant. The Arabs are supposed to have learnt the art in the eighth century from the Chinese, but much more probably from the hindoos, as they translated many of their works and adopted much of their science. The Arabs are further said to have introduced the art of paper-making into Spain in the ninth or tenth century. Paper was first made at Nuremburg in the year 1390, but in England not till the year 1450. There is no doubt, however, that the manufacture of paper from pulp has been known in China from very early times: it is said for at least 2000 years. They employ a vast variety of fibrous substances for this manufacture, and apply paper to a variety of uses little thought of in other countries. They make up an infinite variety of kinds, from the coarse, heavy, half-inch thick touch-paper, for retaining a slow, enduring fire, to the beautiful so-called India paper suited for the finest proof engravings. In the tea chests there is a lavish use of many thicknesses of paper. If a hut or boat is leaky over-head, the bed is protected by a large sheet of oiled paper. If a shopkeeper want to tie up a parcel. he seizes a strip of tough paper, and by rolling it on his thigh at once converts it into a strong pack-thread, and even a torn sail is at times patched with tough paper. In China it is the cheapest of materials in daily use, and the manufactures are very numerous. They make it of rice straw, of young bamboos, of different fibres, and of the bark of the paper mulberry; showing that the inventors of the art make use chiefly of unwoven fibres, though they also employ refuse cloth and silk, &c. British India, though hardly ever mentioned in histories of the art, is a country where considerable quantities of paper are made, though not generally of a good quality, as the thick ink in use does not so much require this. There are small manufactories of it in most part of the country, and to a considerable extent at such places as Ahmedabad, Lucknow, Aurungabad, &c. Jute, Sunn, Ambaree, Moorva, and old sacks and fishing nets are also employed, though in general the natives of India, prefer the Sunn fibre. The Himalayan process with the inner bark of the paper plant very much resembles that of the Chinese with the paper mulberry. It is probable therefore that the art was introduced from that country into the Himalaya, and not from India, into which it had probably been carried at a very early period, and from thence learnt by the Arabs, who would hardly else have used cotton, an Indian product. The hindoos themselves, according to Professor Wilson, still used, about the beginning of the Christian era, or as late as the age of their Dramas, the inner bark of the Bhurja or Birch (Betula bhojputtur) for writing on. In the southern regions of India he leaves of the Palmyra and of the Talipat are well-known to have been long used, as they still are, for writing on with a style. But the manufacture of paper from pulp has long been established in India, and before the Arabs began to make translations from the Sanscrit, at the same time that they did so from Greek writers. Dr. Buchanan, in his survey of the lower provinces of the Bengal Presidency, has given an account of the manufacture of paper from Pat or Jute (Corchorus olitorius) at Dinagepore, and in Behar, &c., from Sunn (Crotalaria juncea). It is also so made in other parts of the country, as well as from Hibiscus fibre. And there can be no difficulty in using the other numerous fibrous materials which India produces in such vast variety. It is objected by manufacturers of paper that pulp from unwoven fibres does not draw through the present machinery so well as that made from rags. A modification of machinery would remedy this. But it is probable that if the half-stuff were made from the clean bark without first separating the fibres, these might probably be so entangled as to answer some of the effects of the weaving. As rags have to be collected, cut, cleaned, and bleached, Dr. Royle thinks that the primitive method of using the bark of suitable plants and trees will afford both a cheap and an effectual substitute. Bengal and the east coast of the Bay of Bengal, as well as Malabar on the west coast of India, are the places where the growth of suitable materials, from the warmth and moisture of the climate, is most abundant, and the conveyance by sea is at the same time most easy. In Arracan the price of bast, even made into rope, is but one rupee per maund, and Mr. Henley observed that it is to India we must look for extensive and cheap supplies, for it is there alone we find the necessary conditions of very low priced and intelligent labour, with an abundance of elementary suitable materials; and that as articles of small price are particularly sensitive of charges, such as of freight, &c., it is only by large operations that an average of low charges can be accomplished. Suitable materials being abundant, he proposed that it should be reduced to the state of half-stuff by the aid of the Dhenkee, found in almost every house in Bengal, being used for husking rice, the preparation of tobacco, of drugs, stuffs, and brick dust. Dr. Lyon Playfair, observes that the price of 2*d.* to 2½*d.* per lb. for a partially prepared pulp, is by most makers considered to be too high, and that materials should be looked for at 1*d.* to 1½*d.* per lb. roughly prepared pulp; but if bleached or in as far an advanced state with regard to colour and texture as cotton or linen rag, then 2½*d.* to 4*d.* per lb. might be obtained. The prices of rags range from 7*s.* to 34*s.* per cwt. 77,909 tons weight of paper were produced in 1853 in Great Britain. Paper is, in Europe, made chiefly from linen or cotton rags, but also from the refuse and sweepings of cotton and flax-mills, as also of the coverings of the cotton bales and of worn-out ropes. Paper is also made from the stems and leaves of many grasses, as from rice straw, and from the bamboo by the Chinese, and of late from common straw in Great Britain and even from wood shavings. The fibrous part of many Lily and Aloe-leaved plants have been converted into excellent paper in India, where the fibres of Tiliaceous, Malvaceous, and Leguminous plants are employed for the same purpose: as in the Himalaya, one of the Lace-bark tribe is similarly employed, and in China one of the Mulberry tribe, and the Nettle in Holland. Plants belonging to the same families are capable of yielding a very abundant and never-failing supply of sufficiently cheap and very excellent material for paper-making of all kinds. Some may be used without any further process of bleaching, but all are capable of having any colour they may possess destroyed by chemical means not excepting even the jute canvas or gunny bagging because specimens of jute of a beautiful silk, white, both plain and manufactured into fabrics for furniture, &c., &c., were shown by the late Colonel Calvert at the East India House. As the Chinese make paper of rice straw, and of the young shoots of the bamboo, while the hindoos make ropes of Saccharum munja and S. sara strong enough for their Persian wheels as well as for towing lines, it is evident that these, and probably many others, contain a sufficiency of fibrous material for paper-making. The cultivated cereals cannot well be turned to much account, for their straw forms the chief food for cattle; but as Southern Asia abounds with grass jungles, which are in the autumn of every year burnt down in order that the young blades may spring up and afford pasturage for cattle, it is evident that there are many situations where a sufficiency might be cut down before it has become perfectly dried up, and converted into half-stuff for paper-makers and the refuse of the sugar-cane might be similarly employed. Of the sedges in India, some are employed for making ropes, as the Bhabhur or Eriophorum cannabinum is for making rope-bridges for crossing some of the hill torrents, and the Cyperus tegetum, is used in India for mat-making. As these plants as well as rushes grow together in large quantities, it would be quite possible in many places to turn them to profitable account. Many parts of the world abound in the Lily and Aloe-leaved plants which have been alluded to above, and of which the leaves contain much easily separable fibrous materials. These belonging to the genera Agave, Aloe, Yucca, Sanseviera, Bromelia, and others, all of which abound in white-coloured fibres, applicable to various useful purposes, and of which the tow might be used for paper-making, and considerable supplies obtained. Paper used to be made from the Sanseviera in Trichinopoly, some has been made at Madras, of the unbleached Agave alone, as also mixed with old gunny bags. And recently also, from the leaf of the Pandanus. The Arrow-root and Ginger tribes, containing such plants as the Arrow-root, Tous les Mois, Tikkur, &c., Ginger, Turmeric, Cardamom, &c., all have annual stems and leaves, which are the refuse of the present culture, and might yield an abundant supply of half-stuff. Among cultivated plants there is probably no one so well calculated to yield a large supply of material fit for making paper of almost every quality as the plantain (Musa paradisiaca) so extensively cultivated in all tropical countries on account of its fruit, and of which the fibre-yielding stems are applied to no useful purpose. The plant is common near the poorest huts and in the largest gardens, and is considered to yield a large quantity of nutritious matter. Its fruit, in many places, supplying the place of bread, and in composition and nutritious value approaching most nearly to the potato, may, if produced in too large a quantity, be preserved in the same way as figs, or the meal may be separated, as it resembles rice most nearly in composition. Each rootstock throws up from six to eight stems, each of which must be yearly cut down, and will yield from three to four pounds of the fibre fit for textile fabrics, for rope-making, or for the manufacture of paper. As the fruit pays the expenses of the culture, this fibre could be afforded at a cheap rate, as from the nature of the plant, consisting almost only of water and fibre, the latter might easily be separated. It could be afforded for £9, 13*s*., 4*d*. per ton. Some very useful and tough kinds of paper have been made in India from the fibres of the plantain, and some of finer quality from the same material both in France and in England. All the indegenous plants are devoid of true bark, and simple pressure between rollers, and washing, would appear to be sufficient for the separation of the fibres of most of them. But true bark, of plants which possess it, requires to be stripped off, usually after the stems have been steeped in water, before their respective fibres can be separated from the rest of the vegetable matter. The flax plant abounds in fibre, but this is too valuable to be converted into paper. India, however, grows immense quantities of the plant, on account of its seed (linseed) which is both consumed in the country and exported in enormous quantities. But nowhere is the fibre turned to any account. This is no doubt owing to the climate not favouring the formation of soft and flexible fibre; but the short fibre which is formed, and might be easily separated, would be valuable for paper-making, and might add to the agriculturists' profits without much additional outlay. So some Malvaceous plants are cultivated on account of their fruits being used as articles of diet, as Okhro (Hibiscus esculentus), in the West Indies and in the United States. The Ram turai of India is closely allied to it, and is cultivated for the same purpose. Both plants abound in fine flexible fibre, which is not, but might be easily separated, and afford a considerable supply, especially if the cultivation was extended in the neighbourhood of towns. Paper is made from a species of Hibiscus in Japan, and H. sabdariffa is cultivated in India on account of its jelly-yielding calices. Numerous other species of Hibiscus, of Sida, and of other genera of this family, abound in warm climates; several are cultivated in different countries, as Hibiscus cannabinus in India, and Sida tiliæfolia in China, might be more so. They grow quickly, and to a large size, and abound in fibrous material of a fine, soft, flexible quality: on which account they might be cultivated with profit, and the tow be useful to the paper-maker. The stems of cotton plants would also yield a supply. The Tiliaceæ are likewise remarkable for the abundance and fine quality of fibre which many of them contain. Tilia europea produces the enormous quantities of bast exported from Russia. Corchorus olitorius and C. capsularis, the leaves of both of which are used as a vegetable, yield the jute of commerce, as well as the gunny cloth and bags so largely used and exported even to America. Several species of Grewia abound in the jungles of Southern Asia, and most would yield a valuable fibre, as some of them already do, for commercial purposes. The Indian basts are cheap, and abound in fibre. Some of the Leguminosæ also abound in valuable fibre. Crotalaria juncea yields the common Sunn of India. Sesbania aculeata or cannabina yields the Danchi of Bengal; while Bauhinia racemosa is used for making rope bridges in the Himalayas. The fibre of Parkinsonia aculeata was sent to the London Exhibition of 1851, expressly as being fitted for paper-making, but though colourless, it wants strength. Some paper is made from gunny bags in India. Several plants produce large quantities of a silky cotton-like substance, not applied to any use, such as the silk cotton tree, the mudar of India, several species of Saccharum, &c., which might be collected where labour is cheap, and would no doubt be well fitted for conversion into pulp for paper. The Dogbanes and Asclepiads, also deserve attention. The Nepal paper plant, Daphne cannabina has been mentioned above. Among the Nettle, the Mulberry, and Breadfruit tribes of plants, there are many which seem well calculated to yield material for paper-making. The Chinese, we know, employ the inner bark of Morus, now Broussonetia papyrifera. This, no doubt, produces some of the Chinese paper, which is remarkable for toughness. The refuse cuttings of the bush cultivation of the mulberry in Bengal might be turned to profitable account. The barks of many stinging (Urtica,) and of stingless (Boehmeria) Nettles, abound in fibres remarkable for strength; the tow of these might be converted into paper-stuff, if not required for mixing with wool, as might also the bark cloths. The weeds of tropical countries, which grow in such luxuriance, and among which are species of Sida, of Grewia, of Corchorus, of Triumfetta and of many other genera, might all yield an abundance of fibrous material. Some simple machinery for separating the fibre would greatly facilitate operations. A species of paper was manufactured at a remote period in Egypt, from the papyrus or paper-reed, a plant growing freely on the banks of the Nile. A manufacture of paper from the bark of trees and other substances existed also in China, from a very early date; but among the nations of antiquity, before the introduction of paper, such substitutes were used as lead, copper, brass, bricks, and stone, on which national edicts and records were written or engraved; or tablets of wood, wax, and ivory, skins of fishes, intestines of serpents, backs of tortoises, and the inner bark of trees for ordinary purposes. Indeed there are but few sorts of plants that have not been used for making paper and books, and hence have arisen the terms biblos, codex, liber, folium, tabula, tillura, philura, scheda, &c., which express the several parts of the plant that were written on. The use of these was discontinued in Europe after the invention of papyrus and parchment, but they are still used in other parts of the world. The Egyptian papyrus was made by laying thin plates of bark, taken from the middle of the paper-rush, side by side, but close together, on a hard smooth table: other pieces of the same size and thinness were then laid across the first at right angles; the whole was moistened with the water of the Nile, which was supposed to have some agglutinating property, (though this probably resided in the plant itself,) and pressure was then applied for a certain number of hours. Thus a sheet of paper was formed which required no other finishing than rubbing and polishing with a smooth stone, or with a solid glass hemisphere, and drying in the sun. This very simple process was rather a preparation of a natural paper, than a manufacture—properly so called. The process adopted by the Chinese comes more legitimately under that head. The small branches of the paper mulberry tree, are cut by them in lengths of about 3 feet, and boiled in an alkaline ley for the sake of loosening the inner rind or bark, which is then peeled off, and dried for use. When a sufficient quantity has been thus laid up, it is again softened in water for 3 or 4 days, and the outer parts are scraped off as useless; the rest is boiled in clear ley, which is kept strongly agitated all the time, until the bark has become tender, and separates into distinct fibres. It is then placed in a pan or sieve, and washed in a running stream, being at the same time worked with the hands, until it becomes a delicate and soft pulp. For the finer sorts of paper the pulp receives a second washing in a linen bag; it is then spread out on a smooth table, and beaten with a wooden mallet, until it is extremely fine. Thus prepared, it is put into a tub with a slimy infusion of rice, and a root called oreni; then it is stirred until the ingredients are properly blended: it is next removed to a large vessel to admit of moulds being dipped into it. These moulds are made of bulrushes cut into narrow strips, and mounted in a frame; as the paper is moulded, the sheets are placed covered with a double mat. The sheets are laid one on the other, with a small piece of reed between; and this, standing out a little way, serves afterwards to lift them up leaf by leaf. Every heap is covered with a board and weights to press out the water; on the following day, the sheets are lifted singly by means of the projecting reeds, and are placed on a plank to be dried in the sun. This paper is so delicate, that only one side can be written on, but the Chinese sometimes double the sheets, and glue them together so neatly, that they appear to be a single leaf. This manufacture of the Chinese extended also to the making of sheets of paper from old rags, silk, hemp and cotton, as early as the second century of the Christian era, and is supposed to have been the source whence the Arabs obtained their knowledge of paper-making. The latter people first introduced the valuable art of making paper from cotton into Europe, in the earlier half of the twelfth century, and established a paper manufactory in Spain. In 1150, the paper of Xativa, an ancient city of Valencia, had become famous, and was exported to the East and West. Notwithstanding its fame, this paper was of a coarse and inferior quality, so long as its manufacture was confined solely to the Arabs, in consequence of their employing only mortars, and hand or horse mills for reducing the cotton to a pulp; but when some Christian labourers obtained the management of the mills of Valencia and Toledo, the different processes of the manufacture were greatly improved. Cotton paper became general at the close of the twelfth and beginning of the thirteenth centuries, but in the fourteenth century, it was almost entirely superseded by paper made of hemp and linen rags. The paper made of cotton was found not to possess sufficient strength or solidity for many purposes; a very strong paper was therefore made of the above substances, not weakened by bleaching, according to the present mode, which, by removing the natural gum, impairs the strength of the vegetable fibre. Some of these old papers, having been well sized with gelatine, are said to possess their original qualities even to this day. The manufacture of paper from linen rags became general in France, Italy, and Spain in the fourteenth century; the first German paper-mill was established at Nuremberg in 1390. English manuscripts on linen paper, date as early as 1340; but it is believed that the manufacture did not exist in England until the end of the fifteenth century, when the Bartolomæus of Wynkyndde Worde appeared (1496,) in which it is stated that paper of a superior kind was made for that work by John Tate, jun., at his mills in Stevenage, Hertfordshire. In 1770 the manufacture of fine paper was established at Maidstone, in Kent, by a celebrated maker, J. Whatman, who had worked as journeyman in some of the principal paper-mills on the Continent. Not long before this, wove moulds had been invented by Baskerville to obviate the usual roughness of laid paper, and these, attracting attention in France, led to the improvements which characterised the vellum paper of that period. Holland, too, contributed its share to the advancement of this manufacture, by inventing cylinders with steel blades, for tearing the rags, and thus facilitating their conversion into pulp, which by the old method of stampers only, was a very slow and defective process. In 1799 the first attempt to produce paper in an endless web was made in France by a workman in the employ of M. Didot. The invention was brought to England by M. Didot in 1801, and made the subject of patents, which in 1804 were assigned to the Messrs. Fourdrinier. Mr. Bryan Donkin the engineer, carried out the desired plans, and produced, after intense application, a self-acting machine or working model, on an improved plan, of which he afterwards constructed many others for home use and for exportation, which were perfectly successful in the manufacture of continuous paper. In the year 1851 Messrs. Donkin and Co. were constructing their 191st machine. In 1809 Mr. Dickinson, the celebrated paper-maker, invented another method of making endless paper. The Fourdrinier machines have been greatly improved by the inventions of Mr. T. B. Crompton, Mr. Brown, of Esk Mills, near Edinburgh, Mr. Ibotson, of Poyle, and other skilful manufacturers, British and foreign; so that Great Britain which was long dependent for its supplies on foreign countries, is not only able to produce an abundant supply for home use, but to export paper to a considerable amount. At one time there were serious apprehensions that the supply of linen rags would fail, and various researches were entered upon by ingenious individuals to to find substitutes. A book written in German by M. Schaffers so long ago as 1772, [Sammtliche Papierversuche von Jacob Christian Schaffers, Prediger zu Regenburg, Regensburg, 1772,] contains 60 specimens of paper made of different materials. This ingenious person made paper from the bark of the willow, beech, aspen, hawthorn, lime and mulberry; from the down of the asclepias, the catkins of black poplar, and the tendrils of the vine; from the stalks of nettle, mugwort, dyer's weed, thistle, bryony, burdock, clematis, willow-herb, and lily; from cabbage-stalks, fir-cones, moss, potatoes, wood-shavings, and saw-dust. Paper has been likewise made from straw, rice, hop-bine, liquorice-root, the stalks of the mallow, and the husks of Indian-corn. The fear of a failure of linen rags, and the consequent necessity for these experiments, were obviated by the discovery of chlorine. This powerful bleaching agent will restore many varieties of coloured linen to its original whiteness, as well as discoloured papers and manuscripts, so that the same substances may be used over and over again as a material for paper. It is amongst the white fibred plants, the Moorva, the Aloe, and the Agave, the pine-apple and the plantain of India, that boundless supplies of material may be found not only for paper-making, but for the finest as well as the coarsest textile fabrics. The oakum or two of these plants may be converted into paper and that made from the plantain is remarkable for fineness as well as for toughness. The Bahadur khani and Madhagari paper of Dowlatabad are famed.—*Once a Week*; *Tomlinson*; *Bombay Quarterly Review, p.* 265 *of No.* iv *of* 1855; *Chinese Materia Medica and Natural History by F. P. Smith, p.* 166; *Sirr's China and the Chinese, Vol.* ii, *pp.* 1-4; *Rev. Joseph Hunter,* "*Archæologia,*" xxxvii; *Notes and Queries, Second Series, No.* 13; *John Timbs Curiosities of Science*; *Dr. Forbes Royle, East India House, in Memorandum of May* 3, 1854; *Oliphant*; *Mason*; *American Expedition to Japan, p.* 64; *Dr. Riddell's Gardening*; *English Mechanic*; *Dr. Alexander Hunter in Madras Exhibition Juries' Reports*; *Catalogue of the Exhibition of* 1862; *Royle's Fibrous Plants of India, p.* 311; *O'Shaughnessy's Bengal Pharmacopœia, pp.* 279-557; *Mr. B. Hodgson in 'Journal Bengal Asiatic Society* 1832, *Vol.* i, *p.* 8; *Gleanings in Science, Vol.* i, *p.* 210; *Royle, Arts, &c., of India, p.* 486; *Hooker, Him. Jour., Vol.* ii, *p.* ; *Chinese Materia Medica, Natural History, F. P. Smith*; *The Hon'ble Morrison's Compendious History*; *Fortune, a Res. among the Chinese, p.* 333.

PAPER PLANTS, the chief of these are,

Daphne cannabina.
Abelmoschus esculentus.
Betula bhojputra.
Cannabis sativa.
Daphne cannabina.
„ oleoides.
Desmodium argenteum.
Grewia oppositifolia.
Bambusa arundinacea.
Broussonetia papyrifera.
Hydrangea, *sp.*
Oxytropis, *sp.*
Populus ciliata.
Sterculia villosa.
Wikstræmia solicifolia.

In consequence of the increasing scarcity of the materials for the manufacture of paper in Great Britain, a correspondence took place between the Treasury and the Board of Trade, which resulted in a memorandum, drawn up by Mr. J. Forbes Royle, on the materials for paper-making procurable from India. After mentioning the several matters from which paper is made in Europe—such as linen cotton rags, refuse and sweepings of cotton a flax-mills, the covering of cotton bales an worn-out ropes, and also the stems and leav of many grasses, rice, straw, the bamboo us by the Chinese, and common straw late used in Great Britain Mr. Royle observes th the fibrous part of many lily and aloe-leav plants have been converted into excellent pap in India, where the fibres of tiliaceous, malv ceous, and leguminous plants are employ for the same purpose. As in the Himalay one of the lace-bark tribe is similarly employe and in China one of the mulberry tribe, an the nettle in Holland, plants belonging to th same families as the above abound in India an other warm countries, and are capable of yiel ing a very abundant and never-failing supp of sufficiently cheap and very excellent mat rials for paper-making of all kinds. Som may be used without any further process bleaching, but all are capable of having an colour they may possess destroyed by chemic means, and he would not, except the jute canv or gunny bagging, because he had seen sp cimens of jute of a beautiful silky white, bo plain and manufactured into fabrics for furn ture, &c., as shown by the late Colonel Calve at the East India House. As the Chinese mak paper of rice straw, and of the young shoots the bamboo, while the hindoos make ropes different grasses (such as Saccharum mun and Saccharum sara), strong enough for the Persian wheels as well as for towing lines, it evident that these and probably many othe contain a sufficiency of fibrous material f paper-making.

Of the sedges also some are, in India, em ployed for making ropes, as the Bhabhur Eriophorum cannabinum, for making rop bridges for crossing some of the hill torrent The papyrus was used by the Egyptians f making their paper, by cutting the materi into thin slices and making them adhe together under pressure. But others of th genus, as the Cyperus legetum, are used i India for mat-making, and as these plants well as rushes grow together in large quantitie it would be quite possible in many places turn them to profitable account.

Among cultivated plants there is probabl nothing so well calculated to yield a large sup ply of material fit for making paper of almo every quality as the plantain (Musa paradisia ca) so extensively cultivated in all tropica countries on account of its fruit, of which th fibre-yielding stems are applied to no usefu purpose.

The flax plant abounds in fibre, but this i too valuable to be converted into paper. Indi however, grows immense quantities of the plan on account of its seed (linseed), which is both consumed in the country and exported in enormous quantities, but nowhere is the fibre turned to any account. This is, no doubt, owing to the climate not favouring the formation of soft and flexible fibre; but the short fibre which is formed, and might be easily separated, would be valuable for paper-making, and might add to the agriculturists' profits without much additional outlay.

So some malvaceous plants are cultivated on account of their fruits being used as articles of diet, as Okhro (Hibiscus esculentus) of the West Indies and of the United States. The Ram-turai of India is closely allied to it, and is cultivated for the same purposes. Both plants abound in fine flexible fibre, which is not, but might be easily, separated, and afford a considerable supply, especially if the cultivation was extended in the neighbourhood of towns. Paper is made from a species of hibiscus in Japan, and Hibiscus sabdariffa is cultivated in India on account of its jelly-yielding calyces. Numerous other species of hibiscus, of Sida, and of other genera of this family, abound in warm climates; several are cultivated in different countries, as Hibiscus cannabinus in India, and Sida titiæfolia in China; more might be so. They grow quickly, and to a large size, and abound in fibrous material of a fine soft flexible quality, on which account they might be cultivated with profit, and the tow be useful to the paper-maker.

Several species of Grewia yield edible fruit, on which account they are cultivated. Others abound in the jungles, and most would yield a valuable fibre, as some of them already do, for commercial purposes. Some paper is made from gunny bags. Some of the leguminosæ also abound in valuable fibre. Crotalaria juncea yields the common sunn of India. Sesbania cannabina yields the dhunchi of Bengal; while Bauhinia racemosa is used for making rope-bridges in the Himalayas. The fibre of Parkinsonia aculeata was sent to the Exhibition in 1851 expressly as being fitted for paper-making but though colourless it wants strength.

Several plants produce large quantities of a silky cotton-like substance, not applied to any use, such as the silk-cotton tree, the mudar of India, and several species of saccharum, which might be collected where labour is cheap, and would no doubt be well fitted for conversion into pulp for paper.

Among the nettle, the mulberry, and bread-fruit tribes of plants there are many which seem well calculated to yield material for paper-making. The Chinese employ the inner bark of morus, now Broussonetia papyrifera. This, no doubt, produces some of the Chinese paper, which is remarkable for toughness. The refuse cuttings of the bush cultivation of the mulberry in Bengal might be turned to profitable account. The barks of many stinging (Urtica), and of stingless (Boehmeria), nettles abound in fibres remarkable for strength; the tow of these might be converted into paper stuff if not required for mixing with wool.

The weeds of tropical countries which grow in such luxuriance, and among which are species of Sida, of Grewia, of Corchorus, of Triumfetta, and of many other genera, might all yield an abundance of fibrous material. Some simple machinery for separating the fibre would greatly facilitate operations.

Mulberry bark paper, from the bark of the Broussonetia papyrifera is used in China and Japan for the preparation of a paper. The inner bark is employed, the young branches being boiled in alkaline water to free them of epidermis, which is scraped off. It is then boiled to the consistence of a paste, which is moulded or fabricated as the Daphne. In Japan paper made of the paper mulberry bark, is used to form the walls of rooms, and the fans in universal use. It is used as wrapping paper and forms the string to tie it. In square pieces, it is used as pocket handkerchiefs, and pressed together and lacquered, is worn as hats. This paper is of every consistency, but always tough. The youngest branches form the whitest paper. The process consists in boiling down the bark and straining it through a sieve when it is mixed with rice and the water is gradually drawn off. The pale-like substance is then spread carefully into sheets pressed between boards, and laid down in the sun to harden and dry. It is impossible to tear this paper against the grain. From this plant the Japanese make abundance of paper as well as for writing, and printing, as for tapestry, handkerchiefs, packing cloths, for goods, &c. It is of different qualities, and some of it is as soft and flexible as cotton cloth. Indeed, that used for handkerchiefs might be mistaken for cloth, so far as toughness and flexibility are concerned. In December, after the tree has shed its leaves, they cut off the branches about three feet in length and tie them up in bundles. They are then boiled in a ley of ashes in a covered kettle, till the bark is so shrunk that half an inch of the wood may be seen projecting at either end of the branch. When they have become cool, the bark is stripped off and soaked in water three or four hours until it become soft, when the fine black skin is scraped off with a knife. The coarse bark is then separated from the fine. That of the new branches makes the finest paper. The bark is then boiled again in fresh ley, continually stirred with a stick, and fresh water from time to time is added. It is then put in a sieve and taken to a brook, and here the bark is incessantly stirred until it becomes a fine pulp. It is then thrown into water and separates in the form of meal. This is put into a small vessel with a decoction of rice and a species of Hibiscus, and stirred until it has attained a tolerable consistence. It is then poured into a large vessel, from whence it is taken out and put in the form of sheets, on mats or layers of grass straw, these sheets are laid one upon another with straw between, and pressed to force the water out. After this, they are spread upon boards in the sun, dried, cut, and gathered into bundles for sale. This paper will better endure folding, and last longer than that made in Europe. The paper mulberry tree is called in Chinse Ch'u, also Kan-sang, also Kan-sing, and is common both in China and Japan. Its globular red fruit is much eaten by children. The wood is used for making vessels of various kinds. The seeds are small, round, of a bright red colour, and much broken up, as met with in the shops. They are mucilaginous to the taste, and are believed to be tonic and invigorating. The leaves and branches are lenitive and diuretic, and may be used to make a ptisan in gonorrhæa.

Daphne paper.—The Burmese make a coarse paper, from the bark of a large creeper found in the forests. The paper is thick, like pasteboard, and the surface is blackened, and written upon with a steatite pencil. Dr. Mason had never seen the plant in flower, but probably, he deemed it, a species of Daphne.

Chinese paper.—The Chinese affirm that eighteen centuries ago they had discovered the secret and means of manufacturing paper. Before that invention they used to inscribe written characters on strips of bamboo or sheets of metal, using a style, or pen of iron for the purpose of making the characters, and this they assert, had been the practice of their nation from the most remote ages. Before the art of paper-making had arrived at perfection, the Chinese adopted the practice of writing upon white silk, or cotton, with a bamboo pen; this was found a more convenient method than writing either on strips of bamboo or sheets. In China paper is manufactured from various materials, each province or district has its own peculiar manufacture. In Fo-kein province, it is made from young soft bamboo; in the province of Che keang, it is made from paddy straw; in the province of Kiang-Nan, it is made from the refuse silk, and this paper is very fine and delicate, being highly valued for writing complimentary inscriptions upon. To size the paper and render it fit for ink, they make a glue, somewhat similar to isinglass, from fish bones, these they chop up very small, and soak the mass, in water which is continually renewed. When all oily impurity is extracted, they add a due proportion of alum, which has been dissolved. Over the vessel in which this mixture is, a rod is laid; a cleft-stick is used for holding the sheet of paper during the process of dipping, as soon as the paper has been sufficiently saturated it is withdrawn, by gently rolling it round the stick which has been laid over the vessel; the sheet of paper is afterwards hung to dry either in the open air or near a furnace. Paper with written or printed characters is reverently preserved in all eastern countries. In China, fragments of waste paper are carefully picked up from the streets lest any of the words of sainted men should be dealt with profanely, for writing seems to have been known from the earliest times, and literature has alway held a high place. The paper, such as that on which the Hon'ble Mr. Morrison's book was printed, was manufactured from the common yellow bamboo paper of the Chinese by sizing it in water saturated with alum, to which glue is added; the sheets are dried and smoothed by rubbing them on a warm wall. The glazing upon Chinese writing paper is made by waxing the sheet, and afterwards rubbing it with a smooth stone; two, three, and four sheets are made into one thick sheet for ledgers, or other account books, by the same process, after wetting the inner surfaces with glue water, and drying the sheet in the sun. There is also a thin paper called Nanking paper, which is manufactured from cotton wool, that is tougher and more flexible than the bamboo paper. Coloured paper is exported in considerable quantities; the exportation of all kinds is principally to India and the Archipelago. In China itself the consumption of Chinese writing paper is great, on account of its not being injured by the climate; foreign paper sized with glue being liable to spoil.

Bamboo paper—Mr. Fortune tells us that the whole of the process of making paper from the bamboo did not come under his notice while travelling in the country, but it is carried out somewhat in the following manner:—After being soaked for some time in water the bamboos are split up and saturated with lime and water, until they become quite soft. They are then beaten up into a pulp in mortars, or where water-power is at hand, as in the hilly districts, the beating or stamping process is done by means of stampers, which rise and fall as the cogs which are placed on the axis of the water wheel revolve. When the mass has been reduced to a fine pulpy substance it is then taken to a furnace and well boiled until it has become perfectly fine, and of the proper consistency. It is then formed into sheets of paper. Bamboo-paper is made of various degrees of fineness, according to the purposes for which it is intended. It is not only used for writing upon and for packing with, but a large quantity of a coarse description is made for the sole purpose of mixing with the mortar used by bricklayers. In the Himalaya where, also, paper is made from bamboos, to some extent large water tanks containing a solution of lime are made in the fields, and stems of bamboos are steeped in them for a long time.

Birch bark paper.—Tus or Tuz, is a Birch bark upon which, in addition to leather, we learn that the ancient Persians wrote. The same seems to have been anciently used in north India also. In Huen Thsang's time the early buddhist scriptures of Kasyapa's council were written on the leaves of the Tala palm. In the eleventh century, according to Alburini, paper was used; in the south of India the leaves of the Tar were used, as now but in the provinces of Central and Northern India, they used the inner bark of a tree called tuz. And it was the branch of a tree of the same kind called Bhoj, a species of morus with which they covered their vessels.

Plantain fibre paper.—Dr. Alexander Hunter of the Madras Medical Department, has mentioned that there is no scarcity in India of raw materials suited for the finest descriptions of paper and cordage. The fibres and tow made from the common plantain or Musa paradisiaca, Manilla plantain or Musa textilis, Agave Americana or common Aloe and Yucca gloriosa or Adam's needle, are nearly all pure white, silky and strong. When prepared by the simple process of beating or crushing the green plants, the day after they were cut, washing and scraping away the sap on the same day and hanging up the fibres to dry in the shade. The great matter is to avoid letting the sap remain along with the fibre even for one night, for it immediately begins to discolour the fibre and takes away the strength, the colour, and the soft pliancy of the fibre; this defect is perhaps more seen with the plantain and with grasses and straw than with any other classes of plant; they become very dirty and brittle, with only one or two nights of soaking, but the plantain yields very strong paper of a beautiful clean colour almost white if prepared in the way explained, but the stem of the plantain contains such a small per-centage of fibre that it will hardly pay as a material for paper, the great use of it now is as a substitute for silk in carpet weaving, and Messrs. Whittock and Co., of Edinburgh introduced this substance extensively for carpet and rug manufactures, as the substance takes dyes of almost any colour and preserves its silky glossy look.

Aloe fibre was found to be better suited for paper-making than the plantain, as it has more substance and yields a bulky opaque creamy pulp.

Malvaceous and cotton plants. Some of the best materials for paper-making in India are the barks of trees allied to the Hibiscus, Mulberry, Malvaceous and Cotton plants. The Bauhinias, Grewia and Guazuma or Bastard Cedar. The principles of cleaning them are the same as for other fibres, viz., to get away the sap and juices of the plants as soon as possible, and if this is done within 20 or 30 hours after the plant is cut, a nearly pure white strong fibre can be obtained. Several trees contain tanin which almost immediately begins to discolour the fibre of the bark, as soon as the branch is cut off from the parent tree. To remove this a caustic ley made of fresh burnt lime and wood ashes should be prepared, and the bark after having been stripped off, well-beaten with sticks and washed with water, may be soaked for one night in this caustic ley, next morning, the bark should be well-beaten with sticks on a flat board, washed with clean water and hung up in the shade to dry. In this way very strong and nearly white materials for paper can be prepared at a cheap rate. The beating or crushing allows the water to remove the sap and the tanin is dissolved by the alkali before the fibres have time to get discoloured. Messrs. Cowan and Co., Paper Manufacturers, Silver Mills near Pennycuick, reported most favourably upon the materials for paper which were sent home from India, and samples of the papers and raw materials collected in Madras were added to their valuable Museum.

Nepaul paper is manufactured almost exclusively in Nepaul from the bamboo. After being cut, it is beaten in wooden mortars until reduced to a pulpy mass, then thrown into a vat of water, the impurities separated, and when of a proper consistence, it is spread on linen to be dried; the surface is rendered smooth by friction, and with a pebble on boards. Its structure is very tough, and cannot be torn rectilineally; and it is most serviceable for filtration, as the fibres do not separate readily when saturated with moisture, and will resist in a moist condition considerable rough handling.

The Nepaul paper plant is the Daphne cannabina one of the Thymeleæ. At the Great Exhibition of 1851, many visitors were much interested about a huge sheet of Nepaul paper exhibited by Colonel Sykes This was curious, not only on account of its size, but also on account of the plant from which it was made. It was from the inner bark of D. Bholua (D. cannabina of Loureiro, and which is supposed to be identical with the D. odora of Thunberg which is extremely abundant in the

Himalayas,) that this Nepaul paper is made, as from other species in other countries. Another plant of the same, or of an allied genus, as it is called both Daphne and Gnidia eriocephala, is very common on the ghauts of the west of India, and in the hill parts of the southern Mahratta country and of the Dekhan. It is probable that it might be turned to the same use as the Nepaul plant. Mr. Hodgson ('Journ. As. Soc.,' i, p. 8, 1832) and Dr. Campbell, describe the process of making paper from the Daphne cannabina as consisting, first, in boiling slips of the inner bark of the paper plant in a ley of wood-ashes for about half an hour, by which time the slips will be quite soft. These are then beaten in a stone mortar with a wooden mallet till they are reduced to a homogeneous pulp. This is then diffused through water, and taken up in sieves and paper frames, as in the ordinary process for making paper by hand. When dry, the sheet of paper is folded up; sometimes it is smoothed and polished by being rubbed on wood with the convex side of a chank shell: but Mr. Hodgson does not explain how the very large sheets of several yards square are made. Though called Nepaulese, the paper is not manufactured in Nepaul, but in Cis-Himalayan Bhot, in the midst of its immense forests, where there is an abundant supply of the plant, of wood for ashes and for firewood, as well as a constant supply of clean water. This paper is remarkable for its toughness, as well as its smoothness. Some of it, in the form of bricks of half-stuff, was sent to England previous to the year 1829. As the quantity sent was not sufficient for a complete experiment, a small portion of it was made into paper by hand. An engraver, to whom it was given for trial, stated that "it affords finer impressions than any English-made paper, and nearly as good as the fine Chinese paper which is employed for what are called India paper proper ('Gleanings in Science,' i, p. 210.) Dr. Campbell describes the paper, as made by the hand, "as strong, and durable as leather crust, and quite smooth enough to write on; and for office records, incomparably better than any Indian paper. It is occasionally washed with preparations of arsenic, in order to prevent the destruction caused by insects. Many of the books in Nepaul, written on this paper, are said to be of considerable age, and that the art of making paper seems to have been introduced about 500 years ago from China, and not from India." He states that this paper may easily be procured at Patna, Purneah and other places in the plains of both Southern and North-Western India.

Other paper plants.—A paper from Madura made from bark was sent to one of the Madras Exhibitions. Paper is made from the reticulated fibre of Abelmoschus ficulneus. The source of the rice paper of commerce continued long a matter of doubt, but it is now equally certain that it is produced from the Aralia papyrifera. Egyptian paper in the seventh century, A.D., was freely exported to Constantinople. The flax paper of Khorasan was introduced into Arabia, under the Omeyad or the Abasside kaliphs. Dr. Riddell strongly recommends the Hibiscus esculentus, for this purpose. Several bales of the straw of certain Indian grasses having been forwarded to the Society of Arts with the view of ascertaining whether any of them contain the necessary ingredients for paper manufacturing, superior to the common rush of England, the report of competent judges was unfavourable. They considered that none of them are well adapted for the making of paper, though they did not doubt that paper can be made from all of them. The common rice straw (Oriza sativa) would make the best. They add that all the samples are very inferior in paper-making quality to many substances which can be obtained readily in England, but which even are not considered as worth using; in fact it would appear that materials well fitted for making paper, can be brought and delivered at the paper mills for less money than the mere freight from India of any of the specimens sent by the Society. Mr. Foster remarks on this subject that there is much misapprehension as to the want of paper-making materials in Great Britain. For first class papers, and for inferior papers, there is no want of materials at all, but for medium papers, for printing purposes, there is some scarcity of materials, as evinced by the somewhat higher proportionate price given, as compared with the price of materials for other classes. New materials involve new machinery for reducing them to pulp, and the older paper-makers have not yet established machinery suited for these new materials in addition to that at present in use. Some enterprising men are laying themselves out to make pulp or half stuff for sale to the paper-makers, and it will be by those men that any new materials will be worked. The regular paper-makers would scarcely look at them."

Wooden Paper.—M. Bardoux, a manufacturer of Poictiers, manufactured paper from oak, walnut, pine, and chestnut, without the addition of rags.

In Africa besides the esparto grass and the bark of the Adansonia, there is a fibre-producing plant called dissgrass, which, though difficult to work and not so valuable as the better known esparto, can yet be obtained in such quantities and at such a price as will render it a useful luxury. The dwarf palm can be obtained in almost any quantity in Algeria, but the cost of collection is rather more than that of esparto, as each leaf is picked separately, and its manufacture into paper is more difficult and expensive, the texture of the fibre varying in different parts of the leaf, one portion of which contains some yellowish wax or resin, extremely difficult to kill, and almost impossible to detect till it is discovered on the hot rollers and the paper is spoilt. The rivers of South Africa are in many places choked with a plant known as the palmete, a kind of large rush, 8 or 10 feet in height, of which large quantities can be obtained, and which in all probability will be found of use in the fabrication of ropes and paper.

Paper was made at Agra Central Jail, by Dr. W. Walker, from old ropes and gunny bags, bleached by means of carbonate of soda and lime. Such paper can be produced at 5 Rs. or 10*s*. per ream. In Western India paper is made at Ahmedabad, Surat, Dharwar, Kolapore, and Aurungabad, the workmen are mahomedans: the paper made at Aurungabad bears the palm as to fineness and gloss, hence the demand for it to engross sunnuds, deeds and other such documents. For royal use, as may be seen in the private account books of the peshwa Bajee Rao, grains of gold leaf are mixed with the pulp and thus becomes spread over the surface of the paper. China, up to the year 1840, largely supplied India with paper. But by the middle of the 19th century paper for the writing and printing purposes of Europeans was all imported into India from France and Great Britain. It is styled in commerce fine paper, to distinguish it from coarse or wrapping paper. Mahomedans in India and the hindoos who use an Indian ink, still largely write on a glazed paper the manufacture of India.

In Britain, in the five years, 1830 to 1834, prior to the reduction of the excise duty on first class papers from 3*d*. to its present equalized rate of 1½*d*. per lb., the average annual quantity made was 70,988,131 lbs.; and in the five years, 1849 to 1853, the average annual quantity made was 151,234,175 lbs. The production of the year 1853 was 177,623,000 lbs., being above 23,000,000 lbs. (more than 10,000 tons) over that of the preceding year, and more than 36,000 tons over 1834, such excess requiring for its production not less than 13,000 tons of raw material in the former case, and nearly 47,000 in the latter. The whole weight of material employed in Great Britain in the manufacture of paper only may be stated at between 110,000 and 120,000 tons per annum. The coarse kind of paper prepared by the natives in Madras, was in Ainslie's time, commonly made of old gunny bags or old fishing nets. In the process lime water and rice cunjee were employed and frequently a little Indigo to give it a blue tinge. Supposing from the whiteness and great tenacity of the Marool (or Munchie) nar that a valuable kind of paper might be prepared with it, he recommended a trial of it to the paper makers at Trichinopoly, in July 1813. They hesitated, never having heard that paper can be made from this substance, but were induced to make the experiment, and succeeded in making a much better and whiter paper than what is commonly made with old gunny bags. He could not learn that paper is ever made in India as it is in the Ava dominions, either from the bark of the paper Mulberry (Morus papyrifera,) or from the macerated filaments of the bamboo. In the Himalayas it is made of the inner bark of Daphne cannabina, and in sheets of immense size. A large collection of papers was exhibited from different parts of India, but, though well adapted for writing on, in India, they are not suited for Europe, in consequence of the difference in the ink used. Most of the paper used in Thibet is made from the bark of various species of Daphneæ, and especially of Edgeworthia Gardneri, and is imported from Nepaul and Bhotan; but the Tibetans, as M. M. Huc and Gabet correctly state, manufacture a paper from the root of a small shrub, and it is of a much thicker texture and more durable than Daphne paper. Dr. Thomson informs me that a species of Astragalus is used in western Tibet for this purpose, the whole shrub, which is dwarf, being reduced to pulp.

PAPER, Hind., of Jhilam, Buxus sempervirens, box.

PAPER BIRCH, Eng. Betula Jacquemonti, *Spach.*

PAPER CURRENCY. The average circulation from the commencement of the Paper Currency operations has been in.—

1862-63	Rs.	4,41,94,285	1867-68	Rs.	9,28,50,848
1863-64	„	5,23,25,000	1868-69	„	10,14,55,327
1864-65	„	6,88,20,116	1869-70	„	10,66,94,777
1865-66	„	7,72,57,983	1870-71	„	9,81,32,240
1866-67	„	8,98,93,179			

and in the last two years, the maximum and minimum values of notes in circulation were—

	Maximum.		Minimum.	
1869-70	Rs. 11,42,07,120	Jan.	Rs. 9,80,32,010	April.
1870-71	„ 10,75,53,170	„	, 8,68,19,030	May.

For the first time in nine years the 1870-71 circulation showed a large decrease, having fallen back below what it was in 1868-69. The falling off in the main circles of Calcutta and Bombay amounted to no less than Rupees 1,32,81,417, or nearly 15¼ per cent. There was a counter-balancing increase in most of other circles, which reduced the decrease on the whole to Rupees 85,58,537 below 1869-70, or a little over 8 per cent.

The Calcutta circulation reached its highest point (Rupees 4,89,53,150) on the 22nd January 1870. It then fell rapidly to Rupees 3,51,79,910 on the 31st March 1870, from which date to the end of May 1871 it showed no signs of recovery. Since then it has risen again quickly till, on the 31st October, it was Rupees 4,29,93,960, since when it has slightly fallen, it having been reduced to Rupees 4,11,43,980 on 15th December 1871.

The Bombay circulation was at its highest point in recent years (Rupees 5,03,63,280) on the 7th April 1870. By the 7th July it had fallen to Rupees 3,16,18,750. It now stands rather below Calcutta, or at about Rupees 3,67,00,000 on 15th December.

The Madras circulation rose strikingly from about Rupees 60,00,000, at the end of February 1870, to Rupees 1,15,85,270 on the 31st August 1871, having even reached a higher sum, on the 22nd June 1871. On 15th December 1871 it stood at Rupees 97,86,390.

These rather remarkable phenomena are not explained.

No less than Rupees 1,42,16,200 of Lahore and Allahabad notes were cashed in Calcutta in 1870-71, and a far larger sum in proportion (Rs. 1,53,98,020) had been so cashed to the end of August 1871. This means that in the course of seventeen months Government has had to bear the cost of the exchange on nearly Rupess 30,000,000 from Allahabad or Lahore, or, since the beginning of the year, from Bombay to Calcutta.

The Head Commissioner argues that the note remittances in the year, amounting to Rupees 3,24,58,870, caused a large saving to Government. But doubtless per contra some expense must have been thrown upon Government by notes being received instead of coins at deficit treasuries.

The net profits of the department are shown to Rs. 11,57,637, but against this amount ought to be set the cost of the exchange on Rs. 1,42,16,200 of Lahore and Allahabad notes cashed in Calcutta, and taking this cost at 4 annas per cent., the set off would be Rs. 35,540.

PAPER HANGINGS. Paper stained or printed with tasteful designs, and used for pasting on the walls of a room, &c. There are many varieties, which are manufactured in England, France, Germany.

PAPER MULBERRY.

Chiu: ch'u, CHIN. | Kau sang, CHIN.

The paper mulberry, the Broussonetia papyrifera, is a native of the isles of the Southern ocean, as well as of China and of Japan. It has long been famous for its fibrous bark, which is made into a kind of cloth, as in Otaheiti and in the Sandwich islands, as well as into paper, in Japan. In making this paper the bark is boiled into pulp in a ley of wood ashes, and then well washed by agitation of it in water, until it becomes like tufts of tow. If too much boiled, the paper will be weak but white; and if insufficiently washed it is coarse but strong. It is then heaped on a table and beaten into a pulp, by batons of hard wood. Mucilage obtained from boiled rice, or from a plant called oreni, is added to the pulp, which is stirred with a clean reed until reduced to a homogenous liquor, and when of a due consistence it is ready for conversion into sheets, see Japan, Java.

PAPER PLANT OF NEPAUL is the Daphne cannabina, one of the same family as the Lace bark tree, Lagetta lintearia, of the West Indies. D. cannabina is supposed to be identical with the D. odora of Thunberg. It is extremely abundant in the Himalaya, and the paper is made by boiling the inner bark, in a ley of wood ashes, and reducing them to pulp by beating Daphne or Gnidia eriocephala is very common on the Western Ghauts, and on the hilly parts of the Southern Mahratta country and Dekhan. On a trial of the paper by an engraver, he reported it as affording finer impressions than any English made paper, and nearly as good as the fine Chinese paper which is employed for what are called India paper proofs. Dr. Campbell describes the paper as strong and durable as leather.

PAPER, RICE—Chinese rice-paper had long been supposed to be cut from cylinders of a pith which has always a central hollow chamber, divided into compartments by septa or excessively thin plates. The supposition was confirmed by Sir William Hooker receiving from China, specimens of the rice-paper plant itself, which very closely resembles, in botanical characters as well as in outward appearance of size and habit, the Aralia Sikkim plant. Fortune, at his first visit to the fine island of Chusan had been examining with a spy-glass some large white flowers which grew on the banks and on the hill sides, and when he reached the spot where they were growing, they proved to be very fine specimens of Lilium japonicum. As, he was admiring these beautiful lilies which were growing as wild as the primroses in woods in England, another plant, he says, of far more interest, caught my eye. This was nothing less than the rice-paper plant—the species which produced the far-famed rice-paper of China named by Sir W. Hooker, Aralia papyrifera. The largest specimens were about five or six feet in height, and from six to eight inches in circumference at the base, but nearly of an equal thickness all up their stem. The stems, which usually bear all the way up, were crowned at the top with a number of noble looking palmate leaves on long footstalks, which gave to the plant a very ornamental appearance. The under side of each leaf, its footstalk, and the top part of the stem, which was clasped by these stalks, was densely covered with down of a rich brown colour, which readily came off upon any substance with which it came in contact. It flowers and seeds during the winter and spring months at Hong-kong and Calcutta. A few samples of the largest stems he could find, were sent to England and India. The proportion of pith in these stems is very great, particularly near the top of vigorous growing ones, and it is from this pure white substance that the beautiful article erroneously called "rice-paper" is prepared. The Chinese call this plant the Tung-tsaou. What it was, or to what part of the vegetable kingdom it belonged, was long a mystery to botanists. The Tung-tsaou is largely cultivated in many parts of the island of Formosa, and with rice and camphor forms one of the chief articles of export. Mr. Bowring, who read a paper upon the rice-paper plant, before the China branch of the Royal Asiatic Society, informs us that the Canton and Fokeen provinces are the chief consumers, and that the town of Foo-choo alone is supposed to take annually not less than 30,000 dollars' worth of this curious and beautiful production. The cheapness of this paper in the Chinese market, as Mr. Bowring justly remarks, is evidence of the abundance of the plant in its place of growth, and more especially of the cheapness of labour. "That 100 sheets of this material (each about three inches square), certainly one of the most beautiful and delicate substances with which we are acquainted, should be procurable for the small sum of 1¼*d.* or 1½*d.*, is truly astonishing; and when once the intention of foreigners is directed to it, it will doubtless be in considerable request among workers in artificial flowers in Europe and America, being admirably adapted to their wants." The larger sheets, such as those used by the Canton flower-painters, are sold for about 1½*d.* each. If the Tung-tsaou prove hardy, in England, its fine foliage will render it a favourite amongst ornamental plants in English gardens. Judging, however, from its appearance when growing on its native island, and from the temperature of Formosa, Fortune feared we cannot expect it to be more than a green-house plant in Britain. Before he left China, it had been completely naturalised on the island of Hong-kong. It is really a most striking looking plant and highly ornamental. At all times the fine, broad palmate leaves which crown the stem have a noble appearance, and in the winter months its large panicles of flowers make it more interesting. The paintings on Chinese pith paper, or rice-paper, as it is commonly but incorrectly called, are much sought after for their splendid colourings. Its velvety surface contrasts admirably with brilliant colours; it is a delicate vegetable film, consisting of long hexagonal cells whose length is parallel to the surface of the film, and which are filled with air when the film is in its usual state; the peculiar softness which so well adapts it for receiving colours is owing to this structure. The pith is carefully taken out and cut in sheets by running a knife around it, and smoothing them with an iron. When the tissue breaks, the fracture is connected by a lamina of mica. An india-ink outline is first transferred by damping and pressing it upon the paper, when the ink strikes off sufficiently to enable the workman to fill up the sketch; one outline will serve for limning several copies, and in large establishments the separate colours are laid on by different workmen. The manufacture of these paintings at Canton employs between two and three thousand hands. Another tissue sometimes used by the Chinese for painting, more remarkable for its singularity than elegance, is the retriculated nerve-work of grape leaves, the fleshy green part of the leaf having been removed by maceration, and the membrane filled with isinglass. The appearance of a painting on this transparent substance is pretty, but the colours do not retain their brilliancy.—*Williams' Middle Kingdom, Vol.* ii, *p*, 145; *Eng. Cyc.*; *McCulloch's Com. Dic.*, *p.* 873; *A. Res. among the Chi.*, *p.* 231.

PAPER-NAUTILUS, a mollusc, one of the Octopoda. See Nautilus.

PAPHLI, Hind. Helicteres scabra.

PAPHRA, Punj. Fagopyrum esculentum.

PAPHRI, or Suk-chain, Hind., Pongamia glabra.

PAPIER, Ger. Paper.

PAPIER MACHE. A name properly applied to articles composed of paper-pulp, boiled in a solution of gum or size to give it tenacity, and then pressed into moulds; though the term is also applied to trays, snuff-boxes, and other things made by glueing several piles of paper together, and then varnishing. It is made in the Punjab.—*Faulkner*.

PAPIERS, Dut. Paper.

PAPILIONIDÆ, *Leach.*, the butterfly family of the order Lepidoptera, *Linn.*, comprising the following genera, viz.,

Ornithoptera, *Boisd.*
Papilio, *Linn.*
Pontia, *Fabr.*
Pteris, *Schr.*
Callosune, *Doubl.*
Idmais, „
Thestias, *Boisd.*
Hebomoia, *Hubn.*
Eronia, „
Callidryas, *Boisd.*
Terias, *Swain.*

The genus Papilio includes all the butterflies. The first section of Lepidoptera, named Rhopalocera (club-horned) in the arrangement of Boisduval, and Diurna in that of Latreille, corresponds with the Linnæan genus Papilio. The insects composing it have mostly thin and elongated antennæ terminated by a club. They are all day-fliers. Their larvæ, which are variously shaped, have six pectoral, eight abdominal, and two anal feet. The pupæ are usually angulated and, with a few exceptions, naked. The perfect insect varies in size from less than an inch across the wings when expanded, to nearly a foot in breadth. Equally variable are their colouring and outlines. They are short-lived. Their powers of flight are very great, and the mode of flight varies in the several species. The males are usually more gaily coloured than the females. The Papilionidæ or swallow-tailed butterflies, from their large size and gorgeous colouring are more frequently collected than other insects. There are known to be 27 species in Java, 29 in Borneo, and 21 in Sumatra. A Papilio with blue black above and large spots of bright blue, occurs in Amboyna. It has an expanse of 5 or 6 inches. Tachyris zarinda is a rare butterfly, with cinnabar red wings. Idea tondana, a semi-transparent butterfly of Celebes. Papilio androcles, one of the largest and rarest of swallow-tailed butterflies. Cicindela heros, and C. gloriosa also occur, the latter of a rich velvetty green colour.—*Eng. Cyc.; Wallace, p.* 147.

PAPILIO MACHAON. Choongtam in Sikhim boasts a profusion of beautiful insects, amongst which the British swallow-tail butterfly (Papilio machaon) disports itself in company with magnificent black, gold, and scarlet-winged butterflies, of the Trojan group, so typical of the Indian tropics.—*Hooker's Him. Jour., Vol.* ii, *p.* 26.

PAPILIO POLYMNESTOR, see Butterfly.

PAPILIO ULYSSES, one of the largest of the tribe is common at Amboyna. It flies with a rather weak undulating motion.—*Wall., p.* 297.

PAPIN, see Khyen.

PAPIONINÆ, a sub-family of mammals, including the true baboons of Africa and the monkey-like baboons of India, viz.

Inuus silenus. Lion monkey.

Simia leonina,	*Shaw.*	Silenus veter,	*Gray., Horsf., Blyth.*
,, silenus,	*Linn.*		
Nella-manthi,	*Mal.*		
Nil-bandar,	Beng.	Siah-bander,	Hind.

The lion monkey is a native of the more elevated forests of the Western Ghauts of India, from N. L. 15½ to the extreme south, but most abundant in Cochin and Travancore. It does not occur in Ceylon, and though called so by Buffon it is not the wanderoo, which is a species of presbytes. It is of a somewhat sulky and savage disposition and is with difficulty taught to perform any feats of agility, or mimicry.

Inuus rhesus. The Bengal monkey.

Macacus rhesus,	*Desm.*	Pithex oinops,	*Hodgs., Horsf.*
Inuus erythræus,	*Schreb.*		
Morkot,	Beng.	Piyu,	Bhot.
Banur,	,,	Bandar.	Hind.
Marcut banur,	,,	Suhu,	Lepch.

This is the common monkey of all N. India extending up to 4,000 and 5,000 feet in the Himalaya, and south to about N. L. 18 or 19 to Goomsoor and near Nagpore. It frequents all the forests and groves in the open country, and in northern India, may be seen in many towns and villages. It is very easily tamed and made to exhibit various feats of agility,

Inuus pelops. The Hill monkey.

Macacus pelops,	*Hodgson.*	M. assamensis,	*M. Lelland., Horsf., Blyth.*

Occurs in Assam and Darjeeling.

Inuus nemestrinus of Tenasserim, Malayana.

Inuus leoninus, Blyth., of Arrakan, perhaps the same as In. arctoides of *Is. Geoff.*

Macacus radiatus. The Madras monkey.

Cercopethecus radiatus,	*Kuhl.*	Simia sinica,	*Linn., Elliot., Blyth., Horsf.*
Munga,	Can.	Makadu, Wanur, Keda,	Mahr.
Bandar,	Hind.		
Vella munthi,	Maleal.	Koti,	Tel.

The Madras monkey is to be seen all over the southern parts of India extending north to N. L. 18° where it is replaced by Inuus rhesus; it lives in the dense jungles, also in populous towns and carries off fruit and grain from the dealers with great coolness and address. It is the monkey most commonly met in menageries and led about to show feats of agility. It is the most inquisitive and mischievous of its tribe.

Macacus pileatus, Shaw., of Ceylon, is the Simia pileatus, *Linn.*

Macacus cynomolgos, Linn., of Burmah.

Macacus carbonarius, F. Cuv. *Jerdon's Mammals.*

PAPIO NEMESTRINUS, *Erxl.* Syn. of Macacus nemestrinus, *Linn.*

PAPIO RHESUS, *Ogilby.* Syn. of Macacus rhesus, *Audeb.*

PAPISRANG. Pinang, has two woods of this name, viz.

Papisrang, purple colour. A strong wood; used for beams.

Papisrang, wood of a pale brown colour, six to nine feet in circumference, forty feet long; not good for beams; chiefly used for furniture.—*Colonel Frith.*

PAPITA, Hind. Strychnos faba, Strychnos Sancti Ignatii.

PAPLI CHUCKAY, yields an orange dye.

PAPNAS, a river near Tappah in Bhopal.

PAPOIA UMBBALAY MARAM, Maleal. Carica papaya, *Linn.*

PAPOO KOORA, Tel. Chenopodium album.

PAPPALI MARAM, Carica papaya, *Linn.*

PAPPANA, Sans. Pavetta indica.

PAPPAR, Hind. Buxus sempervirens.

PAPARA CHETTU, Tel. Brown quotes the syns. Parnika and Parni. The latter according to W. 516, is Butea frondosa also Pistia stratiotes. The word means " bark-tree."

PAPPATI. The new year's day of the Zoroastrians, by whom it is strictly kept as a festival.

It is celebrated in honour of Yezdejird: on this day, the Zoroastrians rise early, dress in new clothes, and after prayers in their households or temples, pass the day in congratulatory visits and entertainments.—*The Parsees, p.* 60.

PAPPEL PAPPELHAUM, Ger. Poplar.

PAPPILI, Tam. See Dyes.

PAPPISA, Tel. A tree, the Tamarisk?

PAPPOIA-UMBALAY MARAM, Maleal. Carica papaya, *Linn.*

PAPPREE, Hind. A natron salt obtained from the Lake of Loonar, used in the manufacture of bangles.

PAPPU KURA, Tel. Chenopodium album, *Linn., Roxb.*

PAPPUTTA. Pavetta indica.

PAPRA also Paprang, Hind. Salvia lanata.

PAPRA, Hind. Fumaria parviflora.

PAPRANG, or Chikri, Hind., of Kanawar, Buxus sempervirens. The Box-wood tree.

PAPRI, Hind. A substance found at one stage of the manufacture of Sal-ammoniac.

PAPRI and pappar, Hind., of Salt Range, Buxus sempervirens.

PAPRI, Hind. Podophyllum emodi, also Myrsine Africana, Buxus sempervirens, Ulmus integrifolia.

PAPUAN. The Papuans are oriental negroes, in the interior of New Guinea, and in the islands northwards to the Louisiade Archipelago. They are called by Mr. Muller, Mairassie, and by Lieutenant Modera, Alfoeren or Alfoer, but the ordinary term by which they are known to Europe is derived from the words pua-pua which means frizzled, their frizzled spiral hair being a marked feature in their physical appearance. There are, however, in other regions, other races with markedly negro features, and some ethnologists believe that southern India once had a negro population. The Papuan race extends from New Guinea eastward through the Louisiade and Solomon Archipelagos to the New Hebrides where it co-exists with some tribes of Malaya-Polynesians, and still further to the Fiji islands which, however, are the extreme limit of the race in an Eastern direction. The Fijians are the aristocracy of the race. In a south direction the Papuans have evidently spread far and wide over the continent of Australia and occur even in Van Diemen's Land, though their characteristics are greatly modified. To the present day, many of the Non-Aryan tribes in India have features resembling those of some Negro races of Africa. In the south Indian population, as a whole, amongst the people speaking the Tamil language, the bridge of the nose is generally less prominent than in the Iranian, and much more so than in the Turanian. Even where the root of the nose, between the eyes, sinks in, the upper line, as a whole, is much more thrown out from the face than in the Turanian head, so as to render the point comparatively sharp and prominent. The alæ have an upward expansion, leaving the upper part of the septum exposed and the elongated nares open and conspicuous. This is a Semitico-African trait. In the Turanian, the septum is contracted and thickened at the base, pulling down the point of the nose or rendering it low and obtuse, forcing the nares to spread out laterally and making the nares rounded. The eyes in the Dravidian are large, are of full size, horizontal and well-separated, and the beard is generally sufficiently strong. The Africao-Papuan pyramidal nose, with a deep and sharp sinking in at the root, is common, particularly in some of the lower castes, in which the colour is nearly black. Mr. Logan thinks it probable that this lower and apparently the more normal southern type characterised the whole population of India at one period. Amongst the Vindhyans, some tribes are found who seem to approximate to it such as the little ill-favoured Tamariah the neighbours of the Ho and the short and jet black Surah who are spread for 200 miles from the hilly southern side of the basin of the Ganges along the eastern face of the ghauts to the Godavery and are much, in person, in civilization, akin to the gangetic population. The Chensuar, a half savage, wild tribe, who occupy the western portions of the continuation of the ghauts between the Pennar and the Kistna, and who are probably a continuation of the Surah, are described by Captain Newbold as being between a Telugu and Jakun of the Malay peninsula. The Chenchwar are known to their settled neighbours as the Chenchu-Kulam, Chenchwar and Chensuar. They are about 1,200 in number, and dwell in the tract of jungle covering the westernmost range of the eastern ghaut line, between the Pennar and Kistnah, and known locally as the Nulla mulla and Lanka-mulla. In the pass from the Kuman to Badwail, a few are employed as hill police. They inhabit clearings in the forests, live in bee-hive-shaped huts, of wicker work, walls about three feet high and a conical straw roof, with a screen for a door, like the huts of the African, Nicobarian, and many of the ruder Asianesian tribes. The men are almost nude. They have large dogs. The women dress like the wandering female basket makers whom they resemble in features. The features of the men are small and animated; cheek bones higher and more prominent than in the hindoo in general. Nose flatter and nostrils more expanded. Eyes black and piercing, and in stature shorter than their neighbours. Their hair is more shaggy and less straight than that of the hindoo, and they wear it very long and rolled up at the back or near the crown like that of a woman. They are slightly, but well-made, except about the knee, which is large, and the leg. The colour of the skin is darker, and there seemed a tendency to cutaneous eruptions. They speak Telugu with a harsh and peculiar pronunciation. They have no language of their own. Brahmans say they formerly were shepherds of the Yerra Golla caste. The Nandial Chenchwars assert their ignorance of a god or soul. They have no images. They are polygamists. They bury their dead, but sometimes burn: and the Nandial Chenchwar like the Tartars carry the deceased's weapons to the grave. They are divided into little tribes. They have in general only a rag for covering. They use the spear, hatchet, or matchlock, or a bamboo bow and reed-arrow tipped with iron. They are patient and docile. They look on weaving and other manufacturing arts with contempt.

The Jakun of the Malay peninsula, is the most African and prognathous of the lank-haired Indianesian tribes.

In the Neilgherry hills, the Kurambar and Erular belong to the same low type. In the ghauts of the northern part of the peninsula, the Koli, Ramusi, Beder, Warali, Katadi or Katkar tribes appear to be allied to the lower type, but in general the African element has been eliminated. One of the most African of these petty northern tribes is the Katadi. They are of a deep black colour, and Mr. Vaupell describes them as being more like monkeys than any race of men he ever saw. The Warali are more slender and somewhat darker than the common Mahratta. The sequestered tribes of Southern India appear to belong chiefly to the lower form. In some cases they approximate to the more Turanian-African type, in which the nose is flatter, the beard scanty and the person shorter. There is so considerable a difference between this type and the more Semitic, that whatever may be the original relationship of the two, it is necessary to recognize both as existing in India at the earliest era which ethnology can descry. A similar phenomenon presents itself on the western side of the Indian ocean, and what is still more important with reference to India, it is found also in the Negro population of the eastern side. Many of the eastern tribes are very short and slender, small-eyed, flat-faced, and beardless: while others are middle-sized and even tall and robust, with the Semitico-African beards, aquiline or pyramidal noses, raised nares and large eyes, of the other archaic types of Southern India. Both types preserve a black complexion, alike in Africa, India, the Andamans, the Malay Peninsula, the Malay Polynesian Islands, and Australia, although modifications of colour a
occur throughout this area. Mr. Logan thin
that little weight is to be attached to t
absence of spiral hair in S. India, for some
the spiral-haired Papuan tribes of New Guin
and Torres Straits are often more Africo-Semi
and S. Indian in their physiognomy than t
Australians, while the latter have the f
hair of S. Indians and some Mid-African natio
and a linguistic formation which resembl
the S. Indian more than any in the wor
In Australia and the various Papuan and p
tially Papuan Islands, the African element h
been maintained from the comparative isol
tion of the tribes. In the Gangetic provin
as in the greater portion of Ultra-India, inclu
ing the Malay Peninsula, the intrusive r
appears to have been recruited by the entran
of new tribes from the north-east and to ha
ultimately assimilated the native race, althou
the influence of the latter is still slightly pe
ceptible. When we consider the position
India, between the two great negro province
that on the west being still mainly negro, ev
in most of its improved races, and that on t
east preserving the ancient negro basis in poi
so near India as the Andamans and Kidah,
becomes highly probable that the Afric
element in the population of the Dekhan h
been transmitted from an archaic period befo
the Semitic, Turanian and Iranian races ente
India, and when the Indian Ocean had neg
tribes along its northern as well as its easte
and western shores. The basis of the prese
population of the Dekhan seems to have be
of an African character which was partial
improved by Turanians or Irano-Turani
and Semitico-Turanians from the N. W. a
afterwards by more advanced ancient N.
African and Semitic settlers. Perhaps all t
original population of southern Arabia a
even of the Semitic lands generally, w
once African; and the Semitic race descend
on them from a tribe located in the mountai
at the head of the Euphrates. From the ti
when the adjacent shores of the Indian Oce
began to be the seats of general, commerci
and maritime nations, the peninsula must ha
been exposed to the regular influx of forei
traders and adventurers. From the antiqui
of the Egyptian civilization, it is probable t
the earliest commercial visitors were Afric
from eastern Africa or southern Arabia. It i
certain that the subsequent Semitic navigato
of Arabia at an early date established th
intercourse with India which they have mai
tained to the present day. The trade betwe
India and the west, appears to have be
entirely in their hands for about 3,000 yea
During this period, the Arab navigators n
only remained for some months in the Indi

ports, between the outward and home voyages, but many settled in them as merchants. Mr. Logan thinks that the influence of African and Arabic blood must have preceded that of Arian in the peninsula. In after ages, the Arian ingredient in the peninsular population became considerable, but it has not modified the native races of the peninsula in the same degree as it has done the Bengali. The languages are still essentially distinct and the non-Arian physical element remains strong. In Southern India, are languages of one formation which is broadly distinguished from the Arian or Sanscrit on the one side, and from Tibetan and Ultra-Indian, on the other. Physically, the population of Southern India is one of the most variable and mixed which any ancient archaic province displays. The number of varieties amongst the people being too great to allow of their being referred to a single race of pure blood. Some are exceedingly Iranian, more are Semitico-Iranian, some are Semitic, others Australian: some remind us of Egyp-ians, while others again have Malaya-poly-esian and even Simang and Papuan features. et when the eye takes in the whole group at nce, they are seen to have all something common. They are not Iranians, Polyne-ans, Papuans, &c., but South Indians. The rong Africanism of some of the lower South ndian castes, therefore, seems to be the rem-nt of an archaic formation of a more decided frican character. In certain of the classes Southern India, in which the complexion fairer, an Egyptian style of features is not nfrequently observable. In this, the nose is t indented at the root. It is long and slight-curved; the eyes almond-shaped and slight-oblique and the chin is short. In general, e physiognomy is more the Iranian than e East African and Egyptian. Where the rian or Semitic crossing is not striking, the rson is generally rather small and slender, e legs in particular being very thin, com-red with those of the Gangetic race. The lour varies from black to different degrees brown and yellowish brown, in general ntrasting strongly with the Ultra-Indian d Indonesian races. There is a tendency certain peculiar physical traits neither ltra-Indian, Tibetan nor Arian, but seem to East African. The typical East African ad is removed both from the exaggerated ognathous form, prevalent amongst the Guinea groes and the highly Semitic form character-ic of tribes that have been deeply crossed by rab blood, and is in some respects interme-ate between the Iranian and Turanian, while has specialities of its own. The cheek bones e often much more prominent than in the anian, and less so than in the typical Turanian, the projection being frequently anterior more than lateral. The lips are full or turgid and turned out, frequently with sharp edges. Slightly prognathous heads are not infrequent.

Writing on the leading characteristics of the Papuan, Australian, and Malayu-Polynesian nations, Mr. G. Windsor Earl says that the existence of a Negro race in the Indian Archipelago, so remote from the continent which is considered as the original seat of the race, has given rise to endless speculations as to how they get there, and probably will continue so to do until the end of time, for being a nation without a written language and surrounded by others whose records are carried back to no very distant date, and whose traditions have become, from lapse of time, mere fables, this point can only rest upon circumstantial evidence, and therefore will ever prove liable to dispute. Their position in many of the larger islands as occupants solely of the mountain fastnesses, surrounded by people who evidently belong to a distinct race, has certainly put an end to those theories of the last century which attributed their origin to the shipwrecked crews of Arabian slave-vessels, and has led to a very general opinion that they were. in fact, the aboriginal inhabitants of the countries in which they are found. That their existence was not altogether unknown to the ancients is proved by the maps and writings of Ptolemy, the Alexandrian, who flourished soon after the commencement of the Christian era, and was the first to reduce geography to a system. In the last map of his volume, that which contains the "Aurea Chersonesus" and the "Iabades Insulæ," (supposed to have meant respectively the Malayan Peninsula or Sumatra and the Java Islands) he places a country far to the eastward of the Aurea Chersonesia, under the equinoctial line, which he states to be occupied by "Æthiopes Icthyophagi," or "Negro fish-eaters;" the first term being that employed by the Romans to distinguish the black and woolly haired Africans from the Mauritani and other brown races of the east; and the second, that usually applied to all nations who derived a portion of their subsistence from the sea. The position of the country named by Ptolemy, with regard to the Aurea Chersonesus, agrees well with that of New Guinea, the great seat of the Papuan race. The existence of a negro people, at so remote a spot, which he must have learned from the information of Indian navigators, seems, indeed, to have led Ptolemy into the great error of his system, for believing that the country of the "Æthiopes Icthyophagi" formed part of the continent of Asia, and he has made that continent, in his general map of the world, come round by the south and join the African continent about Point Prassum, in latitude

15° S. (the then southern known limit of the east coast of Africa), thus making the Indian Ocean and the seas of the eastern Archipelago, form one vast inland sea.

With regard to the general disposition of the Papuans, a great difference is found between those living in a state of independence, and those who exist in bondage among the neighbouring nations. The former are invariably found to be treacherous and revengeful, and even those who have long been accustomed to intercourse with strangers, the tribes of the north-west coast of New Guinea, for example, are never to be depended upon, and the greatest precautions are always taken by those who visit them for purposes of trade. The wilder tribes generally avoid intercourse with strangers, if the force which lands is sufficiently great to cause alarm, but if otherwise, they pretend friendship until opportunity occurs, when they make a sudden and ferocious attack. But what distinguishes them most from their neighbours the Malayu-Polynesians, and even from the Australians, is the unextinguishable hatred they bear towards those who attempt to settle in their territory, and which is continued as long as a man of the tribe exists. It is, probably, this perfectly untameable nature that has led to their utter extermination in all those islands of the Indian Archipelago that did not possess mountain fastnesses to which they could retire to lead a life similar to that of the Boschmen of South Africa. There have been recent instances of this in Van Dieman's Land, Melville Island (N. W. coast of Australia) and at Fort Du Bus on the west coast of New Guinea, in all which settlements the country was occupied by a pure or nearly pure Papuan race. In the former, hostility was continued as long as a native remained on the island, and in the two last, until the settlements were abandoned in despair. On the other hand, their neighbours, the Australians, have invariably submitted after a single trial of strength, while the Malayu-Polynesians, when not under the influence of other foreigners, have always evinced a desire to have strangers, especially Europeans, settled among them, as shewn by the people of the Moluccas when first visited by the Portuguese, and as displayed at the present time in those remote parts of the Indian Archipelago where the race maintains its ancient purity. The untameable ferocity of the Papuans only exists as long as they remain in their native country. On leaving it their character seems totally changed, as far as regards this particular. The Papuan slaves who exist in great numbers in the eastern parts of the Archipelago are remarkable for their cheerful disposition and industrious habits, and nothing could exceed the orderly conduct of the remnant of the Van Dieman's Land natives after they h been hunted down, and removed to an island Bass' Strait. Certain of the Papuan custo which distinguish them from the Malayu-Pol nesians, and certainly are of Papuan, or least of Negro origin. One of these is the cu tom of raising the skin in cicatrices over vario parts of the body, especially on the shoulde breast, buttocks, and thighs. This must n be confounded with the tatooing or puncturi the skin which is practised by many of t Malayu-Polynesian tribes, and which is nev met with among the Papuans, as the scarific tions about to be described are unknown the others. The skin is cut through wi some sharp instrument in longitudinal strip and, if on the shoulder or breast, white cl or some other substance, is rubbed into t wound, which causes the flesh below to rai and these scarifications, when allowed to he assume the form of raised cicatrices, often large as the finger. The process by whi these cicatrices are produced and which M Earl had opportunities of watching in the progress from day to day until duly forme is perfectly inexplicable to an European, wh would be thrown into a fever by any o of the wounds which these strange people bea two or three at a time, without complainin but certainly not without suffering. It i however, quite evident that the Papuans, a also the Australians, possess a callousness skin, or insensibility of pain, which is qui unknown among more civilized races. Borin the septum of the nose is universally practis among the Papuans. In the first instanc they wear a roll of plantain leaf in the orific which by its elasticity enlarges it to a sufficie size to admit the thigh bone of a large bird, some other ornament, which is then wor extending across the face on all great occasion British sailors have a very quaint name f this practice, which often comes under the observation among the Papuan islands of t Pacific; they call it "sprit-sail yarding," aft a cruel method they have of treating shar and dog-fish, which are frequently let go aft having been hooked, a piece of wood bein previously thrust through their nostrils, whic projecting on either side, prevents them fro getting their heads under water, and they die lingering and painful death. Mr. Earl had neve met with, or heard of, this practice of borin the nose among people of the Malayu-Polynesian race, and he says the same with regar to the scarifications mentioned above. Th latter, or rather those among them who ar sufficiently barbarous to resort to personal disfigurement, seem to have adopted tatooing an boring the ears in lieu of the more coarse an painful ornamental work of the Papuans.

Filing or grinding down the front teeth until they become pointed is practised by some of the tribes of New Guinea and of the adjacent islands of the Pacific. This custom, however, is not confined exclusively to the Papuans, as it is practised also at the Pagi islands, on the west coast of Sumatra, the natives of which appear to be Malayu-Polynesians. This custom must not be confounded with one which is common among many of the Malayan and Bugis tribes, that of grinding down the front teeth until they become almost level with the gum. Another singular custom which is only met with among the Papuans, or the tribes closely bordering on them, is that of dyeing the hair (which is naturally black) a reddish or flaxen colour, by using applications of burnt coral and sea-water in some instances, and preparations of wood ashes in others. This process seems to expel all the dark colour from the hair, leaving it of a flaxen tinge which appears to bear a close resemblance to the celebrated "capillus flavus" so much admired among the Roman ladies and which seems to have been produced by a similar process. The only Malayu-Polynesians whom Mr. Earl had known to practice this custom are some of the natives of Timor Laut, Sermatten, and Baba islands lying to the westward of New Guinea and not very remote. He was therefore induced to consider it as a Papuan, or rather, perhaps, as a "Negro" custom, for it is equally prevalent in many parts of Africa, especially among the Somali and other tribes in their neighbourhood. All travellers who have had opportunities of visiting Aden will have observed this custom among the African coolies employed in coaling the steamer, who sometimes appear with the plaster of coral still attached to their heads.

The Papuans, for the most part, exist only in a savage state, deriving a scanty subsistance from the productions of nature, living in conical shaped huts; or where they appear as occupants of the sea coast, roaming about in small canoes in search of food. Some of the more independent tribes, by which is meant those who have exclusive possession of the country they inhabit, have, however, adopted many improvements. In several parts of the north and of the south coasts of New Guinea, the villages consist of one large house, erected on piles, and occupied by all the married people, with a smaller one adjacent for the bachelors. These houses bear a very close resemblance to those of the Dyaks of Borneo, but are smaller and of more rough construction. Here the Papuans also cultivate fruits, yams, and sweet potatoes and keep hogs and poultry to kill for food, in fact are almost on a level, as far as regards agriculture, with the more uncivilized tribes of the Malayu-Polynesians, from whom, indeed, if we may judge from the names employed to designate their agricultural productions, they have derived this slight, but important advance they have made in civilization. The weapons of the Papuans are heavy wooden clubs, spears or lances of nibong or other hard wood, and darts formed of a small kind of bamboo, provided with points of hard wood or of sharpened bone. The lances are projected generally by means of a becket of sennit about a foot and a half long, one end of which is provided with a toggle. This is held between the fingers, while the other end is fastened to the lance with what sailors call a "half-hitch" knot, which flies off when the lance is projected, thus allowing it to go free. The becket gives a greatly increased purchase to the thrower, but is much inferior in this respect to the womera or "throwing stick" of the Australians. The darts are projected by means of a powerful bow, often six feet in length, with a bow-string of rattan. Mr. Earl suspects that this instrument was not originally Papuan, but has been adopted from the Polynesians. Stone axes, and knives of quartz are now superseded, among all those tribes who have either direct or indirect communication with the traders of the Archipelago, by Parangs, or Chopping-knives of iron. Their agricultural instruments are mere stakes of wood, sharpened at one end, which prove sufficient to effect the rude interference with nature required by their mode of cultivation. The art of navigation appears never to have been in a very advanced state among the Papuans, since their navigation has only extended to those countries which could be reached from the continent of Asia without entailing the necessity of going out of sight of land, nor are they yet sufficiently advanced in the science of navigation to venture on any other than coasting voyages. Towards the eastern limits of the Papuan race, where they come in close contact, and are often mixed with the Polynesians, navigation is in a more advanced state than elsewhere, but this is evidently the result of contact with strangers, by whom, indeed the navigation is personally conducted. The highest state of the art among the Papuans, without foreign assistance, is met with in Torres Strait and upon the south coast of New Guinea. Here they possess large canoes of such construction and propelled in so peculiar a manner, that we must consider them purely Papuan. Some very excellent sketches of these canoes with a full description are given in Flinder's Voyage. These canoes or boats are from thirty to forty feet long, and the planks with which they are constructed are sewed together with the fibres of the cocoanut. Each is provided with an outrigger, and a platform of bamboo occupies the centre of the boat on a level with the gunwale. They are propelled in calm weather by paddles with long handles, the rowers all standing, as is generally the case among the Papuans. But the most striking peculiarity of these vessels consists in the sail, which is an oblong piece of matting set up in the fore parts of vessel by means of two poles or masts, to which the upper corners of the sail are fastened. These masts are moveable, and the sail is trimmed by shifting the head of one of the masts aft. According to Mr. Earl's experience these boats sail very indifferently, except before the wind, but Captain Flinders, who had good opportunities of judging, maintains a more favourable opinion. They are often to be met with about the month of March three or four hundred miles down the north-east coast of Australia, the islanders being in the habit of making an annual voyage in this direction. The stopping places are usually the islands lying off the coast, where they obtained tortoise-shell and trepang, the chief objects of their voyages. The natives of the south coast of New Guinea have very large canoes of a similar but more unweildy construction, and propelled by a similar description of sail. These have never been seen far from the coast, and in fact are almost unmanageable from the difficulty experienced in steering such unwieldy masses with paddles alone. It is therefore difficult to conceive for what purpose they have been constructed, unless it should be for war, in which case their large size would give them an imposing appearance. The New Guinea canoes generally are of light construction and are provided with an outrigger. The larger ones have an attap roof and are capable of containing an entire family, with household furniture and domestic animals.

In a north-west direction from New Guinea, the Papuan race extends through the Moluccas, the Philippines and possibly to Borneo, but in these islands they only appear in small and scattered tribes occupants of the mountain fastnesses.

The small islands which extend from New Guinea to Timor, with the exception of the Arru islands, are occupied by Malayu-Polynesians of the most decided character, but at Timor, especially near the north-east end, a race evidently of Papuan origin again appears, but never, as far as Mr. Earl been able to ascertain after strict enquiry, in an absolutely pure state. These tribes are much oppressed by the Malayu-Polynesians who occupy the table-land of the interior, and the slaves which are brought down to the settlements on the coast, and were formerly exported to Macao and other places, were chiefly of this race, which has led to very erroneous impressions with regard to the nature of the inhabitants of Timor on the part of those who have only met them at Macao, where the Negro character naturally prevails among them. Some tribes on the great island of Flores or Mangarai assume a more decided Papuan character, and there is said to be also a tribe of these people in the neighbourhood of the Timboro mountain on Sumbawa; but beyond this they disappear, and are not encountered again until we meet them on the Malayan Peninsula under the name of Semang, occupying some mountain tracts in the states of Kidah, Perah and Kalantan. The Andaman islands in the Bay of Bengal are occupied by a people of most decided Papuan character, who bear indeed, a very striking resemblance to the natives of Van Diemen's Land. Hence they can be traced no further, unless the analogy recently discovered by Mr. Norris, the Assistant Secretary of the Royal Asiatic Society, between the Tamil language of the Coromandel coast and some of the Australian dialects may lead to the establishment of an affinity between the nations that use them.

The Andaman islands lie in the direct track of ships navigating the eastern side of the Bay of Bengal, and have been twice actually occupied by a British establishment. Their inhabitants have the feeling of hostility and aversion towards strangers which is common to all the wilder Papuan tribes. A very full account of them, is given in one of the earlier volumes of the "Asiatic Researches," and also in Colonel Symes' Embassy to Ava. Their limbs are spare and ill proportioned, their bellies protuberant, the complexion black and the hair woolly. They have also a taste, so characteristic of the wilder Papuans, for daubing their heads with red ochre. They have canoes, but use small rafts when they wish to visit the islets. Both sexes go entirely naked, for the pieces of fringe that they wear about are rather intended for ornament than as a covering. They obtain fish by descending to the shore at low water and spearing those that are left among the reefs by the receding tide; or by catching them with small hand-nets, and depositing them in long wicker baskets which they carry slung from their shoulders. All these are characteristics of the wilder coast Papuans, especially those of Van Diemen's Land to whom indeed the Andamans bear a resemblance so striking as to excite surprise that two tribes who must have been separated during many ages, and who reside in climates so different, should be distinguished by precisely the same characteristics. The only point of difference that can be detected, consists in the knowledge on the part of the Andamans of the use of the bow and arrow, which was either never known to the Van Diemen's Land natives or has been neglected in favour of the dart or throwing spear, which is far better adapted to the open nature of their country.

The Papuans of Dory worship, or rather consult, an idol called "Karwar," a figure rudely carved in wood and holding a shield, with which every house is provided. The idol which is usually about eighteen inches high, is exceedingly disproportioned, the head being unusually large, the nose long and sharp at the point, and the mouth wide and well provided with teeth. The natives have also a number of "Fetishes," generally carved figures of reptiles, which are suspended from the roofs of the houses, and the posts are also ornamented with similar figures cut into the wood.

Within the geographical limits of the Indian Archipelago, the Papuans only appear as inhabitants of the sea coast in New Guinea and the islands immediately adjacent. In other parts of this region they are found only among the mountain fastnesses, maintaing an unequal struggle with the brown races by whom they are surrounded. In some of the Spice islands, the group nearest to New Guinea, "their extirpation is matter of history," as observed by Mr. Crawfurd in his valuable "History of the Indian Archipelago," vol. i, p. 18. In Ceram and Gillolo a few scattered remnants of the race still exist; but they hold little or no intercourse with their more civilized neighbours, flying into the thickets which afford them shelter and concealment on the first appearance of a stranger, experience having taught them that death or captivity will be their fate if they fall into the hands of their natural enemies. The characteristics of the mountain Papuans must therefore be sought in those islands where their numerical strength permits them to lead a life more fitted for human beings than that of their hunted brethren. It is an error to suppose that these Negro races disappear before civilization. Their chief destroyers are the wild and warlike hunting tribes of the brown race; and, excepting the case of the Moluccas, wherever European civilization has been introduced, the Papuans are more numerous than elsewhere. In the Philippines, for example, according to an intelligent modern traveller, their number in the year 1842 amounted to 25,000 souls. (Mallat, "Les Philippines," &c., vol. i, p. 97, Paris, 1846.) The large island of Moysol or Mæsual, which lies nearly midway between the north-western extreme of New Guinea and Ceram, is said to have been occupied exclusively by Papuans when this region was first visited by Europeans, and they still form the bulk of the inland population, but the villages of the coast are occupied by a mixed race, in which the Papuan element, however, prevails. The islands of Goram, Ceram-Laut, Bo, Poppo, Geby, Patani Hoek, and the south-eastern extremity of Gillolo, are also occupied by people of the mixed race, who are remarkable for their maritime activity, and for their friendly disposition towards European strangers. The woolly-haired tribes are more numerous in the Philippines than in any other group of the Indian Archipelago, with the exception of New Guinea. M. Mallet, as already stated, gives the amount of the "Negrito" population in 1842 as 25,000. This can only be considered as approximative, still it is probably not far from the true amount. The race, therefore can scarcely be less numerous now than on the first arrival of the Spaniards more than three centuries ago. Indeed, their distribution among the Islands of the group seems to have been much the same then as at the present day; for the island on which they were first seen was named by Magellan "Isla dos Negros," to distinguish it from the adjacent island Zebu, where his ships remained for some months. Negros still contains a large population of Papuans, while Zebu is altogether free from them, and no record exists of their having ever been found there. Samar and Leyte are similarly situated with Zebu, but Mindanao and Mindoro contain several tribes of Negritos, and they form the chief population of the less accessible parts in the mountain ranges of Luzon, the largest island of the Philippine group. The accounts of the Negritos given by the early Spanish navigators perfectly apply to their present condition. They are described as being smaller, more slightly built, and less dark in colour than the negroes of Africa, and as having features less marked with the negro characteristics, but as having woolly hair.

From a number of inquiries among Papuans who were marked with the raised cicatrices, it appears that those on the arm and breast, which are the largest and most prominent, are made in order to qualify them for admission to the privileges of manhood, by showing their capability of bearing pain.

The Malayan term for crisped or woolly hair is "rambut pua-pua." Hence the term "pua-pua," or "papua" (crisped), has come to be applied to the entire race; and expresses their most striking peculiarity. The features of the Papuans have a decided negro character: broad noses, thick and prominent lips, receding foreheads and chins, and that turbid colour of what should be the white of the eye, which is apt to give the countenance a sinister expression. Their natural complexion is almost universally a chocolate colour, sometimes closely approaching to black, but certainly some shades lighter than the deep black which is often met with among the negro tribes of Africa. The Papuans, when placed in circumstances favourable for the development of their powers, are physically superior to the races of south-eastern Asia. Some of the New Guinea tribes would bear a comparison, in point of stature and proportions, with the races of Europe, were it not for a deficiency about the lower extremities. Even the more diminutive mountain tribes are remarkable for energy and agility—qualities which have led to their being in great demand as slaves among their more civilized neighbours. With regard to mental capacity, also, they are certainly not inferior to the brown races; but their impatience of control while in an independent state, utterly precludes that organization which would enable them to stand their ground against encroachment; and they invariably fall under the influence of the Malayans whenever the two races are brought into contact. The islands in which remnants of Papuan tribes may yet be found are Sumba or Sandal-wood Island, Buru, the Xulla Islands, and the small eastern peninsula of Celebes, which terminates at Cape Taliabo. Sumba is a mountainous island, three hundred miles in circumference, lying to the south of Flores, from the coast of which it is distinctly visible in clear weather. The inhabitants of Savu possess a settlement near the south-west extreme of the island, and the Bughis traders of Ende have two or three small stations on the north coast which are occasionally visited by small European vessels for the purpose of obtaining horses; but the natives of Sumba all dwell in the uplands, where they cultivate maize, yams and other produce similar to that grown on Timor, and are said to use the plough, which is unknown in any other island to the eastward of Sumbawa.

The existence of a Negro race in the Indian Archipelago, so remote from the continent which is considered as the original seat of the race; their position in many of the larger islands, as occupants solely of the mountain fastnesses, surrounded by people who evidently belong to a distinct race, show that they are the prior occupants of the islands in which they are still found. The position of the Negro country with regard to the Aurea chersonesus agrees well with that of New Guinea, the great seat of the Papuan race. The most striking peculiarity of the Oriental negroes consists in their frizzled or woolly hair. This, however, does not spread over the surface of the head as is usual with the negroes of western Africa, but grows in small tufts, the hairs which form each tuft keeping separate from the rest, and twisting round each other, until, if allowed to grow, they form a spiral ringlet. Many of the tribes, especially those who occupy the interior parts of islands whose coasts are occupied by more civilized races from whom cutting instruments can be obtained, keep the hair closely cropped. The tufts then assume the form of little knobs, about the size of a large pea, giving the head a very singular appearance, which has, not inaptly, been compared with that of an old worn-out shoe-brush. Others again, more especially the natives of the south of New Guinea, and the islands of Torres Strait, troubled with such an obstinate description of hair, yet admiring the ringlets as a head dress, cut them off and twist them into skull caps made of matting, thus forming very compact wigs. But it is among the natives of the north coast of New Guinea, and some of the adjacent island, of the Pacific, that the hair receives the greatest attention. These open out the ringlets by means of a bamboo comb, shaped like an eel-spear, with numerous prongs spreading out laterally, which operation produces an enormous bushy head of hair which has procured them the name of "Mop-headed Papuans." Among the natives of the Fiji islands, (the eastern-most limit of the Oriental negro race) the operation of dressing the hair occupies the greater part of a day. The hair of the beard and whiskers, which generally grows very thick and bushy, is arranged in little tufts similar to those of the head, and the same peculiarity is found to exist in the hair with which the breasts and shoulders of the men are often covered, but the tufts are here farther apart than on the head and chin. This woolly or twisted hair is peculiar to the full blooded Papuans. A comparatively slight mixture with the brown-complexioned or Malayu-Polynesian race appears to destroy the peculiarity. The hair of people of the mixed race covers the surface of the head, or at least has done so in all cases that have come under my observation, and is sometimes only slightly curled. It is therefore very easy to distinguish the pure Papuans, and throughout this essay those only will be called by that name who possess this their leading characteristic. The term Papuan is derived from a Malayan word "papua or pua-pua," crisp-haired. The term "tanna papua" or "land of the crisp-haired" is applied by them not only to New Guinea, but to all the adjacent islands which are occupied exclusively by this race. It is so peculiarly applicable, and comprehensive, and so entitled to respect as having been conferred by a people who must have known them for ages before we even heard of their existence, that I trust the ethnologists of Europe will excuse me for retaining it in preference to the newly invented term. "Melanesian" or "inhabitants of the black islands," which, although applicable enough to the Papuans, is equally applicable to the greater portion of the Australian tribes.

The features of the Papuans have a decidedly negro character, broad, flat noses, thick lips, receding foreheads and chins, and that turbid colour of what should be the white of the eye which gives to the countenance a peculiar sinister expression. Their complexion is universally a deep chocolate colour, sometimes closely approaching to black, but certainly a few shades lighter than the deep black that is often met with among the negro tribes of Africa. With regard to stature, a great difference is found to exist between various tribes, even in New Guinea, and which has led to much confusion in the descriptions given by travellers, who have, perhaps, each only seen a single tribe. On the south-west coast of New Guinea, within a space of one hundred miles, are to be found tribes whose stature is almost gigantic, and others whose proportions are so diminutive as almost to entitle them to the appellation of pigmies, while the manners and customs to each so exactly correspond as to preclude the supposition that these peculiarities can be other than accidental. It is difficult to account for these peculiarities, but as the stout and stalwart Papuans are met with only among those coast tribes who have maintained their independence, and at the same time have acquired many of the agricultural and mechanical arts from their neighbours the Malayu-Polynesians while the pigmies are found only in spots where they have been driven to mountain fastnesses, or have fallen under the influence of other races, we may conclude that their mode of life has much to do with this difference in point of stature and proportions.

With regard to form, the various tribes of Papuans differ as much as in stature. The more diminutive tribes, whose members chiefly come under the notice of Europeans from their existing in great numbers as slaves throughout the Moluccas, are unprepossessing enough in when in their natural state, but when under good masters, the regularity and wholesome nature of their diet, coupled with the apparent utter forgetfulness of their native land, produce a roundness in their neat clean limbs, and a sprightliness of action which is rarely met with among their more civilized neighbours the Malayu-Polynesians. On the other hand, the larger Papuans are more remarkable for their strength than their symmetry. They have broad shoulders and deep chests, but a deficiency is generally found about the lower extremities, the splay feet and curved shins of the western Africans, being equally, or even more common among, whom I may be allowed to term, the gigantic Papuans.

The celebrated philologist, Marsden, has adopted the term "Negrito" or "little Negro" from the Spaniards of the Philippines, and has applied it to the entire race.

The highest state of the sea-faring art among the Papuans, without foreign assistance, is met with in Torres Strait and upon the south coast of New Guinea. Here they possess large canoes of such construction and propelled in so peculiar manner, that we must consider them purely Papuan. Some very excellent sketches of these canoes are given in Flinder's voyage with so full a description that it will be unnecessary for me to enter into minute particulars. These canoes or boats are from thirty or forty feet long, and the planks with which they are constructed are sewed together with the fibres of the cocoanut. Each is provided with an outrigger, and a platform of bamboo occupies the centre of the boat on a level with the gunwale. They are propelled in calm weather by paddles with long handles, the rowers all standing, as is generally the case among the Papuans. But the most striking peculiarity of these vessels consists in the sail, which is an oblong piece of matting set up in the forepart of vessel by means of two poles or masts, to which the upper corners of the sail are fastened. These masts are moveable, and the sail is trimmed by shifting the head of one of the masts aft. According to my experience these boats sail very indifferently, except before the wind, but Captain Flinders, who had good opportunities of judging, maintains a more favorable opinion. They are often to be met with about the month of March three or four hundred miles down the north-east coast of Australia, the islanders being in the habit of making an annual voyage in this direction. The stopping places are usually the islands lying off the coast, where they obtain tortoise-shell and trepang, the chief objects of their voyages.

The natives of the south coast of New Guinea have very large canoes of a similar but more unweildy construction, and propelled by a similar description of sail. These have never been seen far from the coast, and in fact are almost unmanageable from the difficulty experienced in steering such unweildy masses with paddles alone. It is therefore difficult to conceive for what purpose they have been constructed, unless it should be for war, in which case their large size would give them an imposing appearance.

The New Guinea canoes generally are of light construction and are provided with an outrigger. The larger ones have an attap roof and are capable of containing an entire family, with household furniture and domestic animals.

While most of the oceanic spiral haired tribes are distinguished, by their general physical character, from the adjacent races of E. Asia, they have most decided resemblances to the E. African races. In every considerable group of African tribes several varieties may be observed. This remark, which is true of the continent, applies also to Madagascar. In the Asianesian groups a large range of variations is also seen. This is exhibited in the Philippines, as well as in the more eastern groups. In Africa there are exceptions of a peculiar kind to the distinguishing character of the hair. In some of the Fulah tribes it passes from slightly curled to straight, and becomes soft and silky. If the Australians be admitted to have an affinity to the Asianesian family of negroes, the same exception appears in it also. Most of the other African varieties have also their representatives in Asianesia. Thus Prichard gives a portrait of a Mozambique negro which is a very correct representation of one variety of the eastern negro found in the island of Ende or Flores. A remarkably indented appearance or sinking in at the junction of the nose and forehead is observable in some of the negro tribes of Africa, in those of S. India and in Papuan tribes. It is also probable that the form of the nose and forehead observable in many of the Papuas, is also a characteristic of some of the S. Indian and E. African people. Some of the African tribes have a Semitic cast of countenance, and there are varieties of the south Indian and Papuan families which present the same aspect. But the grand resemblance is that which appears in the more generally prevailing characteristics of both families,—such as the spiral hair; oval and sometimes elongated form of the face; the moderate thickness of the lips which in some varieties even become thin; the general absence of the prognathous form, which is so marked a peculiarity of some of the African and Asianesian negroes, and of the obliquity of the ocular opening and smallness of the eye which distinguish many of the E. Asian races; the nose, full and somewhat flat, but sometimes slightly aquiline, and, in general standing out from the face much more than in the S. E. Asian races; the anterior projection of the cheek bones, and, on the whole a general cast of countenance decidedly retiring from that of the Guinea negro on the one side, and the Mongol on the other, and which would perhaps be best described physiologically as Indo-African. It is intermediate between the S. Indian and the negro type, and if the spiral hair were generally absent, as it is in some tribes, it would approach the former much more nearly than the latter. The Indian character of many of the E. African races and some of the middle and westerly ones, such as the Fulah, Ashantee, Mandingo, and Yarriba, has been frequently remarked, and the same character is seen in many of the varieties of the Papuas of New Guinea and Torres Strait. Even the ample Indo-Semitic beard, never found in the S. E. Asiatics, appears amongst the Australian, the negroes of Tanna, Mallicolla, Rotuma, and less noticeably, amongst some of the western Papuas. Several of the Madagascar tribes have the spiral hair and other characteristics of this physical type, and the decided resemblance between them and varieties of Papuas found from New Guinea to New Ireland, has been strongly insisted on by Lesson, who examined both. There are probably few varieties of the east African types, from those of the Danakil on the Red sea to those of the Kafir and Kongo tribes in the south, to which near approximations might not be found in the eastern islands. On the other hand, it must be remembered that amongst the Papua tribes there are varieties leaning to the S. E. Asian type, while preserving some decided African characteristics. The great difference between the generally direct, and often rapid and demonstrative, Indo-African temperament of the Papuas, and the slow, reticent, phlegmatic Tibeto-Siamese temperament of the latter Indonesian, is strongly marked in the expression of the face in most of the Papuanesians, and indeed is often even more striking than the difference in features. Even the more lively eastern continental tribes, such as the Anamese, with the Gallic demonstrativeness and the abrupt and independent air of the Papuas, in this respect rather resemble the Tibeto-Indian, Polynesian and Micronesian. The different Papua modes of dressing the spiral hair are all practised in Africa, whe[illegible] some tribes make it stand out like a di[illegible]taff, supporting it with wooden pins, whi[illegible] others plait it into slender ringlets. The dressing and arranging of these plaited locks is a laborious and important operation amongst the Malagasi and many African nations, as amongst the Fijians and other Asianesian tribes who have the same custom. With some the hair is shaven, save a knot at the top, and some make it into wigs. The Sumali and other tribes stain the hair or decolorize it with lime. Many tribes smear the body with grease, and daub or streak it with red ochre and pigments of other colours. All these are Melanesian customs. The teeth are filed into a conical form, while others notch them, and it deserves remark that of the two modes of filing the teeth prevailing in Asianesia, the horizontal and the serrated, the latter or African is the one practised by the Papuas. The former or Burmah-Tonkin custom, which is generally adopted by the Tibeto-Anam tribes of Asianesia, appears, however, to have prevailed in ancient Egypt and the Canary islands, as it does still in some American and Esquimaux tribes. An equally curious fashion, that of boring the septum of the nose and wearing a piece of wood, bone, &c., in it, is

African, Papuan and Australian. Circumcision prevails amongst some of the African tribes. Some African, like some Australian tribes, knock out two of the front teeth. The African practice of making long gashes in the skin, and raising the flesh in cicatrices, is Australian and Papuan also. Tatooing and the custom of each tribe having a different pattern, or a distinguishing mark, prevail in both regions. Large perforations of the ear are African as well as old Indian, Trans-Indian and Asianesian. Among other customs found in Africa and in some of the eastern islands, are many of those connected with the most ancient shaman and fetish religions, and with a rude form of Sabaism, a belief in sorcery, metempsychosis, putting sorcerers to death when they will not give rain, the pretended extraction of diseases from the body of the patient, in the shape of animals, bits of bone, wood, &c., animal worship, the selection of tutelar or sacred animals by different tribes, the peculiar sanctity of the crocodile, the annual sacrifice of a youth or virgin to it, purging villages of evil spirits, the custom of human sacrifices generally, different forms of cannibalism, eating portions of slain enemies and of deceased relatives, preserving the heads of enemies; drinking warm blood and eating raw flesh, tearing the heart or kidneys out of animals and devouring them, omniverous and uncleanly habits; infanticide, the destroying of old and diseased persons; many incidents of the system of interdictions or tabu, tabu of the domestic fowl, food forbidden to particular classes, uncleanness, purifications, removal of prohibitions, the character of the dances in Australia, Van Diemen's Land, &c., and amongst many of the African tribes, lunar dances; abandonment of the house and sometimes the village in which a death has taken place, doubling up the body with the head resting on the knees and burying them in circular graves or in jars, smoking corpses to preserve them, keeping them in caves, keeping the bones of the dead in the house and carrying them about for a time, the preservation of the skulls of ancestors, slaughtering horned animals and placing the horns on poles or trees around the grave; ordeals, oaths and engagements by drinking blood; conical and hemispherical huts; boomerangs, poisoned arrows, the shape of shields, spears, &c., earthen-ware manufacture, the peculiar style and ornature of carved wooden articles, clubs, spoons, images, or fetishes of animals, gods, &c., the style of plaiting caps, baskets, &c., procuring fire by working a piece of stick in a cavity made in another piece, tubular bellows worked by a piston, the resemblance between the peculiar cylindrical beads worn by the ancient Guanches of the Canaries, and those worn by the Timoreans; many social usages, such as those connected with the sexes, ceremonies attending circumcision or the initiation of youths to test their courage, &c., and promote great endurance of bodily pain, peculiar secret societies, &c., &c. This distinguishes all the races of the Oceanic basin which have not been purified by the Brahmanic and Semitic religions. In the customs of destroying the aged, compare the voluntary Fiji practice with that of the Tachuktschi in N. E. Asia. Some tribes place their dead in stone and earthenware jars (Celebes, New Guinea, Japan) and others, who have no jars, in circular graves, (Australia), strong traces of this and numerous other Africo-Asianesian customs are found in S. India. The translations of the Mackenzie MSS. by the Rev. W. Taylor, which have appeared in the Madras Journal of Literature and Science, contain many notices illustrative of the ethnology of this region and amongst them are the following: "Anciently men wearing tufted hair, Curumbars and various others, of the Jaina credence, dwelt in this town. They were the aboriginal residents." "Anciently in this town, they did not keep the very old people (in the houses) until death; but seeing the time approach, they put them in very strong-made earthen jars, together with food suitable for them. Such was the practice in this Padnur. They would die off, some little time after being placed there. Such kind of earthern jars are termed matamaccachal, which may be rendered 'heretic dog kennel,' matama may also be for mantama or martaban jar. Though these were placed in early days, yet even now many such chal (pans or buckets) are to be seen. Human bones, and drinking vessels which had been placed therein, have been taken out, and buried." In Banabe (Micronesia) noble women marry common men and their children rise to the chiefdom which the sons of chiefs never do: this has a resemblance to the Nair custom.

The two principal forms of the S. E. Asian head, the angular (square, lozenge or oblong) and the ovoid, both well distinguished from the Africo-Indian shape of the pure Papuan, the different shades of brown, yellowish, and brownish-yellow, which prevail to the westward of China, and the coarse lanky hair which characterises the E. Asian races, are all repeated in the purer Malayu-Polynesian tribes. The remarkable ovoid forms characteristic of the Anamese and many of the insular tribes, and the more delicate varieties approaching to oval are indentical with those so often found amongst the Indo-Tibetan tribes. The quasi Iranian character of some of the Asianesian races appears to connect itself with a western influence exerted on the ethnology of the Gangetic basin before the era of the Iranian movement to the eastward. The harshly angular or predominating form of the Mongolian head is not the most prevalent Indonesian. It is chiefly found amongst the western Malays. To the S. E. the finer ovoid verging often on the oval, predominates. The ceremonies attending the consecration of a spot in the house to the spirit of a deceased relative, inviting him to come and occupy it, searching for the fancied traces of his passage in the ashes that are sprinkled on purpose, are the same in India amongst the Kol and in Indonesia amongst some of the Philippine and Timorean tribes. The same custom slightly modified prevails in Amboyna, Bali, Mangkasar, &c. The marriage ceremonies have a frequent identity, as with the Himalayan Limbu and the Borneon Kahayan, &c. The curious division of the price paid for a wife, and the various ceremonies attending its payment, have a remarkable resemblance amongst the Kol and probably many other tribes in India, and the Batta, Luzonian and other lank-haired races of Indonesia. No sooner has the impatient bridegroom paid one of the customary exactions, than he is met by another. The agreement in social and political institutions is great. Amongst the former are the custom of bachelors, and the less widely spread one of the girls, occupying a separate common house; the prohibition of marriage between persons of the same clan, a very archaic institution, for it prevails in America, N. E. Asia, China, in India amongst the Khonds, &c., (and originally amongst the Arya), in Australia, and amongst the greater number of the Tibeto-Anam tribes of Asianesia; the holding of all land and other inherited property by the female children, and the reception of the husband into the wife's clan (Kocch, some of the Garo tribes, Malays of Menangkabau, &c.;) many customs connected with marriage, the position of the wife, divorces, their consequence, and the congregation of a whole village in one long house.

There is the same hunting for a great number of heads amongst the wilder tribes of Celebes as there is with the Kuki on deaths, particularly of chiefs. This has also extended to N. W. and S. Australia. The Sabaism of Indonesia and Australia is a curious reflection of that which prevailed in S. W. Asia. The moon is the wife of the sun. The Timorean race, like the Naga, heap irony and insult on the head, place food before it, ask it if it is pleased with its place of rest, "if so, call your relations and let them eat, or will you eat alone? eat then, &c." The Timorian group preserves the most interesting combination of African and Indian characteristics which Indonesia affords. It would alone prove the two connections in the most decisive manner. The languages have many Tibeto-Indian as well as African features. The Turanian physical characteristics prevail amongst the Rajmahali, Khond, Kol and Gond on the southern side of the Gangetic basin, as far as the meeting of the Gond and the Bhil where an Africo-Indian character takes its place. On the northern and western side it prevails throughout a great portion of the Himalayan basins of the Ganges and Brahmaputra, in Assam, and in the western projection of the Trans-Indian highlands which enters into the southern and eastern part of the Brahmaputra basin. The Tibetan races are spread along the whole of the great Trans-Himalayan depression or from the Hindoo Koh to the borders of China. They meet and partially blend, physiologically, linguistically or morally, with Indian races along the entire length of the Himalaya. In the western extremity the latter prevail and the physiological boundary gradually but irregularly descends from the highest ranges, till it embraces the upper habitable portions of the Sutlej, Jumna and Ganges Alpine basins in Bisahar and Gharwal, after which it ascends again where the Tibetan depression is most elevated and contracted and thinly peopled, there being apparently no Tibetan mixture in Kumaon. The large Turanianism observable in Assam and the northern and eastern sides of the plain of Bengal, the considerable contrast which even the proper Bengali peasantry afford both physically and morally to the Hindustani, the fact of Turanian tribes being preserved on the opposite sides of the common valley of the Ganges and Brahmaputra in the Rajmahal and Garo mountains, as well as all along its northern and eastern margin, and as far as the upper basin of the Tapti to the S. W. warrant the conclusion that similar tribes once occupied all the lower part of the Gangetic basin. The northern Indo-African tribes appear to have occupied the western part of the Gangetic basin,—the opposite sides of which still preserve remnants of them in the Chamang, Dom and Rawat on the N. and the Bhil and other allied tribes on the S. a large portion of those of the Nerbudda and Tapti, and probably the upper branches of the Godavery and Kishna, as well as all the western seaboard from the Gungawally northward. Their N. W. boundary must have been gradually driven in by the advance of the Aryan tribes. Before the rise of the Iranian tribes, tribes intermediate between Iranian and Turanian, probably occupied the basin of the Indus and even extended N. and W. so as to connect themselves on the one side with the ancient Africo-Semitic and on the other with the Mid-Asian. The southern Indo-African tribes were a continuation of those of the N. W.

and the Tamil and other populous ones appear to have owed to their large river basins and to the influences received from Egypt and S. W. Asia, the civilization which enabled them so greatly to surpass their northern neighbours. As far as can be gathered from the present distribution of the tribes, the whole of India would thus appear to have been physiologically divided by an irregular line running from the Alpine basin of the Kali to the upper basin of the Tapti and thence S. E. along the Warda and Godavery nearly to the mouth of the river. To the E. of that line Turanian and Irano-Turanian features prevailed and to the W. Africo-Indian, the latter being much more Iranian than the former and probably presenting a negro character in its ruder and servile people, and Iranian and quasi Iranian in the higher of its more civilized tribes. The boundary has doubtless been much affected by internal movements and contests in all the middle Indian highlands, induced by the external pressure of the Aryan nations, and even in the pre-Aryan era it must have undergone a succession of changes. During that period strong Africo-Indian influences appear to have extended over the S. portion of the eastern or Turanian region, and produced languages intermediate between the Tamulian and Tibeto-Indian which was the more easily effected from the two having numerous characteristics in common. The Tibeto-Tamulian era must therefore have been of great length.

The Papuan race extends from New Guinea eastward through the Louisiade and Solomon Archipelagos to the new Hebrides, (where it co-exists with some tribes of Malayu-Polynesians) and still further to the Fiji islands which, however, is the extreme limit of the race in an eastern direction. It is singular that the Papuan race improves as it recedes from the continent of Asia and advances into the Pacific. The Fijians are the aristocracy of their race. They are Papuans only in their physical characteristics, their civilization is as advanced as that of their neighbours of the Friendly Islands. The equal position they maintain with regard to the latter who prefer them rather as friends than as enemies, prove that the physical capabilities of the Papuans are not inferior to those of the Malayu-Polynesians, and also that the crushing influence the latter have gained over the former within the limits of the Indian Archipelago, is more to be attributed to their possession of more formidable weapons, such as swords and muskets, and to their discipline although imperfect enough, than to any natural superiority. New Caledonia is occupied by a race in which it is difficult to say whether the Papuan of Polynesian element is predominant, several travellers have also thought that they could discover traces of a negro race in New Zealand, which might possibly be the case, for the Papuans of the Fiji islands have been long accustomed to navigation from island to island and they might have been carried there by a similar chain of events to that which brought the Malayu-Polynesians. In a south direction the Papuans have evidently spread far and wide over the continent of Australia, for although the influx of another people has greatly modified the Papuan character of the race, it exists or did exist in its purest character in the island of Van Diemen's Land. The inextinguishable hatred which they bore towards the European settlers, rendered their presence so hateful, that the latter rose en masse to exterminate them, but these children of nature, owing to their superiority in bush tactics, escaped through the cordon that had been drawn around them during the night. Diplomacy effected what force was found unequal to, and the remnant of the tribe was persuaded to surrender and was deported to an island in Bass Strait. It seems that a man and two boys were left behind, for about three years subsequently, two shepherds, unarmed, and dreading no danger, were attacked and wounded by three half-starved wretches, a man and two boys who had not strength to effect their purpose, and who were soon added to the community of Flinders island. They had remained concealed in the thick brushes near Circular Head until an opportunity occurred, as they thought, of gratifying their hatred, against the intruders. Marion, was the second European visitor to Van Diemen's Land, Abel Tasman being the first. He describes the Van Diemen's Land natives as of the common stature, of a black colour, and all naked, both men and women, and some of the latter had children fastened to their backs with ropes made of rushes. All the men were armed with pointed sticks (spears) and with stones sharpened in the manner of axe heads. They had, in general, small eyes, and the white duller, than in Europeans, the mouth very wide, the teeth white, and flat noses. The hair, which resembled the wool of caffrees, was separated into shreds, and powdered with red ochre. They were generally slender, tolerably well made, kept their shoulders back, and upon their prominent chests, several had marks raised in the skin. Their language appeared harsh, the words seeming to be drawn from the bottom of the throat. The Papuan character of the hair, in which they differ from the Australians, is distinctly noticed by several writers, more especially by Captain Bligh and by Captain Cook's intelligent surgeon and naturalist Mr. Anderson. The latter not inaptly compares it with the tuft-like hair of the Hottentots of South Africa, to which indeed it bears a perfect resemblance. Some other travellers have evidently supposed this singularity to have been the result of some artificial process, not being aware that any race on earth possessed hair of so peculiar a nature.

After a long experience of the Australian continent which included prolonged residence on the north, south, east, and west coasts, during which Mr. Earl's attention had been particularly directed to the native races, he had never been able to detect a single tribe of pure Papuans, and the only traveller who has described a people who might be supposed to be such, is the celebrated Dampier, who speaks of meeting a people with woolly hair on the north-west coast. The tribe which now inhabits that particular spot resembles the people encountered by Dampier in everything but this. It seems improbable that so great a change should have occurred in so comparatively short a period, but it is certainly not impossible. Melville Island, which is separated from the north coast of Australia by a strait only a few miles wide is inhabited by a people of pure or nearly pure Papuan origin, who are looked upon as foreigners by the natives of the opposite coast of Australia, with whom they have little communication, and that little invariably hostile. In a north-west direction from New Guinea, the Papuan race extends through the Moluccas, to the Philippines, but in these islands they only appear in small and scattered tribes occupants of the mountain fastnesses. The small islands which extend from New Guinea to Timor, with the exception of the Arru Islands are occupied by Malaya-Polynesians of the most decided character, but at Timor, especially near the north-east end, a race evidently of Papuan origin again appears, but never, as far as Mr. Earl had been able to ascertain after strict enquiry, in an absolutely pure state. These tribes are much oppressed by the Malaya-Polynesians who occupy the table-land of the interior; and the slaves which are brought down to the settlements on the coast, and were formerly exported to Macao and other places, were chiefly of this race, which led to very erroneous impressions with regard to the nature of the inhabitants of Timor on the part of those who have only met them at Macao, where the negro character naturally prevails among them. Some tribes on the great island of Flores or Mang'arai assume a more decided Papuan character, and there is said to be also a tribe of these people in the neighbourhood of the Timboro mountain on Sambawa; but beyond this they disappear, and are not encountered again until we meet them on the Malayan peninsula under the name of Semang, occupying some mountain tracts in the states of Kidah, Perah, and Kalantan. The Andaman Islands in the Bay of Bengal are occupied by a people of most decided Papuan character, who bear, indeed, a very striking resemblance to the natives of Van Diemen's Land. Hence they can be traced no further, unless the analogy recently discovered by Mr. Norris, the Assistant Secretary of the Royal Asiatic Society, between the Tamil language of the Coromandel coast and some of the Australian dialects, may lead to the establishment of an affinity between the nations that use them.

As the Papuans have no records, and no traditions but those of a most vague description, the mystery which hangs over their origin can only be dissipated by analogy drawn from the circumstances in which we find them placed. Of one thing there can be no doubt, namely, that all the Negro tribes to the eastward of the continent of Asia, belong to one and the same race. This is proved by the almost perfect identity that exists between all those tribes however remote from each other, which have not had opportunities of deriving improvements from more civilized neighbours; and where this has occurred, in New Guinea and the adjacent islands of the Pacific for example, their personal characteristics are still mantained in the utmost purity. With the solitary exception of the Fiji islands, every spot on which the race is now known to exist, can be reached from the continent of Asia by passing from island to island without being under the necessity of going out of sight of land. An inspection of a chart on a large scale of the Indian Archipelago and the Pacific, will render this point sufficiently palpable to the reader. This would go to prove two things; first, that if they migrated from any continent it must have been from that of Asia; and secondly, that they must have been unprovided with vessels fit to encounter voyages of even a few days' duration, in fact they would appear to have been in precisely the same condition as the natives of Van Diemen's Land, Melville Island and the south-west part of New Guinea, of the present day, deriving their chief subsistence from the shores of the sea, where those who subsist solely on the productions of nature can provide themselves better than in the dense forests of the interior. The Papuans everywhere delight in dwelling on the coast, although not a decidedly maritime people ; while the superior tribes of Malaya-Polynesians, delight in occupying the table-lands of the interior, where their knowledge of agriculture enables them to obtain an abundant subsistence. The propensity to migrate is as great in persons living on the sea shores without fixed habitations as in wandering pastoral tribes, especially if, as was probably the case in this instance, they were urged by a pressure from behind, caused by the advance of a superior race on the continent of Asia. This propensity may be witnessed in full force at the present day on the northern coasts of Australia, where the natives take great delight in wandering in families along the margins of the sea, spearing the fish, and often the turtle, as they go, and generally accomplishing eight or ten miles a day. When they wish to visit one of the islands lying off the coast, or to cross a wide river or an arm of the sea, half an hour suffices to strip the bark of the curved stem of a tree in one single sheet, and, by tying up the two ends and spreading the centre out with sticks, to convert it into a boat sufficiently commodious to transport the family across the piece of the water ; or, where this material is not to be procured, a raft of the stems of the pandanus palm is made to answer the same purpose. What people could be more adapted for migration than one that cared not for more shelter than the sky afforded, carried all their domestic goods on their backs without inconvenience, and were always tempted onwards by the superior abundance of the productions of nature which untrodden shores afforded ? What a paradise must Australia have appeared to such a people, with its sandy bogs teeming with fish, and its open interior abounding in herds of Kangaroos as yet unaware of the danger which the presence of man placed them in.

The Dutch corvette Triton, in the course of her examination of the S. W. coast of New Guinea, in search of a spot on which to found a settlement, entered an inlet near Cape Valsche which has since proved to be a strait. A party of natives was seen upon the breach, apparently inviting an interview, and an armed boat, containing several officers, among whom was Lieutenant Modera, was sent on shore to communicate with them. "When the boat had reached to within a musket shot's distance from them, the natives, who were armed with bows, arrows and lances, commenced making a number of singular gestures with their arms and legs. The Ceramese interpreter called out to them in a language composed partly of Ceramese and partly of a dialect spoken by a tribe which dwelt more to the north, but which was evidently quite unintelligible to them, for they answered only by loud and wild yells. We endeavoured for a long time without success, to induce them to lay aside their weapons, but at length one of them was prevailed on to do so, and the others followed his example, on which we also laid down our arms, keeping them, however, at hand. We now closely approached each other, and the interpreter, dipping his hand into the water sprinkled some over the crown of his head as a sign of peace. This they seemed to understand, for two of them immediately did the same, on which the interpreter jumped into the shallow water, and approached them with some looking glasses and strings of beads, which were received with loud laughter and yells. They now began dancing in the water, making the interpreter join, and the party was soon increased by other natives from the woods, who were attracted by the presents. One of the officers also jumped into the water and joined in the dance, and they soon became so friendly as to come close around the boat." This state of affairs, however, did not last long. The natives were detected secretly dragging the boat to the beach, and on being prevented from doing so, they shot a flight of arrows into the boat, and wounded two of the crew, who retaliated by a discharge of musketry which killed or wounded three of the natives. Those who are acquainted with the character of the Papuans will see in this the usual results of first interviews with the more uncivilized tribes, but they will scarcely be prepared for what follows. "In the afternoon of the same day at the time of high water, three of the naturalists went in a boat well armed to the same spot, where they found the trees full of natives of both sexes, who sprang from branch to branch, with their weapons on their backs, like monkeys, making the same gestures, and screaming and laughing as in the morning, and no offers of presents could induce them to come down from the trees to renew the intercourse. This singular scene was also witnessed by those on board by means of their telescope." Such ape-like agility on the part of any members of the human family would be scarcely credible, had we not so many proofs of how readily man adapts himself to the circumstances in which he is placed. The immense mangrove jungles which line this part of the coast could scarcely be traversed except by climbing from branch to branch. A similar facility in ascending trees, and moving among their branches, is found among the natives of Melville island on the north coast of Australia, who bear a striking resemblance in many particulars to this New Guinea tribe. During the period in which this island was occupied by a British garrison, many of the men were killed or wounded by spears thrown from the trees, where the natives appeared to use their weapons with as great facility as on terra firma. The New Guinea tribe above mentioned seems to possess all the general characteristics of the Papuans. "Their stature is of the middle size and they are by no means strongly built. Their skin is black, but not very deep in colour, and with a bluish tinge. The lips are pretty thick and the nose somewhat flat. The hair of the head is frizzled, like that of the African negroes and pitch black in colour. The beard and whiskers are allowed to grow, the first is crisp (kort-gekruld) like that of the head." (*Modera, pp.* 25-30.) The natives of the Utanata river, about 100 miles to the northward of the tribe just alluded to, are the finest looking men of all the people of the west coast of New Guinea. The river whose banks they occupy, is the southernmost limit of the adventurous voyages of the traders from Celebes. These men are above the middle size, and many among them may be called large men. They are stout and well made. Their colour is a dark brown, with sometimes a bluish tinge. They have dark and small eyes, a flabby, drooping nose, the septum of which is usually bored and an ornament of wood, or hog's tusk worn therein. The mouth is large and provided with very white teeth, which are sometimes filed to points. The lips are tolerably thick. Their features bear considerable resemblance to those of the Africans, a character which they possess in common with the tribe previously described, but the expression is by no means so hard and repulsive as is the case with the latter. Some of them have marks on the body, especially on the arms, breast and belly, made by cutting the flesh with sharp stones and then burning the wound, which causes the flesh, when the cicatrix is formed, to stand out in relief in weals the thickness of the finger.

Andamans. Very full accounts of the people of the Andamans are given in one of the earlier volumes of the "Asiatic Researches," and also in Colonel Symes' Embassy to Ava. Their limbs are spare and ill-proportioned, their bellies protuberant, the complexion black and the hair woolly. They have also a taste, so characteristic of the wilder Papuans, for daubing their heads with red ochre. They have canoes, but use small rafts when they wish to visit the islets. Both sexes go entirely naked, for the pieces of fringe they wear about them are rather intended for ornament than as a covering. They obtain fish by descending to the shore at low water and spearing those that are left among the reefs by the receding tide; or by catching them with small hand-nets, and depositing them in long wicker baskets which they carry slung from their shoulders. All these are characteristics of the wilder coast Papuans, especially those of Van Diemen's Land, to whom indeed the Andamaners bear a resemblance so striking as to excite surprise that two tribes who must have been separated during many ages, and who reside in climates so different, should be distinguished by precisely the same characteristics. The only point of difference that can be detected, consists in the knowledge on the part of the Andamaners of the use of the bow and arrow, which was either never known to the Van Diemen's Land natives or has been neglected in favour of the dart or throwing spear, which is far better adapted to the open nature of their country.

Pacific. The best and fullest account of the Fijians is found in Lieutenant Wilkes' narrative of the United States Exploring Expedition. An immense deal of valuable matter concerning the inhabitants of Van Diemen's Land, the new Hebrides, new Caledonia, in fact of all the islands of the Pacific with the exception of the Fijis and Samoas, is contained in Cook's voyages which is quite a text book for the ethnologist in Polynesia. Details respecting the north coast of New Guinea, are contained inDuperry and D'Urville's French voyages; and Captain Blackwood of H. M. surveying ship "Fly," gives the fullest account of the natives of Torres Strait and of the south part of New Guinea. A recent work by a French gentleman, M. Mallet, gives many details respecting the negritos of the Philippines, the Papuans of Flores or Sumbawa, have been noticed by Mr. Russell Wallace. The Semang of the Malay Peninsula have been shortly described by Raffles, Crawfurd and Marsden, and their accounts have been sufficient to decide, at all events, their negro character.

MacGillivray says he found it difficult to state the peculiarities of one of the Papuan races, (including the inhabitants of the Louisiade) for even the features exhibit nearly as many differences as exist among a miscellaneous collection of individuals of any European nation. They appeared to him to be resolvable into several indistinct types, with intermediate gradations; thus occasionally we met with strongly marked negro characteristics, but still more frequently with the Jewish cast of features, while every now and then a face presented itself which struck him as being perfectly Malayan. In general the head is narrow in front, and wide and very high behind, the face broad from the great projection and height of the cheek bones and depression at the temples; the chin narrow in front, slightly receding, with prominent angles to the jaw; the nose more or less flattened and widened at the wings, with dilated nostrils, a broad, slightly arched and gradually rounded bridge, pulled down at the tip by the use of the nose-stick; and the mouth rather wide, with thickened lips, and incisors flattened on top as if ground down. Although the hair of the head is almost invariably woolly, and, if not cropped close, or shaved, frizzled out into a mop, instances were met with in which it had no woolly tendency, but was either in short curls, or long and soft without conveying any harsh feeling to the touch. In colour too it varied, although usually black, and when long pale or reddish at the tips; yet some people of both sexes were observed having it still woolly, but of a bright red colour, artificially produced, as is known to be effected by means of lime water by the inhabitants of the north-west coast of New Guinea. The beard and moustache, when present, which is seldom the case, are always scanty, and there is very little scattered hair upon the body. The colour of the skin varies from a light to a dark copper-colour, the former being the prevailing hue; individuals of a light yellowish-brown hue are often met with, but this colour of the skin is not accompanied by distinctive features. The average stature of these Papuans is only about five feet four inches. Although well made, and far surpassing British sailors in agility, they were inferior in muscular power. Their strength was tested by means of a deep-sea lead weighing twenty-two pounds which none of the natives could hold out at arms length, although most of the sailors who tried it experienced no difficulty in sustaining the weight for a few seconds. Cowries are strung round the legs, arms, and neck. Human jaw-bones are frequently worn as bracelets in the Louisiade.

Ansus island, in the Eastern Archipelago, is inhabited by Papuans. Their houses, built on posts, are placed entirely in the water. At very low water only is the beach partially uncovered. This beach consists of mud, in which mangroves grow luxuriantly and completely obstruct a landing. The gardens, from this cause, are situated on the surrounding islands, principally on an island with a high beach lying opposite to the kampong. The Ansus Papuans wear their hair in tufts. Their appearance is good natured, faces regular, eyes beautifully black, the mouth broad with beautiful regular teeth, and the forehead high but narrow. Many have thin lips and finely curved noses, which give them a more European physiognomy. The men are generally handsome and well-formed, stout, without being too thick, strong and muscular; the women very good-looking; and some children with very regular soft faces and long pendant curling hair.

Aru, Arroe or Arru Islands, extend from lat. 7° 0′ to lat. 5° 52′ S. and in long. 133° 56′ E., run for upwards of 100 miles N. and S. and between forty and fifty miles in breadth, and lie between the Timor Laut group and the S. W. coast of New Guinea. They are a closely packed group, distant about sixty miles from the south-west coast of New Guinea. On the eastern side of the group are found banks of sand and mud, stretching far out to sea, which are only covered to the depth of a few feet at low tides. Inland are many fresh water swamps with thick impenetrable jungle in other places. Their produce is pearls, mother-of-pearl, tortoise-shell, birds of paradise and trepang. The timber of the islands is much praised. The Arru islanders have much intercourse with strangers. They purchase from the Bugis the Papuan slaves brought from New Guinea, who are then employed in diving for pearls and in the beche de mer fishery. The Arru islanders are impoverished by their excessive use of intoxicating liquors, imported from Java and Macassar. In personal appearance the people are between the Malayan and Polynesian Negro. They are not many degrees further advanced in civilization than the natives of the north coast of Australia to whom many of them bear considerable personal resemblance. Some of the Arru men profess christianity and some are mahomedans. In stature they surpass the civilized natives of Celebes. The dress of the men is a piece of matting or cloth girded round the loins and drawn tight between the thighs, and a salendan or shawl. No fillet is worn round the head. The hair is woolly and frizzled out like that of the Papuan. The men are of a jealous disposition and easily roused to anger by abuse of their women or ancestors, otherwise they are mild of charater. The women wear a mat in front and one behind. When a person of consequence dies, these are stripped off and they rush into the sea where they disport for some time. Christianity was introduced into the Arru Islands, many years ago, by the Dutch of Amboyna and nearly all the principal people profess this creed. The Arru people ornament their houses with brazen trays, called dulam or talam, and elephants teeth, which are broken up when the owner dies. Tripang is abundant near the islands, in nearly all the varieties, but is indifferently cured. Neither the Kei or Arru islanders ever abscond to avoid paying their debts. The Arru islanders bear a strong personal resemblance to the aborigines of Port Essington; indeed, on several occasions in which natives from the neighbourhood of the late settlement visited the islands in European vessels, they were considered by the Arruans as belonging to some remote part of their own group. But the Arruans also possess so many characteristics in common with the Outanata of the opposite coast of New Guinea, that it would be necessary to include them in a general account of the Papuans. One of their most singular peculiarities consists in the value which they attach to elephants tusks, brass gongs, and huge porcelain dishes. An odd custom, and one that is probably unique in the world, consists in the destruction of a man's goods on his death, instead of a distribution of them among his surviving relations. All the chattels which he has collected during his life, including tusks, gongs and precious China dishes, are broken in pieces and thrown away: and in the villages may be seen heaps of these fragments of property which custom or some singular superstition has deterred the living from appropriating.

The natives of Arru are Papuans, with black or sooty brown skins, woolly or frizzly hair, thick ridged prominent noses, and rather slender limbs; most of them wear nothing but a waist cloth. Papuan boys sing cheerily as they walk along or talk aloud to themselves, which is quite a negro peculiarity. They have as food raw sago and vegetables, fish and molluscs, and tobacco, betel and arrack are their luxuries. Their houses are rude sheds. There are some mixed races amongst them. The Papuan talks, laughs, and shouts without intermission. The women have only a mat of plaited strips of palm trees worn tight round the body and reaching from the hips to the knee. Their frizzly hair is tied in a bunch at the back of the head. They delight in combing it or forking it, using a large wooden fork with four diverging prongs, to separate and arrange the long tangled frizzly mass. They and the men wear earrings, necklaces, of silver, brass, and shell. The Arru Papuans told Mr. Wallace that some of their tribes kill the old men and women when they no longer can work, but he saw many old folk. Their hair is usually black and strongly curled. Like the African Somali, they wash it with wood-ashes or lime water, which impart to it a lightish colour and cause it to appear rough, both these peculiarities being considered very tasteful by the Alfoers as well as by the Papuans. The Arruans are taller and more muscular than the Malays and Bughis of Celebes, but are inferior in proportions, if not in stature, to the ordinary run of Europeans. The usual height of the men is from five feet four inches, to five feet eight inches, and there is a great inclination to slimness about the lower extremities among the taller men, some of whom attain the height of six feet. The Arafura of Vorkay (one of the southern Arru) possess no religion whatever. Of the immortality of the soul they have not the least conception. To all enquiries on this subject they answered, "No Arafura has ever returned to us after death, therefore we know nothing of a future state, and this is the first time we have heard of it. Their idea was Mati Mati-sudah, when you are dead there is an end of you. Neither have they any notion of the creation of the world. They only answer, "None of us are aware of this, we have never heard anything about it, and therefore do not know who has done it all." The ports frequented by the foreign trading vessels are all in the north-western part of the group, where the people are evidently of a mixed race, the natural result of strangers from the west having married and settled among them during an intercourse which appears to have extended over several centuries.

The Baju or Baju Laut, meaning the Sea Baju, are a maritime people in the Arru islands, who venture far to sea. Many of the Baju remain throughout the year near the Dutch settlement of Macassar, on the south end of Celebes, where they are found very useful in carrying despatches. They are chiefly employed by the Chinese in fishing for trepang, or sea-slug, and according to the policy invariably adopted by the latter in their dealings with the natives, are generally involved in debt, from which extrication is nearly hopeless. The demand against each boat or family usually averages about four hundred guilders (twenty-five pounds sterling), and, extraordinary as it may appear, no instance is on record of their ever having absconded to avoid the payment of their debts.

Vorkay, is an island lying exposed to the ocean at the south-eastern extremity of the Arru group, and is of great importance from the pearl fishery. At a distance of eight miles to the eastward, lie several small islands, between which and Vorkay the trepang banks are situated. At low water, hundreds of men, with their wives and children, may be seen wading from Vorkay towards these isles (the water being only two or three feet deep,) carrying a basket at their backs, and having in their hands a stick.

Bo, is an island of the eastern Archipelago inhabited by a mixed race of Papuans and the brown race.

Ceram Laut, a cluster of islets lying off the south-eastern extremity of the large island of Seran, or Ceram in lat. 3° 55' S. and 133° E. They produce tortoise-shell, mother-of pearl-shell, beche de mer, wild cinnamon, wild nutmegs, and birds of paradise. Ceram Laut, is the most westerly and the largest of the range of small islands which extend 15 to 18 miles E. and W. Ceram Laut, means Ceram lying to sea-ward: its islands are low. *Ceram Laut*, is the great place to which the Bugis carry the Papuan slaves whom they steal from New Guinea. Ceram Laut, and Goram are seldom visited by Europeans. The natives of the Ceram Laut islands repair chiefly to the northern coast of Papua, or the island of New Guinea, from which they are distant only about a day's sail, to procure the various articles of produce we have mentioned—that part of this vast island being called, by the Bugis, Papua-nothing. Mother-o'pearl-shells are, however, procured by the Bugis themselves in greater quantities at the Arru islands from Gilolo, partly from New Guinea. Although the inhabitants of the Arru islands are represented by the Bugis as being of the same race as the Papuans, they enjoy a much more unrestricted intercourse with the inhabitants, who trade freely with them and permit them to settle. Mother-o'pearl-shell is obtained here in great quantities, and tortoise-shells and trepang or beche de mer, are also procured. The Arru people employ their Papuan slaves in diving for the mother-o'pearl-shell, and in fishing for beche de mer. The people of the Ceram isles appear to have themselves little or no communication with the Arru islands. Mr. Bikmore says that at Ceram the custom of head-hunting prevails amongst the Alfura.

Alfura, a name applied to the Papuans, is written Alfora, Alafora, Arafura and Halafora, and according to Mr. Crawfurd it is from the Arabic al and fora.

The Keffing group consist of 17 islands. Their inhabitants resemble those of the S. coast of Ceram, and are not of the Papuan or negro race, they are great traders and constantly visit New Guinea, and purchase birds of paradise, luri, crows, pigeons, megapodiidæ and scented woods.

Flores, the large island of Flores, the fifth in a line east from Java, due south of Celebes, and of volcanic formation, affords the first example of a race of men seemingly intermediate between the Malay and Papuan, or Negro, but partaking far more of the physical form of the former than of the latter. The complexion is a good deal darker than that of the Malay, the nose flatter, the mouth wider, and the lips thicker. The hair is not lank as in the Malay; but buckles, without frizzling as in the Papuan. The stature is the same as that of the Malay, that is short and squab. According to the statements made to Mr. Crawfurd by Bugi traders, themselves settlers in the island, Flores is inhabited by six different nations, speaking as many different languages; the Ende, the Mangarai, the Kio, the Roka, the Konga, and the Galeteng, names derived from the principal places of their residence.

Goram, a group of three islands in the East Archipelago. S. E. of Goram is a high group composed of raised coral reefs 300 or 400 feet, with a volcano on the island of Teor which broke forth in 1659. In the Goram group, at Manowolko, east of Ceram, a slight infusion of Papuan on a mixture of Malay and Bugi has produced a good looking people. The Goram people are wholly traders, every year they visit the Tenimber, Ke and Aru islands, the whole N. W. coast of New Guinea, from Oetanata to Salwatty and the islands of Waigiou and Mysol. They also extend their voyages to Tidore, Ternate, Banda and Amboyna. Their prahus are all built by the Ke islanders, who annually turn out hundreds of neat boats. The Goram people trade in trepang, medicinal Mussoi bark, wild nutmegs and tortoise-shell, which they sell to the Bugi traders at Ceram Laut and Aru.

New Guinea, &c.—The whole of the great island of New Guinea, the Ke and Aru islands, with Mysol, Salwatty, and Waigiou, are inhabited almost exclusively by the typical Papuan, and the same Papuan race extends over the islands east of New Guinea as far as the Fiji islands. The people on the coast of New Guinea are in some places mixed with the browner races of the Moluccas. In the typical Papuan, the colour of the body somewhat varies: generally it is a deep sooty brown or black, somewhat approaching, but never quite equalling, the jet-black of some negro races, but it is occasionally a dusky brown. The hair is harsh, dry and frizzly, growing in little tufts or curls, which in youth are very short and compact, but afterwards grow out to a considerable length forming the compact frizzled mop, which is the Papuan's pride and glory. The face has a beard of the same frizzly hair, and the arms, legs and breast are also more or less clothed with hair of a similar kind. In stature, the Papuan is superior to the Malay, and the equal or superior of the average European. The legs are long and thin, and the hands and feet larger than those of the Malay. The face is somewhat elongated, the forehead flattish, the brows very prominent, the nose is large, rather arched and high, the base thick, the nostrils broad with the aperture hidden, owing to the tip of the nose being elongated. The mouth is large, the lips thick and protuberant. He is impulsive and demonstrative in speech and action, his emotions and passions express themselves in shouts and laughter, in yells and frantic leapings. Women and children take their share in every discussion. The Papuan has much vital energy? In the Moluccas, Papuan slaves are often promoted to places of considerable trust. He decorates his canoe, his house, his domestic utensils with elaborate carving. They are often violent and cruel towards their children. The Papuan is black-skinned, frizzly-haired, bearded and hairy-bodied, long-faced, has a large and prominent nose, and projecting eyebrows, is bold, impetuous, exciteable and noisy, joyous, laughter-loving and displays his emotions. If the tide of European civilization turn towards New Guinea, the Papuan like the true Polynesian of the farthest isles of the Pacific will no doubt become extinct. A warlike and energetic people who will not submit to national dependence or to domestic servitude must disappear before the white man. The Papuan race is found in all the islands as far east as the Fiji. Mysol and Waigiou are Papuan, mixed, partly.

Dory.—The Papuans of Dory worship, or rather consult, an idol called "Karwar," a figure rudely carved in wood and holding a shield. Every house is provided with the idol, which is usually about eighteen inches high, is exceedingly disproportioned, the head being unusually large, the nose long and sharp at the point, and the mouth wide and well provided with teeth. The natives have also a number of "Fetishes," generally carved figures of reptiles, which are suspended from the roofs of the houses, and the posts are also ornamented with similar figures cut into the wood.

Within the geographical limits of the Indian Archipelago, the Papuans only appear as inhabitants of the sea coast in New Guinea and the islands immediately adjacent. In other parts of this region they are found only among the mountain fastnesses, maintaining an unequal struggle with the brown races by whom they are surrounded. In some of the Spice islands, the group nearest to New Guinea, their extirpation is matter of history, as observed by Mr. Crawfurd ("History Ind. Archipelago," vol. i, p. 18.) In Ceram and Gilolo a few scattered remnants of the race still exist; but they hold little or no intercourse with their more civilized neighbours, flying into the thickets which afford them shelter and concealment on the first appearance of a stranger, experience having taught them that death or captivity will be their fate if they fall into the hands of their natural enemies. The characteristics of the mountain Papuans must therefore be sought in those islands where their numerical strength permits them to lead a life more fitted for human beings than that of their hunted brethren. It is an error to suppose that these poor creatures disappear before civilization. Their chief destroyers are the wild and warlike hunting tribes of the brown race; and, excepting the case of the Moluccas, wherever European civilization has been introduced, the Papuans are more numerous than elsewhere. In the Philippines, for example, their number in the year 1842 amounted to 25,000 souls. (Mallat, "Les Philippines," &c., vol. i, p. 97, Paris, 1846.)

Mysol.—The large island of Mysol or Mæsual, which lies nearly midway between the north-western extreme of New Guinea and Ceram, is said to have been occupied exclusively by Papuans when this region was first visited by Europeans, and they still form the bulk of the inland population, but the villages of the coast are occupied by a mixed race, in which the Papuan element, however, prevails. The islands of Goram, Ceram-Laut, Bo, Poppo, Geby, Patani, Hoek, and the south-eastern extremity of Gilolo, are also occupied by people of the mixed race, who are remarkable for their maritime activity, and for their friendly disposition towards European strangers.

Philippines.—The woolly-haired tribes are more numerous in the Philippines than in any other group of the Indian Archipelago, with the exception of New Guinea. M. Mallet, as already stated, gives the amount of the "Negrito" population in 1842 as 25,000. This can only be considered as approximative, still it is probably not far from the true amount. The race, therefore, can scarcely be less numerous now than on the first arrival of the Spaniards more than three centuries ago. Indeed, their distribution among the islands of the group seems to have been much the same then as at the present day; for the island on which they were first seen was named by Magellan "Isla dos Negros," to distinguish it from the adjacent island of Zebu, where his ships remained for some months. Negros still contains a large population of Papuans, while Zebu is altogether free from them, and no record exists of their having ever been found there. Samar and Leyte are similarly situated with Zebu, but Mindanao and Mindoro contain several tribes of Negritos, and they form the chief population of the less accessible parts in the mountain ranges of Luzon, the largest island of the Philippine group. The accounts of the Negritos given by the early Spanish navigators perfectly apply to their present condition. They are described as being smaller, more slightly built, and less dark in colour than the negroes of Africa, and as having features less marked with the negro characteristics, but as having woolly hair. The entire population of the Philippine Archipelago, is estimated at 4,000,000, of whom 3½ millions are christians. The Indian races are in general superstitious, credulous, fond of gaming, and particularly addicted to cock-fighting. The Negritos are said to be the original inhabitants of the islands who retired before the invading Indians. The extent of this Archipelago is 300 leagues from north to south, and 180 leagues from east to west. It is made up of countless islands, traversed by a mountain range, and partially fertilized by the overflow of spacious lakes. This Archipelago received its name after Philip the Second of Spain, in whose name they were finally conquered, pacified, and peopled. The Negritos of the Philippines, are polytheists, but without temple or ritual. They believe in omens, invoke Camburan (God), the moon and stars, and adore the rainbow after a storm. They have also a worship of ancestors, a god of the harvest, of the fisherman and hunter; and a remnant of fetichism in a grotesque native devil. Iloco is one of the languages spoken in the island of Lucon. In the Philippines are many separate nations or tribes, speaking distinct languages unintelligible to each other. The principal tongues of Lucon are the Tagala, the Pampanga, the Pangasinan, and the Iloco, spoken at present by a population of 2,250,000 people, while the Bisaya has a wide currency, among the southern islands of the group. Leyte, Zebu, Negros, and Panay, containing 1,200,000 people. Mr. Crawfurd says that it does not appear from a comparison of the phonetic character and grammatical structure of the Tagala, with those of Malay and Javanese that there is any ground for fancying them to be one and the same languages, or languages sprung from a common parent and only diversified by the effects of time and distance and that an examination of the Bisaya Dictionary gives different results.

Negros or Buglas island, extends from lat. 9° 4′ to lat. 9° 50′. Of the central group of the Philippines, consisting of Panag, Negros, Samar, Leyle, Masbate, Bohol, and Zebu, the two former are the only islands in which Negrito tribes exist to the present day, and even as regards Panag, the fact must be considered doubtful. Negros, however, contains a considerable Negrito population, the crest of the mountain range, which extends throughout the length of the island, a distance of one hundred and twenty miles, being almost exclusively occupied by scattered tribes.

Sumba.—Remnants of Papuan tribes may yet be found in Sumba or Sandalwood Island, Buru, the Xulla Islands, and the small eastern peninsula of Celebes, which terminates at Cape Taliabo. Sumba is a mountainous island, three hundred miles in circumference, lying to the south of Flores, from the coast of which it is distinctly visible in clear weather. The inhabitants of Savu possess a settlement near the south-west extreme of the island, and the Bugi traders of Ende have two or three small stations on the north coast which are occasionally visited by small European vessels for the purpose of obtaining horses ; but the natives of Sumba all dwell in the uplands, where they cultivate maize, yams and other produce similar to that grown on Timor, and are said to use the plough, which is unknown in any other island to the eastern of Sumbawa.

Flores, is called also Endie or Mangerye, and is an extensive island of the Archipelago, 201 miles long from E. to W. and from 42 to 45 miles broad. It is so named from the Portuguese word 'flor,' a flower, but is called Ende and Mangerye, from its chief south and west ports. Its chief trade at Ende is with Sumba or Sandalwood Island ; the Mangerye port trades with the Bugi and Malay. The coast is occupied by the Malay or brown race, but in the interior is a people with frizzled hair, and a similar frizzled hair people live in the mountainous parts of Solor, Pintar, Lombatta and Ombay. On the south coast of Flores is a tribe called Rakka who are reported to be cannibals, accustomed to eat their enemies and their own relatives who die.

Timor island, lat. 10° 23′ S. to lat. 8° 21′ S., and long. 127° 15′ E. to long. 123° 30′ E. is about 249 miles long and 60 broad, and is formed of high undulating mountains in the interior, though near the sea, it is of moderate elevation. The Portuguese settlement of Dieli or Diely, is in lat. 8° 34′ S. and long. 125° 40′ E., and on the north side of the island. Timor is occupied by tribes much nearer to the true Papuan than those of the Moluccas. The Timorese are dusky brown or blackish, with bushy frizzled hair, and the long Papuan nose. They are of medium height and of rather slender figures. They are said to be great thieves; the tribes are constantly at war with each other, but they are not very courageous or blood-thirsty. They reverence the custom of "tabu" which they call "pomali," and a palm across a door indicates that the ceremony has been performed. In their excitable disposition, loud voices and fearless demeanours, the Timorese closely resemble the Papuan people of New Guinea. In the islands west of Timor, as far as Flores and Sandalwood island, a very similar race is found, which also extends eastward to Timor-Laut, where the true Papuan race begins to appear. Timor seems to form the north-east end of the great range of volcanic islands, which extends north-east and south-west from Timor to Sumatra. It has only one active volcano, Timor Peak, near the centre of the island, which was blown up during an eruption in 1638, and has since been quiescent. Coupang in the west end of the island is the chief Dutch town, and Delhi, in the eastern part of the island is the capital of the Portuguese possessions. There is nothing that could be called a forest, and the whole country has a parched and dry appearance. There are Malays and Chinese, but the native Timorese preponderate and have nothing in common with the Malays, but are much more closely allied to the true Papuans of the Aru islands and New Guinea. They are of the Papuan type, tall, have pronounced features, large, somewhat acquiline, noses and frizzly hair. The women talk to each other and to the men with loud voices and with a self-asserting, quite different from Malay women. The mountaineers of Timor are a people of Papuan type, have rather slender forms, bushy frizzled hair, and the skin of a dusky brown colour. They have long somewhat acquiline nose, with the overhanging apex, which is so characteristic of the Papuan, and so absolutely unknown among races of Malayan origin. On the coast, there has been an admixture of Malay, perhaps of hindoo, as well as of Portuguese, and the coast occupants have wavy, not frizzled hair.

a lower stature with less prominent features and the houses are built from the ground. The houses of the Papuan mountaineers are raised on posts. The dead of the Papuan-Timorese are laid on a stage six or eight feet above the ground, sometimes open, sometimes covered, and are retained there till money for a feast can be obtained, when they are burned. The "Pomali" exactly resembling the Taboo of the Pacific, is in full operation here, and a few palm leaves stuck outside of a garden will preserve it from any thief. The inhabitants of the south-western part of Timor, in the neighbourhood of Coepang, are an exceedingly dark, coarse-haired people, and travellers have great difficulty in coming to a conclusion as to whether they belong to Malayan or Papuan races, so equally balanced are their characteristics. The anonymous author of an excellent "account of Timor, Rotti, Savu, Solor, &c.," in Moor's "Notices of the Indian Archipelago," seems to have fallen into this state of perplexity; and as his observations are evidently the result of long experience at Coepang and its neighbourhood, the following are a few short extracts which bear upon the point. The natives are generally of a very dark colour, with frizzled, bushy hair, but less inclining to the Papuans than the natives of Ende, on the island of Flores. They are below the middle size, and rather slight in figure. In countenance they more nearly resemble the South Sea islanders than any of the Malay tribes. The people of the neighbouring island of Semao, are like those of Timor, with frizzly or wavy hair and a coppery brown colour. Amongst the birds of Timor few are ornamental. There are Platycercus vulneratus, a green species of Geoffroyus; Tropidorhynchus timorensis. Ptilonopus cinctus, a white-headed pigeon; the pretty little lorikeet, Trichoglossus enteles and T. iris; Sphæcothera viridis; a green Oriole: and the red Cyornis hyacinthina. Of the butterflies, Papilio ænomaus and P. liris, the swallow-tailed butterflies occur, also Cethosia leschenaultii and several Picridæ. Small quantities of copper and gold are found. The land mammals in Timor are only seven in number, Macacus cynomolgus, common all over the Indo-Malayan Archipelago; Paradoxurus fasciatus, a civet cat; Felis megalotis, a tiger cat; Cervus timoriensis; Sorex tenuis, and Cuscus orientalis. The south-east coast of Timor near Mount Allas is, according to Bikmore, occupied by the Papuan race with frizzled hair in tufts. Mr. Earl says that some of the people on the table-land back of Delli, have opaque yellow complexions with hair of a reddish or dark auburn colour, and that the hair of others is straight, fine and of a reddish hue and that every intermediate variety of hair and complexion between this and the black or deep chocolate colour and the short tufted hair of the mountain Papuan is found in Timor, and it is possible that the races are there mixing as its position is next to Papua.

Waigiou.—The language spoken at Waigiou is entirely Papuan being that which is used on all the coasts of Mysol, Salvatty, the N. W. of Guinea and the islands in the Great Geelvink Bay. Waigiou, Guebe, Poppa, Obi, Batchian between New Guinea and the Moluccas as well as the south and east peninsulas of Gilolo possess no original tribes but are inhabited by people who are evidently mongrels and wanderers.—*Newbold in Royal Asiatic Journal*, 1845; *Mr. Earl and Mr. Logan in Journal of the Indian Archipelago, Nos.* iv, *and* vi, *Vol.* iv, *May and June*, 1850, *pp.* 323-335, 341-43, 682, 683, 684; *Mr. Earl, Papuans, pp.* 6 *to* 185; *Macgillivray's Voyage, Vol.* i, *pp.* 275-7, 280; *Lubbock's Origin of Civil, p.* 122, 335; *Quarterly Review, No.* 232, *p.* 512; *Bikmore, Archipelago, p.* 242; *Marsden's History of Sumatra*; *Crawfurd's History of the Archipelago*; *Cooke's Voyages, Asiatic Researches*; *Symes' Embassy to Ava*; *Lt. Wilkes' Narrative of the United States Exploring Expedition*; *Mr. Russell Wallace, Eastern Archipelago, Vol.* ii, *pp.* 141 *to* 180; *Mallet les Philippines, Vol.* i, *p.* 97, *in Journal Indian Archipelago.* See Adi island, Aheta, Aiou or Yowl, Alfoeren or Alfour or Arafura, Andaman, India, Mindanao, Negro, New Guinea, Semang, Sulu, Timor laut, Waringin tree.

PAPULLARIA CRYSTALLINA, *Forsk.* Syn. Trianthema crystallinum, *Vah.*

PAPURA, Hind. Gardenia latifolia, *Ait.*

PAPYRUS, a genus of plants belonging to the natural order Cyperaceæ. This generic term has been derived from the name of a water plant, whose soft cellular flower-stem afforded the most ancient material from which paper was prepared, and the English word paper is derived from it. It has a stem from 3 to 6 feet high, with 3 acute angles, one of which, according to Bruce, is always opposed to the current of the stream in which it grows, as if to break its force. Its leaves are long and grassy, with a sharp keel. The flowers, which are green, are produced in very large compound umbels, with extremely numerous drooping triangular slender radii, terminated by very long filiform involucral leaves, within which are placed the spikes of flowers, each consisting of from 6 to 13 florets. It has been regarded as a species of Cyperus, and called C. Papyrus. It is also considered a distinct genus, and is named Papyrus antiquorum. It is a very common plant in Abyssinia, Egypt and Syria, and is also met with in Calabria and Sicily; in gardens it is not uncommon. It inhabits both stagnant waters and running streams, and, independently of its ancient employment in the fabrication of paper, has been applied to other uses. The flowering stems and leaves are twisted into ropes; the roots are sweet, and have been employed as food. In Abyssinia, boats are constructed from it, according to Bruce. In Syria the plant is called Babeer. M. Rhizo Rhangabe, Minister of Foreign Affairs in Greece, published, a copy of the remaining portions of an inscription detailing the expenses incurred by the Athenians in the construction of the Erectheion, in the year before Christ 407. M. Egger drew the attention of M. Didot, by letter, to two of the items published by M. Rhangabe, in which, the cost of two tablets for writing the accounts on is given of two drachma (nearly 9*d.*) each, and the price of two leaves of paper for copies at one drachma and two oboli (or nearly 1*s.*) each. M. Egger states, that these accounts were drawn up on wooden tablets coated with white wax, like those used for the annals of the Roman Pontiffs, and called albums, from their colour. The paper is conceived to have been formed of leaves of the papyrus, and not of the skins of animals, used in Asia for the purpose (as stated by Herodotus), nor of parchment, Charta Pergamena, so called from Pergamus in Mysia. M. Egger assumes that wax tablets were used in place of paper on account of their costing less money, though at the present time they would, of course, be by far the dearer material of the two. A family consisting of four adults, could, it is stated, live in Athens on a sum equivalent to £20 a year, —and, starting from this data, M. Egger infers that the cost of the wax tablets must, according to the present value of money, have been about 3*d.* and that of a leaf of papyrus nearly 4*s.* M. Didot says that the price paid at the period alluded to for a leaf of papyrus corresponds exactly with that of a sheet of vellum at the present day. He agrees with M. Egger, that the paper referred to was the papyrus leaf then an important article of commerce with the Egyptians. The Greeks called it biblos, and the paper made from it chartas, whence the Latin charta, the prepared skins used by the Persians were called dipteri or derris. When the Ptolemies, out of mere literary jealousy, stopped the export of papyrus, in order to deprive Eumenes and Attalus (the king of Pergamus) of the materials for forming books, the latter, whose collection of books already vied with the library of Alexandria, caused great attention to be paid to the manufacture of skins,—these were called Pergaminon and bembrani, whence membrana. The high price of papyrus had, of course, a great effect upon the cost of books. Plato is said to have paid 100 minæ (equal to about £360,) for the three treatises written by Philolaus, the Pythagorean philosopher,—and Aristotle paid three talents (equal to nearly £650,) for a few volumes which had belonged to Spensippus, a disciple of Plato. As the papyrus was of a spongy texture, and the ink ran into it and made the writing difficult to read, the ancients had a plan of sticking two leaves together cross wise as regards the fibres. This however, only produced a partial cure, and experiments were made in applying a coating of size to fill up the pores. A man named Philtotecis at length invented a paste of starch and vinegar, which was looked upon as so important a discovery that the Athenians erected a statue in his honour. It is stated as a remarkable fact that, although the papyrus plant was used so extensively by the Egyptians, who constructed boats and covered houses with the stems, made sails from the bark, fuel of the roots, and clothing and ropes from the fibres, not a single specimen of the plant is now to be found in that country. M. de Sauley states, however, that it may be found in great abundance on the banks of a rivulet in Judæa, between Jaffa and Kaisarich. When the Arabs began to make paper from cotton, called charta Damascena, from the original place of manufacture, papyrus began to decline in value,—still the competition between the two articles was maintained with vigour until the application of waste flax and hemp to the making of paper was discovered, in the twelfth century. The last named materials were, however, themselves doomed to be superseded by the application of rags to the manufacture of paper.—*London Athenæum, 2nd May* 1857. See Cyperaceæ.

PAPYRUS of the Egyptians. See Sebestens.

PAPYRUS ANTIQUORUM of the Nile, translated in the Bible, rush and bull-rush, is the sedge from the pith of which the ancients made paper. It is the babeer of Syria.—*Royle; Birdwood; Layard; Nineveh, Vol.* ii, *p.* 181.

PAPYRUS DEHISCENS. *Nees.*

Cyperus corymbosus, *Hb. Heyne.* | Cyperus C. pangorei, *Roxb.*

Chumati pati, HIND.

A sedge of the Peninsula of India and of Bengal, very common on the banks of the Hooghly, where it helps to bind and protect the banks.—*Voigt.*

PAPYRUS PANGOREI.

Cyperus tegetum, *Roxb.* | C. pangorei, *Rottl.*

Madoorkati, HIND.

A sedge of the peninsula of India, extremely common about Calcutta and very extensively employed in Bengal for making the elegant, shining, useful mats for which the capital of India is famous, and which are frequently imported into Europe, when green, the culms are split into three or four pieces which, in drying contract so much as to bring the margins in contact or to overlap each other.—*Eng. Cyc.; Voigt; Royle.*

PAPYRUS TEGETIFORMIS, *Arnott*; *W. Cont.*

Cyperus midus, *Roxb.* | Kuchku chiya, BENG.

A sedge of Bengal.—*Voigt.*

PAR, HIND., PERS. A feather.

Par-i-taos, HIND. A shawl-wool cloth or Pashmina of two colours, literally Peacocks feather.

Par-i-purz, HIND. A shawl-wool fabric with a nap.

PAR, a river which rises in the W. Ghauts, in lat. 20° 30′, and long. 73° 43′ and runs W. into the Indian Ocean. Length, 50 miles. It has no tributaries of note; area drained small, and imperfectly defined. Though rugged, the Concans have many fertile valleys, each of which, for the most part, affords a passage for a small river or torrent, holding a westerly course from the Ghauts to the Indian Ocean. The most fertile spots are on the banks of streams. The rivers abound with fish, but are also frequented by alligators. The Savitree is navigable as far as Mhar, 30 miles from its mouth.

PARA, HIND. Hog deer, Hyelaphus porcinus, *Sundev.*, Axis porcinus, *Jerdon.*

PARA, SANS. Cattle.

PARA, GUZ. HIND. Mercury.

PARABARA, SANS. The most high, a term used by christians for the true God.

PARABARAVASTU, SANS. As conceived by the hindoos, is not the true Supreme Being. As an immaterial being, it is the universal spirit, as a material being, it is the universe, the masculine power is identified with Siva and the feminine power is the so called Sakti.

PARABRAHMA; Brahm, or Para brahm, the supreme or rather the universal spirit, the supreme being, is a name that first appears, in hindoo religious books, in some of the best upanishad, or appendages to the Vedas, of later date than the first three and introducing a different and superior theology. It seems to have been a first effort towards the recognition of a creator, and many hindoos of the present day recognize the Almighty, as an infinite, eternal, incomprehensible, and self-existent being; he who sees everything, though never seen; he who is not to be compassed by description, and who is beyond the limits of human conception; he from whom the universal world proceeds; who is the lord of the universe, and whose work is the universe; he who is the light of all lights, whose name is too sacred to be pronounced, and whose power is too infinite to be imagined, is Brahm! the one unknown, true being, the creator, the preserver, and destroyer of the universe, from whom all souls come and to him again return. Under such, and innumerable other definitions, is the Deity acknowledged in the Vedas, or sacred writings of the hindoos; but, as has been judiciously observed, while there are learned brahmans who "thus acknowledge and adore one God, without form or quality, eternal, unchangeable, and occupying all space, they have carefully confined their doctrines to their own schools, and have tacitly assented to, or even taught in public, a religion, in which, in supposed compliance with the infirmities and passions of human nature, the Deity has been brought more to a level with our own prejudices and wants; and the incomprehensible attributes assigned to him, invested with sensible, and even human forms." Upon this foundation the most discordant fictions have been erected, from which priestcraft and superstition have woven a mythology of the most extensive character. Mr. Ward describes the hindoos as possessing three hundred and thirty millions of gods, or forms under which they are worshipped. Certain it is, that, in India, the human form in its natural state, or possessing the heads or limbs of various animals; the elements, the planets, rivers, fountains, stones, trees, &c., &c., have all been deified, and become objects of religious adoration. The brahmans allege, "that it is easier to impress the minds of the rude and ignorant by intelligible symbols, than by means which are incomprehensible." Acting upon this principle, the supreme and omnipotent God, whom the hindoo has been taught to consider as too mighty for him to attempt to approach, or even to name, has been lost sight of in the multiplicity of false deities, whose graven images have been worshipped in his place. To these deities the many splendid temples of the hindoos have been erected, while, throughout the whole of India, not one has been devoted to Brahm, whom they designate as the sole divine author of the universe. Strictly speaking, however, the religion of the Brahmans is a monotheism. They worship God in unity, and express their conceptions of the Divine Being, and his attributes, in the most awful and sublime terms. God thus adored is called Brahm, the One Eternal Mind, the self-existing, incomprehensible Spirit. But the will of God, that the world should exist and continue, is also personified by them, and his creative and preservative powers are made to appear as Brahma and Vishnu, while Siva is the emblem of the destructive energy; not, however, of absolute annihilation but rather of reproduction in another form. In the hindoo religion therefore, this triad of persons represent the Almighty powers of creation, preservation and destruction. In their metaphysics, Brahma is matter, Vishnu spirit, Siva time; or in natural philosophy, earth, water and fire. These three persons have wives, the execut of the divine will and the energies of their respective lords. And in the unbounded rage amongst hindoos for personification, the sun, moon, and all the heavenly host; fire, earth and all natural phenomena, all nature, indeed,—the passions and emotions of human beings, their vices and virtues, are transformed into persons, and act appropriate parts in the turbulent history of man. The preservative and representative powers, being in constant action, are, as have been also their wives and children, fabled to have descended on earth innumerable times in divers places, for the instruction and benefit, including the profitable punishment of mankind. And these endless incarnations have been worked up by the poets with a wonderful fertility of genius and the pomp of language into a variety of sublime descriptions, interspersed with theological and moral texts, that at length they were received as inspired productions and became the hindoo standard of truth. Brahma, the creative power, is not specially adored in temples, dedicated exclusively to him. His creative duties over, his portion of the divine activity ceased to operate on the hopes and fears of mankind. In their mythology, however, the hindoos narrate fabulous persecutions and warfare which overthrew Brahma, his temples and worship; and the sects of Vaishnava and Saiva, now comprise all the individuals of the races in India, distinguished by the appellation of hindoos. A philosophic few excepted, they are worshippers of a superstitious and idolatrous polytheism, and the hindoo erects no altars to Brahm, the infinite, incomprehensible, self-existing spirit, "which illumines all, delights all, whence all proceed; that by which they live when born; and that to which all must return." The Narayana of the hindoo of the present day is rather the Spirit of God, moving on the water, and can be regarded but as the spirit of Brahm, Ins. of Menu, ch. 1, v. 10, though the two hindoo sects claim for their Vishnu and Siva, the title of Narayana, and Brahma himself is sometimes called Narayana. At present there will not be found two hindoo families whose belief is identical, though almost all the educated of the people recognise one God, under one name r another. God thus adored is Brahm; the ne Eternal Mind, the self-existing incompre-ensible Spirit. From time to time great re-rmers rise condemning the prevailing hindoo dolatry and so anxious are the people to know e truth, that every new teacher immediately thers around him a number of disciples. See rahm, Hindoo.

PARABUNATHA, Sans. Cassia tora.

PARACHALI, Hind, a caste of traders, in e Panjab, their merchandize is carried by e Kabuli, Tajik and some of the Khaibar ribes.

PARA-CHATEN, Malay. Pteromys petaurista *Pallas*, *Bly*.

PARADESI or Pardesi, Hind. Wandering devotees from northern India; any foreigner from Hindustan.

PARACLETE. Mahomedan doctors unanimously teach, that by the Paraclete, or, as they choose to read it, (John xvi, 7.) "The Periclyte, or Illustrious," their prophet was intended, and no other.—*Sale's Koran*, *Ch.* clxi.

PARADISE BIRDS.

Papua Birds,	Eng.	Burong Mati,	Aru.
Manuk devata,	Jav.	„ Papua,	Tern.
Ave de Pardiso,	Port.	Soffu,	„
Burong devata,	Malay.	Sioffu,	„

Of the various species of birds of paradise, named by the Indians, birds of Ternate; (*Valmont de Bomare, Histoire Naturelle*, iv, 296), by the Ternatians, birds of God; (*Valentyn's, Indian Archipelago*, iii, 306-313) by the Dutch, king's birds; (*Forrest's voyage to New Guinea*, 142), and by the Spaniards, birds of the sun. (*Aldrovandus, Valmont de Bomare*, iv, 297), the name Manuco-diata, or bird of God, has been adopted in modifications by several naturalists. (*Margrav, Brasil*, 207; *Rai, Syn. Av.* 21-27; *Briss*, 2-130; *Buffon's Hist. Nat. des Ois.*, iii, 207). These, the great Promeropes, (*Pritchard's Researches*, i, 83), the most beautiful of winged creatures, were fabled also by the fancy of the Arabian poet, as visitants from heaven to earth; and among the islanders of the Archipelago it is believed that when old, and feeling the approach of death, the paradise birds fly upward towards the sun; but having spent their strength in the inferior world, fail to reach again their celestial home, fall and die as they descend, a graceful fancy not forgotten by the moralist or the poet; (*Camoen's Lusiad, book* x). No representation can exaggerate their beauty, or excel the lustre of their plumage. They were supposed footless, and incapable of alighting, until it was discovered that the Indians cut off their feet before preserving them. They fly always against the wind. They are caught in New Guinea, the Aru islands, Mysol, Salwatty, Waigiou; (*Crawfurd's Journ. Ind. Arch.*, v, 182), with a species of bird-lime. In the nutmeg season also they come from their breeding grounds in the interior of that vast island, and sail in flocks of thirty or forty over the eastern borders of the Archipelago. They form valuable articles of export. Europe is supplied chiefly from Batavia, China from the Molucca and Aru isles, while the natives of that remote group, with many of the Malays, adorn their casques at martial pageants with feathers plucked from their glittering wings; (*Valentyn's, qu, Forrest voyage to New Guinea*, 142). In the genus Paradisea of Linnæus, many birds were included since transferred to other genera, but three species of birds of paradise are still included in that genus. These are

P. apoda, *Linn.*, with back of deep maronne-brown, contrasting with the golden-fulvous neck. It is the P. major of Shaw. It has peculiar dense feathering on the breast.

P. papuana, *Bechstein*, (P. minor, *Forster*) back of a pale golden-brown, shading into the golden-fulvous of the neck which is continued all round the neck only, in this species.

P. rubra, *Cumer*, (P. sanguinea, *Shaw*) is bright golden-fulvous, on the crown, neck and back, its axillary plumes are gorgeous red.

All have short velvetty feathers of a golden-fulvous hue on the crown and nape, with the throat and forehead deep, dark satiny green.

All those met with in commerce have small feet, head and wings, owing to the mode of preparing them. The living bird is a model of symmetry. The adult male birds have ornamental tufts of long airy plumes growing from under the wing like the purple honey sucker of India, and in two species the middle pair of tail feathers are long, wiry, barbless stems, and in the red kind, have a broad flat ribband of whalebone substance. The beautiful little creature popularly known as the king-bird of paradise, the Cincinnurus regius, has a deep emerald green disc on the middle tail feathers; the Samalia magnifica has huge neck tufts; in the Parotia sex-setacea, the feathers of the flanks are a large floccose mass. The splendid Lophorina superba has its scapulary feathers enormously developed like an erectile mantle and is peculiarly adorned on the breast. The entire group is peculiar to Papua or New Guinea and the Arru islands. They are shot with sharp or blunt arrows. They are as omnivorous as the crow, fond of displaying their plumage, and like the turkeys, argus pheasants and the dancing bird of America, Rupicola cayana, are fond of displaying their plumage. It is, however, not solely to the genus Paradisea that the term Birds of Paradise is given. Mr. Russel Wallace, applies it to the following:—

Paradisea apoda, the Great Paradise Bird, in the Arru islands.

Paradisea papuana, the Lesser Paradise Bird in New Guinea, Mysol and Jobie.

Paradisea rubra, the Red Paradise Bird in Waigiou.

Cicinnurus regius, the King Paradise Bird, in New Guinea, Arru islands; Mysol, Salwatty.

Diphyllodes speciosa, the Magnificent in New Guinea, Mysol and Salwatty.

Diphyllodes wilsoni, the Red Magnificent, in Waigiou.

Lophorina atra, the Superb in New Guinea.

Parotia sexpennis, the Golden Paradise Bird, in New Guinea.

Semioptera wallacei, the Standard Wing, in Batchian and Gillolo.

Epimachus magnus (*Upupa magna*, Gm. *U. superba*, Lath.) the Long-tailed Paradise Bird. Body generally black or brownish-black; tail graduated, thrice as long as the body (Lesson says three feet in length, French); feathers of the sides elongated, raised, curled, glittering on their edges with steel-blue, azure, and emerald-green, like precious stones; the head and the belly lustrous also with steel-blue, &c. In truth, language fails to convey any just idea of the magnificence of this species. It inhabits the coasts of New Guinea.

Seleucides albu, the Twelve wired Paradise Bird in New Guinea and Salwatty.

Ptiloris magnifica, the Scale-breasted Paradise Bird, New Guinea.

Ptiloris alberti, Prince Albert's Paradise Bird in North Australia.

Ptiloris paradisea, the Rifle Bird, in East Australia.

Ptiloris Victoriæ, the Victoria Rifle Bird, in N. E. Australia.

Astrapia nigra, the Paradise Pie, in New Guinea.

Sericulus aureus, the Paradise Oriole, in New Guinea and Salwatty.

With no family of birds has fiction been more busy than with the Birds of Paradise. The high value set upon them awakened the cupidity and fraud of the Chinese, who made up from parrots, parakeets, and other artificial Birds of Paradise.

Parotia sexsetacea, the Siflet, is the Paradisea aurea of Gmelin.

Lophorina superba. The Superb, is the Paradisea superba of Latham.

Concinnurus regius is the Paradisea regia Linnæus and King-bird of Paradise of Petiver, from the Molucca islands.

Paradisea magnifica of Latham, the P apoda of Linnæus, is perhaps the most elegan of all these birds; is that which is best known and most often seen. It is the great Emerald, L grand Emeraude, of the French. "The Birds of Paradise," says M. Lesson, or at least the Emerald, the only species concerning whic we possess authentic intelligence, live in troop in the vast forests of the country of the Papuan a group of islands situated under the equator and which is composed of the islands of Arru Waigiou, and the great island called New Guinea. They are birds of passage, changin their quarters according to the monsoons. Th females congregate in troops, assemble upo the tops of the highest trees in the forests, and all cry together to call the males. These last are always alone in the midst of some fiftee females, which compose their seraglio, after th manner of the gallinaceous birds. In orde to shoot Birds of Paradise, travellers who visit New Guinea leave the ship early in the morning, to arrive at the foot of a teak-tree or fig-tree, which these birds frequent for the sake of their fruit—(our stay was from the 26th of July to the 9th of August)—before half-past four, and to remain motionless till some of the males, urged by hunger, light upon the branches within range. It is indispensably requisite to have a gun which will carry very far with effect, and that the grains of shot should be large; for it is very difficult to kill an Emerald outright, and if he be only wounded it is very seldom that he is not lost in thickets so dense that there is no finding the way without a compass. "The little Emerald Paradise Bird feeds, without doubt, on many substances, in a state of liberty. I can affirm that it lives on the seeds of the teak-tree, and on a fruit called Amihou, of a rosy white, insipid and mucilaginous, of the size of a small European fig, and which belongs to a tree of the genus Ficus."

In the beautiful little 'King Bird of Paradise' (Cincinnurus regius), the stem-like middle tail-feathers are broadly barbed at the extremity, where they curl round in a singular manner to form a flat disk, of a deep emerald-green hue; and the axillary tufts are comparatively short, and consist of ordinarily-shaped feathers, which are brown with broad emerald-green tips.

In the Samalia magnifica, there are huge neck-tufts, in addition to small axillary tufts; and the middle pair of tail-feathers again assume the form of lengthened stems.

In the Parotia sex-setacea, the feathers of the flanks are extraordinarily developed, composing a huge floccose mass; and each side of the head is ornamented with three long stems terminated by a black oval.

In the Lophorina superba, the scapulary feathers are enormously developed and form a sort of erectile mantle; this splendid creature being also peculiarly adorned upon the breast.

The entire group is peculiar to Papua or New Guinea and its vicinity.

The name paradiseus or paradisi, has come to imply a long train of ornamental feathers, or other accessory adornment of the kind, in any sort of bird or wheresoever they grow. Even among fishes, the Tapsi or 'Mango-fish' of India is the Polynemus paradiseus of Linnæus (a name applied to another species by Bloch), on account of its long lateral filaments. We hear sometimes of 'Birds of Paradise' in India, a misnomer which refers either to the Shah Bulbul, or 'Rocket-bird,' or 'Paradise Flycatcher' (Tchitrea paradisi), or to the Bhimraj, or 'Indian mocking-bird,' a species of Drongo or 'King Crow' (Edolius paradiseus); the male of the former having its two middle tail-feathers much elongated, and the other having its outermost tail-feathers prolonged into wire-like stems barbed and twirled at the extremity. In like manner, the Vidua paradisea is a Finch-like bird of Africa; the famous Queselt of the ancient Mexicans is the Trogon or Calurus paradiseus; and even the Stanley Crane, with elongated tertiaries sweeping down to the ground, is the Grus paradisea of Temminck.

As the genus Paradisea is now limited, however, three species only are retained in it:—

1. P. apoda, L.: P. major, *Shaw*. Back of a deep maronne-brown, contrasting with the golden-fulvous neck.

2. P. papuana, *Bechstein*: P. minor, *Forster*. Back of a pale golden-brown, shading into the golden-fulvous of the neck.

3. P. rubra, *Cuvier*: P. sanguinea, *Shaw*. Back of the same bright golden-fulvous as the crown and neck; the long axillary plumes, gorgeous red; and broad flattened middle tail-feathers, like long shreds of 'whale-bone.'

In other respects, the general characters are the same. All have short velvety feathers of a golden-fulvous hue on the crown and nape, with the throat and forehead deep dark satiny green, most developed in P. rubra, least so in P. papuana. P. apoda and P. rubra have a black chin, and P. apoda has a broader green frontal mark than P. papuana; while P. rubra has the fore-part of the head green to beyond the eyes, the feathers being developed to form two hillock-like tufts on the head, and lengthened also on the sides of the throat, where disposed in concentric series, instead of uniformly as in the others. Moreover, the golden-fulvous of the nape is continued round the front of the neck in P. rubra only; and P. apoda alone has a peculiar extraordinary denseness of feathering on the breast.

P. apoda remarks Mr. Bennett, writing of a bird he saw at Macao in a cage, has a light, playful, and graceful manner, with an arch and impudent look: dances about when a visitor approaches the cage, and seems delighted at being made an object of admiration. Its notes are very peculiar, resembling the cawing of the raven, but the tones are by far more varied. During four months of the year, from May to August, it moults. It washes itself regularly twice daily, and, after having performed its ablutions, throws its delicate feathers up nearly over the head, the quills of which feathers have a peculiar structure, so as to enable the bird to effect this object. Its food during confinement is boiled rice, mixed up with soft egg, together with plantains and living insects of the grasshopper tribe: these insects, when thrown to him, the bird contrives to catch in its beak with great celerity: it will eat insects in a living state, but will not touch them when dead. The bird, previously to eating a grasshopper given him in an entire or unmutilated state, placed the insect upon the perch, kept it firmly fixed with the claws, and divesting it of the legs, wings, &c., devoured it, with the head always placed first. It rarely alights upon the ground; and so proud is the creature of its elegant dress, that it never permits a soil to remain upon it, and it may frequently be seen spreading out its wings and feathers and regarding its splendid self in every direction, to observe whether the whole of its plumage is in an unsullied condition. It did not suffer from the cold weather during the winter season at Macao, though exposing the elegant bird to the bleak northerly wind was always very particularly avoided.

Amongst the birds of the Arru islands are Monarcha chrysomela, a fly-catcher of black and bright colours, and M. telescopthalma, the spectacled fly-catcher.

Paradisea regia, called the Burong raja, also Goby-goby. A very beautiful bird first described by Linnæus, the Great Paradise bird, whose call is Wawk-wawk, wawk, wok, wok, wok.

The Black Cockatoo, si the Microglossum aterrimum which delights in the Canary nut.

The racquet-tailed king-fisher of the genus Tanysiptera, T. hydrocharis.

Alcedo dea, the goddess king-fisher.

The paradise birds of Arru at their pairing season have sacaleli or dancing parties. In certain trees of the forest, with immense heads, spreading branches and large but scattered leaves giving a clear space for the birds to play and exhibit their plumes. The bird is nearly as large as a crow and is of a rich coffee brown colour. The head and neck is of a pure straw yellow above and rich metallic green beneath, and long plumy tufts of golden orange feathers spring from the sides beneath each wing and when the bird is in repose, are partly concealed by them. At the time of its excitement, however, the wings are bent over its back, the head is bent down and stretched out and the long plumes are raised up and expanded till they form two magnificent gold fans, striped with deep red at the base. When seen in this attitude it really deserves its name: a dozen or twenty full plumaged male birds assemble together, raise up their wings stretch up their necks and elevate their exquisite plumes, keeping them in a continual vibration. Between whiles, they fly across from branch to branch in great excitement, so that the whole tree is filled with waving plumes in every variety of attitude and motion. In the Aru islands there occur the great wingless Casuary brush turkeys, the King-hunters "Dacelo gaudichaudi;" the fly catching wren, "Todopsis," the great crown pigeon, Goura coronata and the small wood doves Ptilonopus perlatus, P. aurantiifrous and P. coronulatus. Amongst Mammals, are Cuscus maculatus, a true Kangaroo, also a small marsupial animal Perameles doreyanus.

Butterflies, are numerous, and amongst them Hestia durvillei, the spectre butterfly.

Drusilla catops, the pale winged peacock butterfly.

Cocytiad urvillei, a clear winged moth, Ornithoptera poseidon, the great bird wing butterfly one of the most magnificent insects in the world. Its wings are velvet black and brilliant green, 7 inches across. The blue winged Papilio ulysses.

Spiders, and particularly the web-spinning and little jumping spiders are numerous. Lizards very numerous. Hermit crabs abundant. Platypus, and Tesserocerus are wood boring insects, of the Arru islands.

Beche-de-mer, tortoise-shells, edible birds nests, pearls, ornamental woods, timber and birds of paradise are the products of the island. —*Illustrations of Indian Zoology, by Hardwicke and Gray; Mr. F. D. Bennett, in his 'Wanderings'; Chatfield's Hindoostan, p.* 200; *Sale's Koran, Vol.* ii, *c.* lxi, *p.* 436; *Wallace, Vol.* ii, *p.* 220; *The Malay Archipelago, Vol.* ii, *pp.* 141 *to* 220.

PARADISE-FISH, a species of Polynemus which is esteemed excellent food in India, and the sound furnishes isinglass.—*Simmond's Dict.*

PARADISE FLYCATCHER, Tchitrea paradisi, *Linn*, though not common, its singularly attractive plumage can scarcely escape observation. The adult male has a blue head, white body, with two of the tail-feathers prolonged for upwards of 8 inches beyond the tip; these, in the female, scarcely extend beyond a quarter of an inch. The young birds are chestnut.

PARADISEINÆ, a sub-family of birds comprising, 2 gen. 4 sp. viz. 3 Paradisea, 1 Cicinnurus regius, p. 482.

PARADOXURUS a genus of mammals of the sub-family Viverrinæ.

Paradoxurus albifrons, *Bhot.*, syn. of Artictis, binturong, *Jerdon.*

Paradoxurus bondar, *Gray*, Terai tree cat.

P. hirsutus,	*Hodgson.*	P. Pennantii,	*Gray.*
Baum, Bondar,	BENG.	Machabba,	NEPAL.
Chinghar,	HIND.	Malwa,	„

Found throughout the Terai, Bengal and Behar.

Paradoxurus derbyanus.

Paradoxurus grayi, *Bennet.* Hill Tree cat.

P. Nipalensis,	*Hodgson.*	P. bondar,	*Temm.*

Paradoxurus fasciatus, a Civet cat, found over much of the Archipelago.

Nepal S. E. Himalaya, Arakan, N. Burmah.

Paradoxurus leucomystax, *Gray*. Malayana.

Paradoxurus musanga, Palm-cat.

P. typus,	*F. Cuv.*	P. prehensilus,	*Gray.*
P. pallasii,	*Gray.*	Viverra hermaphrodita,	*Pallas.*
P. crossii,	„		
P. dubius,	„		

Bhondar,	Beng.	Jhar-ka-kuta,	Hind.
Kara-bek,	Can.	Ud,	Mahr.
Menuri,	Hind.	Murra-pilli,	Maleal.
Lakate,	„	Manu-pilli,	Tel.
Khatas,	„		

Common and abundant throughout the greater part of British India; lurks by day among the fronds of the cocoanut palms, rolled up as a ball. It will live for months in confinement on vegetable food but preferring flesh. It is said to consume the toddy of the palmyra.

Paradoxurus montanus, syn. of P. zeylanicus.

Paradoxurus quadriscriptus and P. strictus *Hodgs.*, syns. of variety of P. musanga.

Paradoxurus quinquelineatus, *Gray*, syn. of P. strictus.

Paradoxurus trivargatus, *Temm.* Malay peninsula and islands.

Paradoxurus tytleri, *Blyth*, Andamans.

Paradoxurus trivirgatus, *Gray*. Syn. of Paguma trivirgata.

Paradoxurus zeylanicus, *Pallas*, peculiar to Ceylon. It has a dark variety formerly termed by Dr. Kelaart P. Montanus but now described as P. Zeylanicus, var. fuscus "beetle brown throughout. No streaks on the back perceptible. Fur very glossy; tail with a bright golden yellow subterminal ring. It comes from Newera Elia." In Timor, there are 15 bats, 7 land mammals, amongst them the Macacus cynomolgus, the common monkey of all the Indo-Malay islands.—*Tennant's sketches of the Nat. Hist. of Ceylon*, *p.* 32; *Tennant's Ceylon*; *Jerdon*. See Viverridæ, Mammals.

PARAFFINE

PARAGI, Paringa or Parimi, Tel. Zizyphus œnoplia, *Mill.*

PARAGUAY TEA. See Mate.

PARAH, Guz., Hind. Mercury.

PARAH, an Indian measure of capacity, two feet square and six and a half inches deep. The internal measure of a standard parah is a cube of 11·57-100ths inches. The weight for various goods according to the Ceylon Custom-house practice is, for coffee, 35 to 50 lbs.; pepper, 27 to 30 lbs.; salt, 52 to 55 lbs.; paddy, 30 to 33 lbs.; husked rice, 42 to 46 lbs. In Bombay eight parah make a candy, by which seeds, grain, &c., are measured; the parah contains 7 paillies, and weighs 19 lbs. 9 oz. 9·6 drs. The parah measure for salt is 1,607·61 cubic inches.—*Simmond's Dict.*

PARAIN PULI, Maleal. Felis tigris, *Linn.*

PARAIYADI KIRAVAN, also Paraiyan, Tam. A Pariah.

PARAISOO-OOSA, see Hans-Raj.

PARAIYAR, Tam. A Pariah.

PARAJITA TREE, see Meru.

PARAKARI, Hind. A sweetmeat.

PARAKEET, see Parrakeet; Psittacidæ.

PARAKSHITA, see Barhadratha.

PARAL, Sans. Bignonia chelonoides, also B. suaveolens.

PARALI, or Pral Hind. of Panjab, Oryza sativa, rice straw, and Triticum æstivum, wheat straw, are extensively employed by the hill tribes for snow shoes. Price 2 annas per pair.—*Powell's Hand-book*, *Vol.* i, *p.* 521.

PARALIA, of the Greeks, or the country of the Aii, is the present south Travancore.

PARAMAHANSA. This word is used in the ninth volume of the As. Res., p. 318, (Cal. 4to. edit.) where it is applied to "ascetics of the orthodox sect in the last stage of exaltation: they disuse clothing. Now a days, individuals entirely naked, are perhaps never seen in places of European intercourse; but formerly, dozens sometimes of these brawny saints were to be seen lolling and sleeping in the streets, and on shop-boards, as naked as they were born. They were always treated with great respect, especially by women, who would sometimes kiss the holy man in a mode that we should judge highly indecent, and at all times, hindoo women in passing them, saluted the ascetic. The ascetic and mendicant Sanyasi are of four kinds, the Kutichara, Bahudaka, Hansa, and Paramahansa, who differ from each other only in the graduated intensity of their self-mortification and profound abstraction, but of whom the Paramahansa is the most exalted. He is occupied exclusively with the investigation of Brahm or the Spirit, who is equally indifferent to pleasure or pain, insensible to heat or cold, and incapable of satiety or want. Individuals are met with who go naked in all weathers, never speak and never indicate any natural wants, and what is brought to them as alms or food, is received by the attendants, whom their supposed sanctity, or a community of interests attaches to them, and by these attendants they are fed and served on all occasions as if they were as helpless as infants.—*Moor's Pantheon; Wilson.* See Hindoo.

PARAMENISPERMIA, see Cocculus indicus.

PARAMAR, see Inscriptions.

PARAMARDI, see Inscriptions.

PARAMATMA, the supreme, or rather the universal, spirit. See Sri Sampradaya.

PARAMBU, Tam. Calamus fasciculatus, *Roxb.*

PARAMESWARA, a name of Brahma.

PARAMICIPPA PLATIPES, *Edws.* One of the Crustacea of the Red sea.

PARAMITA, Rani or queen of the Amazons,

who is mentioned in the Mahabarata as conqueror of Arjuna when he was accompanying the Aswamedha or sacrificial horse.

PARAMITHRAX, a genus of Crustacea, viz.

Paramithrax peronii, *Edws.*, Indian Ocean.
„ barbi cornis, *Edws.*, New Holland.
„ gaimardii, *Edws.*, New Zealand.

PARAMOOL, Beng.

PARAMPUAN LAUT, Malay. Halicore indicus.—*F. Cuvier.* Steno malayanus.

PARAND, Hind. Loranthus longiflorus.

PARANDA, a silk material, used as a hair ornament in Lahore. In Akyab it is called Patsan and Patso, and is worn there by the Mug race. The Patso of Burmah, however, is the cloth worn by all classes.

PARANDA, Pers., Hind. A bird.

PARANG, and Szanskar are districts in the N. W. Himalaya, Piti and Guge are Tibetan districts; all east of Piti is Tibetan.—*Hooker et Th.*, *p.* 190.

PARANG, Malay. A sword.

PARANGHI SAMBRANI, Tam. Olibanum.

PARAN-THA, Burm. A tree of Moulmein. Its wood is soft and used in ordinary purposes of building material.—*Cal. Cat. Ex.* 1862.

PARANYAN? Champac? A tree of Akyab, which grows to a moderate size, and is procurable in the Sandowy district. Wood used as planking.—*Cal. Cat. Ex.* 1862.

PARAO, a halting place, camp, encampment.

PARAPAMISUS, the ancient Roman name for the mountain range separating central from southern Asia, the Eimak who now graze their flocks in the Parapamisus, are brave and relentless, and Affghans when travelling whether proceeding from Balkh, Kabul, Kandahar or Herat, never enter into the mountain districts of these intrepid nomadic tribes. One of the Eimak tribes is known as the Feroz Kohi after the city of that name about 63 miles from Teheran. Timur, exasperated at the depredations which they committed, transported the whole of them into the mountains lying between Persia and India.

PARAPLUIE, Fr. Umbrella.

PARAS, Hind. of Kaghan, Cerasus cornuta, also Prunus padus, bird cherry.

PARASAKTI, Sans. The supreme sakti.

PARASANG, a persian measure of 3 or 4 miles, more or less in different districts.—*Ferrier; Caravan Journeys*, *p.* 5.

PARASGAR, Hind., of Kashmir, a shawl washerman.

PARAS, also Paras-pipal, Hind. Thespesia populnea.

PARASARYA or Parasaryayana, see Hindoo.

PARASHA, see Siva.

PARASHAWARA, This, the great city now called Peshawar, is first mentioned by Fa-Hian, in A.D. 400, under the name of Fo-leu-sha. It is next noticed by Sung-Yun in A. D., 502, at which time the king of Gandhara was at war with the king of Kipin, or Kophene, that is Kabul and Ghazni, and the surrounding districts. Sung-Yun does not name the city, but he calls it the capital, and his description of its great stupa of king Kia-ni-sse-kia, or Kanishka, is quite sufficient to establish its identity. At the period of Hwen Thsang's visit, in A.D. 630, the royal family had become extinct, and the kingdom of Gandhara was a dependency of Kapisa or Kabul. But the capital which Hwen Thsang calls Pu-lu-sha-pu-lo, or Parashawara, was still a great city of 40 li, or 6⅔ miles in extent. It is next mentioned by Masudi and Abu Rihan, in the tenth and eleventh centuries, under the name of Parashawar, and again by Baber, in the sixteenth century, it is always called by the same name throughout his commentaries. Its present name we owe to Akbar.—*General Cunningham, Ancient History of India.*

PARASIKA, Sans. Persia.

PARASITE PLANTS, Heb., Chin.

PARAS-KA JHAR, Hind. Thespesia populnea, *Lam.*

PARAS NATH, a mountain in Behar of great sanctity: it is the eastern, as Mount Aboo is the western metropolis of Jain worship.—*Hooker's Him. Journ.*, *Vol.* i, *p.* 18.

PARAS PIPAL, Sans. Thespesia populnea.

PARASU, Sans. An axe; hence Parasu-Rama, Rama of the axe.

PARASU-RAMA. A prince who is supposed to have reigned B.C., 1176, who gave his name to an era, used still on the Malabar coast, from Mangalore to Cape Comorin. Parasu Rama, was son of Jamadagni. He was a brahman and apparently a village hero. He is fabled to have taught Arjuna the use of arms. In hindoo mythology, he was the sixth incarnation of Vishnu, the destroyer of many Kshatria and the civilizer of Keral or Malabar. Among the avatara of Vishnu are recorded three favoured personages, in whom the deity became incarnate, all named Rama. They are distinguished by the names of Bala Rama, usually called Balaram, Parasu Rama, or Parasram, and Rama Chandra, and are all famed as great warriors, and as youths of perfect beauty. The first named Bala Rama, was elder brother to Krishna, and greatly assisted him in his wars; so that, in this instance, Vishnu seems to have duplicated himself, as indeed may be also said of the other, for Parasu Rama, and Rama Chandra, otherwise called, patronimically, Dasrat Rama, were contemporaries. But it has been made a question, whether they be not three representations of one person, or three different ways of relating the same history: and, whether any, or all of them, mean Rama, the son of Cush, Sir W. Jones, (As. Res., Vol.

ii, p. 132), says, he leaves others to determine. He deems Rama to be the same as the Grecian Dionysos, who is said to have conquered India with an army of Satyrs, commanded by Pan; and Rama was also a mighty conqueror, and had an army of large monkeys, or satyrs, the general or prince of whom was Hanuman, a name said by this author to mean with high cheek-bones: others translate it, with bloated cheeks, alluding to his fabled origin from Pavan, regent of the wind. Rama is also found to have resembled the Indian Bacchus; he is a descendent of the sun, and the husband of Sita; and it is very remarkable, that the Peruvians, whose Incas boasted of the same descent, styled their greatest festival Ramasitoa. Krishna, describing himself to Arjun as the first of all things, says, "Among those who carry arms, I am Rama." Of Parasu Rama it is related that he was born near Agra, in the Tirtya yug, or second age. His parents were Jamadagni, whose name appears as one of the Rishi and Runeka. Runeuka the wife of the Rishi, Jamadagni and mother of Parasurama, is said to be identical with the gramadevata Ellammen. The Parasurama era is current on the Malabar coast. At the birth of Christ 1176 years of the Parasurama era had expired, and the 1177th year began on the 17th August A. D. 1, Julian style.—*Gita*, *p.* 86; *As. Res.*, *Vol.* i, *p.* 426, *Vol.* iii, *p.* 68. See Avataram Kerala, Polyandry.

PARASWAPU CHETTU, Tel. Xanthium orientale, *Linn.*

PARAT, Hind. A flat circular metal tray with a rim.

PARAT, Heb., is the Bhat, or bard of India.

PARATAPA, see Inscriptions.

PARAT-THA, Sans. The other world.

PARATI, Maleal, Tam. Cotton. Gossypium indicum, *Lam.*

PARATROPIA DIGITATA, *Voigt.*

P. venulosa,	*W. & A.*	Araba digitata,	*Roxb.*
Pa-loo-let-wa,	Burm.	Digitate-leaved Paratropia,	Eng.

A large shrub, native of Circars. Paratropia digitata or Paratropia venulosa are also plants of Burmah. The Karens make an infusion of the leaves of a species of Paratropia, which they likewise use for many internal diseases.—*Mason.*

PARATY MARAM, Tam. The Cotton tree, Eriodendron, grows to about twelve inches in diameter, and twelve feet long, and produces a nut which the natives eat, and on which wild animals feed. It is not of much value.—*Edye, M. & C.*

PARAVAN, Maleal. See Pariah.

PARAVAR, a dark-skinned, almost black race, in the extreme south of the Indian peninsula, living in villages along the sea coast and earning their bread as fishermen with nets, lines and hooks. They own canoes, which they take to sea before daylight and return about noon. Their ancestors are said to have been converted by Xavier, and they still profess the Romish religion, but they are drunkensome and dissolute.—*Madras Government Proceedings.*

PARAVATA, Sans. Citrus decumana—*Linn.*, *W. & A.*, *Roxb.*

PA-RA-WA. In Amherst, a hard, red, compact wood, with large fibre, and fit for gun-carriages or other similar purposes. It is exempt from attacks of insects. It is used for spears and arrows, (a species of Garcinia?)

PARBAT, see Kali.

PARBATI, or Parvati, a hindoo goddess, the mountain goddess, wife of Siva. See Inscriptions, Parvati.

PARBATTIAH, or hill people of Nepaul, are divided into four classes, denominated Awal, Doom, Seoom, and Charum. These are Persian terms, and denote, first, second, third and fourth. The Awal are those peasants who possess five ploughs and upwards; the Doom, such as have from one to five, the Seoom are those who, without being proprietors of ploughs, are considered to be at the head of a few or more labourers; and the lands of Nepaul proper are cultivated, almost without exception, by Newars; those to the westward, as Noorkale, &c., by the Parbatty tribe, called Dherwara.

PARBATI, a hill near Poonah. See Parvati.

PARBATIYA, see India, Khas, Parbatliah.

PARBEIK or Parabeik, Burm. The black note-books of the Burmese, used for writing on with steatite pencils; they correspond entirely to those of the peninsula of India.

PARBHU, a writer-caste in the Bombay presidency, who claim to be pure Khsatrya, the descendants of Chandrasena raja of Malabar. The British in India call them Purvoe.—*Wilson.*

PARBUR PANI, Hind. Trichodesma, *sp.*

PARBUTTEE, a river near Burkhera in Gwalior, also of Barab in Kotah and near Ashta in Bhopal.

PARBUTTI, see Burabur caves.

PARCHERRY, Anglo-Tam., from Paraiyan, a Pariah, and cherri a place where the outcaste people dwell.—*Sonnerat's Voyage, p.* 52; *Wilson.*

PARCHA, Hind. A piece of cloth; also well gearing.

PARCHARKAR, Hind. The art of joining in stone.

PARCHMENT.

Parchemin,	Fr.	Cartapecora,	It.
Pergament,	Ger.	Pergamino,	Sp.

Parchment consists of the skins of sheep and goats, prepared in such a manner, as to render them suitable for being written upon. It is now chiefly employed for charters and other writings where great durability is desirable. The name is from the Latin Pergamena, from Pergamus, the reputed place of its invention. Eumenes II, king of that place (who reigned B.C. 197—159), has the honour of the invention, he being stimulated thereto by the prohibition of the export of papyrus from Egypt, but Herodotus says they were commonly used for that purpose in his time; and it is even asserted that the word pergamena was not used until several centuries after the death of Eumenes. According to Mabillon, the first writer who uses the term is Tatto, a monk of the fourth century; before his time, the word membrana was employed, as in the Greek Testament, II Tim. iv, 13.—*Faulkner.*; *Tomlinson.* See Hides, Papyrus.

PARCHMENT, VEGETABLE, or Ametastine, is described as applicable for legal deeds, bank notes, policies of insurance, working plans, maps, account books, binding purposes, photography, culinary purposes, paper hangings, artists' drawings and paintings either in oil or water colour. It is made from water leaf or unsized paper, of which ordinary blotting paper is a common example, and it acquires its peculiar properties by being dipped in diluted sulphuric acid, the strength of which must be regulated to the greatest nicety. The material of the surface thus metamorphosed is one of the most unalterable and unchangeable of all organic substances, and its peculiarity requires a distinctive appellation. It is commended for its strength, toughness, flexibility, hardness and solidity of face, stiffness, elasticity, resistance to the action of water; for when dried it resumes its former condition; and indeed in all cases where endurance for long periods is required, this material may be safely pronounced pre-eminently valuable. Gases pass through it in the same way as through animal membranes, whilst it resists the action of most chemicals, acids, and alkalies. It takes writing ink and dyes very readily, and from its perfect surface, receives varnish without being sized in the first instance.

PARCUTILLE, TAM. A Ceylon tree which grows to about twenty-four inches in diameter, and fifteen feet in height. Its wood is used by the natives in boats, houses, and other works: it is not of great value.—*Edye, on the Timber of Ceylon.*

PARDANTHUS CHINENSIS, *Ker.*

Ixia chinensis, *Linn.*, *Lour.*	Ferraria crocea, *Salisb.*, *Rheede.*
Moræa chinensis, *Thunb.*	Ixia chinensis, *Linn.*
Belamkanda chinensis, *DC.*	
Shie-kan, CHIN.	Belam-konda-sulal-mani, MALEAL.
China leopard flower, ENG.	
Tiger lily, „	

A native of Nepaul and the Himalaya, and common in gardens being a very ornamental flowering shrub. It has a showy yellow and orange flower, whose petals are spotted like a leopard's skin. It is very commonly cultivated by the Burmese. It is used in medicine. The dark, irregular rhizomes of this and other Iridaceous plants are sold in China under the name of Shie kan.—*Mason.*

PARDEK or partok, PUSHTU. The paijama, or trowser.

PARDESI. In southern India, the northern hindoos are so termed by themselves; and by the southern people, the term is equivalent to foreigner, as from northern India. There are 2,705 in Oomraoti.

PARDHI, a sportsman or fowler, a hunter race in the south of India called also Harnpardhi also Shikari, but who call themselves Bhowra.

PARDHI, cultivators in the Maiker district. They are also wood-cutters, this race are part of the Gond.

PARDI PATTI also Pamidi patti, TEL. The cotton plant, Gossypium acuminatum, *Roxb.*

PARDO, a money of account of Goa, in the East Indies, of 4 or 5 tanga, and worth about 2*s.* 6*d.*—*Simmond's Dictionary.*

PARE, HIND. Parrotia jacquemontiana.

PAREIRA, ENG. Cissampelos pareira, *Linn.*

PAREIRA BRAVA. *Linn.*

Grieswurzel, GER.	Wild vine, Velvet leaf. ENG.

A medicinal root, procured from the Cissampelos pareira, a native of the West Indies and South America, describes six species of cissampelos, viz.

C. glabra, (Peer grug, HIND.,) a native of Sylhet, root acrid and used in native medicine.

C. hexandra, (Neemooka, HIND.,) a native of Bengal.

C. convolvulacea, a native of Coromandel and Malabar.

C. caapeba, from the Moluccas.

C. hernandifolia, a native of Chittagong.

C. tetranda, brought from Amboyna. C. glabra, hexandra, hernandifolia and convolvulacea, natives of the peninsula, are, however, all referred by Wight and Arnot to the same species, which differs from C. pareira chiefly in the form of the sepals, and the length of the staminal columns. O'Shaughnessy used the Neemooka of Bengal with decided advantage under the same circumstances as the Pareira brava would be employed in. With this and the Menispermum cordifolium, India is but little dependent on other countries for the valuable remedy so justly lauded by Brodie and others. *Faulkner*; *O'Shaughnessy*, *p.* 200; *Dr. Roxburgh*, *Fl. Indica*, *Vol*, iii, *p.* 848.

PARESEOSHAN, Hind. Adiantum venustum.

PAREYO, Sing. Literally, strangers, also called Widiyetto, Sing., or people of the high road, a race, near Badulla in Ceylon, supposed to be the descendants of Portuguese captives, with women of rank of the country degraded for crimes, or made slaves after the re-conquest. —*Ten.* ii, 267.

PARGAI, Hind. Quercus ilex.

PARGANA, a district, a tract of country, including a number of villages.

PARGUTA, see Tibet.

PARH, Hind. A gun-carriage frame.

PARHA, Hind. Hyelaphus porcinus *Sundev.*, the hog-deer, Cervus porcinus.

PARI, Hind., Pers. a fairy; Parizad, born of a fairy, a beautiful woman; the people of the valley of Pishin in Segestan worship fairies.

PARIAH, or Pariar.

Holeyar,	Can.	Paraiyan,	Tam.
Dher,	Hind.	Paraiyar,	„
Mhar,	Mahr.	Paraiyadi kiravan,	„
Paravan,	Maleal.	Malla Vadoo,	Tel.

Pariah, is a Tamil term, applied to a people or peoples scattered throughout southern India, who belong to the hindoo religion, though often adhering to a shamanism. They are permitted to marry into each others families. They are regarded by the four castes of hin doos, as of the lowest grade but they are not out-castes or men who have been expelled from other castes. They are not the Madiga Wanlu, of Telingana, many of whom are shoe-makers or workers in raw hides, and still eat creatures which die from disease, and other animals that most races regard as unclean, and who in villages perform the lowest menial offices, such as messengers and scavengers, and are paid by portions of the crops and some small privileges, but are not permitted to reside within the village. The pariah however are usually the serfs of the Sudr agriculturists. Those in the large towns, in the employ of the Europeans in southern India, are quick, intelligent, and active. The race is emigrating with great rapidity, to the West Indies, Mauritius, Cape Colony and the Burmese provinces, &c., where all sectarian or social distinctions are unknown. There are said to be thirteen sub-divisions amongst them. The Pariah are not out-castes, nor are they the lowest of the hindoo castes. Even in the Tamil country, there are ten castes who are lower in the social scale than the Pariah, and from these are excluded the Pallar, who dispute precedence with the Pariah. The Pariah constitute a well-defined, distinct ancient race, independent of all others, and has its own sub-divisions, its own peculiar usages, its own traditions, and its own jealousy of the encroachments of the castes which are above it and below it. And the Pariar, whom St. Pierre's romance has fabled as a mild, benevolent, subdued being, whenever he has an opportunity, is as severe on other sects as from the custom of the world we would surely expect. The term Pariah, is supposed by Professor Wilson to have its origin in the Tamil, Parai, a drum. Along the border country of the Nizams territories, and in Berar, the hindoos style the Mang and Dher or Pariah, christians, the word being pronounced Kirsn. The Dher, or Dhed of the Dekhan is employed as a watchman and messenger in the village establishments. In the Dekhan the Dher is identified with the Mhâr. In some places he performs the duty of scavenger. In the Sagar territory the Dher eat dead animals, clean the skins, and sell them to the Chamars or tanners. In Canara, they are laborers on the soil, and in a very large proportion are slaves, the property of individuals, saleable with or without the land on which they work: they are very numerous, and are there distinguished into twelve subdivisions, who do not intermarry. They are rare in the N. W. Provinces.

The Holiya of the Canarese country is a low man, an out caste, commonly an agricultural labour, the term is from Hola, a field, and in several districts he is a predial slave, being saleable by the owner of the estate, on which he is located either with, or without the land. He is described as a predial slave in Canara, and Coorg; in the former he is said to be a subdivision of the Dher, in the latter one of three principal classes of slaves called Holeyam, Yemaru, and Paleru. In both countries the Holeyam are distinguished by various demonstrations prefixed, which are variously written, and the meaning of which is not explained, as

Maury Holiya.	Kembutta Holiya.
Byr „	Badaya „
Murtha „	Rookhee „
Bulgi „	

of these the only peculiarities noted are, that the Kembatta Holiya is native in Coorg, the rest are natives of Karnata. The Holiya are generally a more faithful class of slaves than others. Amongst the Mare Holiya, the custom of succession through the female line prevails.—*Caldwell.*

PARIAH DOG. Canis familiaris.

PARIALA, Hind. Erythrina arborescens.

PARIAM, Lepch. Talpa micrura, *Hodgson.*

PARI BHADRAKAMU, or Pari bhavyamu, Sans. Erythrina sp? *Br.* 591 and *W.* 529 both say the coral free and *Br.* adds Devadaru (Sethia) the small red fruit of which is in character with the name. *W.* applies it also to the Devadaru or Deodar pine. The 2nd name is likewise given to Costus speciosus both in *Br.* and *W.*

PARIDÆ, a natural family of Perching birds

(Insessores). Parus xanthogenys, has the head with a full crest of black feathers; occiput, supercilliary stripe, and cheeks, yellow; ear-coverts black; back olive; wings and tail black, the former spotted and the latter tipped with white; a broad black line passing down the throat, and extending along the middle of the abdomen; sides of the chest and flanks pale-yellow; bill and feet black; size rather less than that of the greater Tit, P. Major (Gould). This bird is a native of the Himalaya Mountains.—*Eng Cyc.* See Parus.

PARIGO, Hind. Down or feathers.

PARIHASAPURA, in Kashmir.

PARIJATA, Beng. The Coral tree, Erythrina fulgens.

PARIJATA-HARANA, Sans. From parijata, a coral flower, and harana, to steal.

PARIJATA, see Kurma.

PARI JATAMU, or Paru jatamu, Sans. Nyctanthes arbor tristis, *L.*, a celebrated tree, said to grow in Swarga or Indra's paradise. *W.* 529 has Erythrina indica or the coral tree; *Br.* 591 the same and also the Amaranth and Mimusops elengi, adding that it is a genuine name for all flowers with a jasmine scent. In the As. Res. *W.* 244, Sir W. Jones states that it is given to several different genera quite distinct from each other. Mr. Elliot heard it assigned to Cochlospermum.

PARIKE GADDA, or Parike gaddi, Tel. Trapa bispinosa, L. The Sans. syn is Sahasra virya, "thousand roots" which according to *W.* 914 is Cynodon dactylon, see *Garika.*

PARI KUMATI, Tam. Citrullus colocynthis, *Schrad.*

PARILIUM ARBOR-TRISTIS, Gærtn. Syn. of Nyctanthes arbor-tristis.

PARIMI, Tel. Zizyphus œnoplia, *Mill.*—*W.* and *A.* 511.—Z. Napeca *R.* i. 613.

PARINARIUM EXCELSIUM, one of the Pomaceæ, a large tree brought to Bombay from Goa: the fruit, which ripens in December and January, resembles a coarse plum, and is held in much estimation.—*Riddell.*

PARINDA, Hind. A light boat of Kashmir.

PARINDAH, Pers. A bird.

PARINGAY-PATTAY, Tam. China root, *Roxb.*

PARINGHEE———? Gunta baringa.

PARIN KAKA VULLI, Malеal. Entada pusætha, *DC.*

PARINTA, Tel. Corchorus olitorius, *L.*

PARIN-VELAMU, Tel. Cyperus hexastachyus, *Rottle.*

PARIS, a genus of plants belonging to the natural order Asparageæ.—*Eng. Cyc.*

PARIS, or Paris-ka-jhar, Duk., Hind., also Paris-pipal, Hind. Thespesia populnea. Paris-ka-phul, Duk. The flower. See Oil, also Portia tree oil.

PARISIAYA-WASHAN, Hind. Adiantum caudatum, venustum, *DC.*

PARISNATH, 23° 57′ 8″ 86° 6′ 9″ in Behar, a mountain about 200 miles N.W. of Calcutta. Highest summit, 4,469 feet. On the eastern table-land of the Vindyha. It is the highest hill of the range of hills separating Lower Bengal from Behar. Like to Aboo on the west, the Jain religionists have covered the summit of this hill with numerous small temples, and the sacred "Charan" or foot-print is also shown. It is annually visited by thousands of pilgrims. Its base is covered with sal forests (Vateria indica). Amongst the hindoos, the eastern peak is the most noted. On its top, Parisnath obtained nirvan or emancipation from matter. The spot is especially sacred for that circumstance and forms the holiest place of worship to the sect. The hindoo pilgrims climbing to see the last scene of his life and labours are here shown his foot-prints, marking the spot where he obtained his nirvan.—*Schlag.; Tr. of Hind., Vol.* i, *p.* 200.

PARIS-PATHAR, or Philosopher's stone.

PARITI, also Tali-pariti, Maleal. Paritium tiliaceum.

PARITHA, see Ritha.

PARITIUM MACROPHYLLUM.

Bet-mwaesha, Burm.

A plant of Burmah, which furnishes a useful fibrous material for ropes, being long, soft, pliant and strong, colour brown. *M. E. J. Rep.*

PARITIUM TILIACEUM, *St. Hil.*

Hibiscus similis, *Blume.*
H. elatus, *DC.*
H. tiliaceus., *Linn Rheede.*

Bola,	Beng.	Paruti,	Maleal.
Lye-nya-sha,	Burm.	Belli-patta,	Singh.

The banks of tide-water streams of Burmah are often damasked with the changeable red and yellow flowers of this large luxuriant bush, whose crooked wandering branches, crossed and locked with each other, spread along the ground heaping the earth with its evergreen foliage. It is common also on the Malabar coast, and supposed not to differ from H. arboreus, the Maho tree and Mohaut of the West Indies. The species grow abundantly both in the West and East Indies. Forster states, that the bark of this species is sucked in times of scarcity, when the bread fruit fails, and the mucilage with which all these plants abound, will no doubt afford some nourishment. The fibres of its inner bark are employed for cordage by the inhabitants of the South Sea Islands, and by the American Indians: it is said to gain in strength when tarred. The Otaheitans make fine matting from it, and likewise manufacture it into ropes and cords. Voyagers relate that these filaments are adapted to any kind of cordage, even for the rigging of vessels, but rope thus made is not nearly so strong as that prepared from hemp. The whips with which the negroes in the West Indies used to be punished, prior to Great Britain emancipating them, are said to have been made from the bark of this species.—*Mason, Royle*.

PARIVELLAMU, or Bhadra Tunga gaddi. Cyperus hexastachys, *Rott.*

PARIWARA ISLAND. The natives closely resemble other Papuans to the eastward, but are smaller in stature, and wear the hair frizzled up into a mop projecting backwards.—*Macgillivray's Voyage, Vol.* i, *p.* 293-4.

PARIYATAKA, see Indra.

PARKAR, a district in an oasis north of the Runn of Cutch, the words par and khar, meaning beyond the salt desert. The Thur and Parkar districts are occupied almost equally by mahomedans and hindoos, sub-divided into classes. They generally use a mixed language called Dati, composed of Sindi, Marwari, and Guzerati, though Guzerati is in use in some parts of the district. They are naturally inactive and in manners and customs resemble the Cutchi. They are chiefly occupied in cattle-breeding and as graziers for which they evince a greater preference than for agricultural pursuits. The mahomedans are Syuds, Beloochi, Brahooi, Jhut and Summa. The hindoos are brahmins, and Soda, there are also twenty-five commercial tribes, five outcaste races, the Mengwar, Bheel, Colee, Bala-Shahi and Shikari, and thirteen miscellaneous tribes, Shaikh, Memon, Kumbrani, Gudda, Bujeer, Mohana, Jokiah, Dookur, Koliah, Amunda, Bhopa, Mahur, Hakra. In the Ahmednuggur Collectorate, there are 111 to the square mile, but in the Thur and Parkar district only nine. See Cutch, Runn, Sind.

PARKIA, a genus of plants belonging to the natural order Fabaceæ and the tribe Mimoseæ. It was named by Mr. Brown in honour of the great African traveller Mungo Park. The genus contains only a few unarmed trees, which are found on the west coast of Africa, the peninsula of India, Sylhet, and in the Islands to the eastward of the Bay of Bengal. Parkia is distinguished among the Mimosa-like Liguminosæ by the tubular 5-cleft calyx and the corolla with 5-distinct petals having a more or less imbricate æstivation; stamens 10, hypogynous, monadelphous. Legume many-seeded, 2-valved, with a farinaceous pulp around and between the seeds. Inflorescence, an axillary peduncled and club-shaped spike. —*Eng. Cyc.*; *Voigt*.

PARKIA AFRICANA is the Nitta or Doura-tree of Soudan. The farinaceous matter surrounding the seeds is eaten, and also made into a pleasant drink when steeped in water. The seeds are roasted as coffee, then bruised and allowed to ferment in water. When they begin to become putrid, they are well washed and pounded, and the powder is made into cakes resembling chocolate, which form an excellent sauce for all kinds of meat.—*Brown* in Denham quoted in *Eng. Cyc.*

PARKIA BIGLANDULOSA, *W. & A.*

Mimosa pedunculata, *Roxb.*

Chendu phool,	HIND.	Sambrani manu,	TEL.

This large and elegant tree was introduced into India from Africa. It is one of the best trees for avenues. It requires care and water regularly. The Malays are said to be fond of the mealy matter which surrounds the seeds, and of the seeds themselves which taste like garlic. The flower buds resemble balls of red velvet. Legumes filled with a farinaceous edible pulp. A very elegant tree of large size, introduced from Africa, the legumes are filled with a farinaceous pulp, the wood is hard and promising, surrounded by an astringent bark. A watery extract has been prepared, the value of which for tanning purposes has yet to be tested. The wood is hard and promising, it is surrounded by an astringent bark. The sweet and farinaceous pulp within the pods is highly esteemed and made into sweetmeats. The natives also make a pleasant drink by diffusing the farina through water. This tree has now been introduced for many years into some of the gardens about Madras.—*Voigt.*; *Dr. Riddell*; *M. E. J. R.*; *Cat. Madras Agri-Horticultural Gardens*; *Dr. Cleghorn in M. E. J. R.*

PARKIA ROXBURGHII, *G. Don.*

Mimosa bigloboSa, *Roxb.*

A tree of Assam and Sylhet, wood not known.—*Voigt.*

PARKINSONIA ACULEATA, *Linn.*; *DC.*; *W. & A.*

Barbadoes flower fence,	ENG.	Vilaeti kikar,	HIND.
Jerusalem thorn,	„	Adanti,	„
Genet epineux,	FR.	Sima jiluga,	TEL.

A small graceful tree, with large yellow flowers, of the West Indies and South America, domesticated in India. It grows 12 or 15 feet high and is seen everywhere in hedges of the Peninsula, springing up with less care than any other tree, is valuable for hedges, and furnishing abundant cuttings for fuel. A useful fibre is obtained from its stem, valuable as a paper material. It is very generally employed in hot climates as an ornamental plant, and especially for the construction of hedges, for which its strong spines render it well adapted. It has long pinnated leaves, with a winged petiole, and grows as much as 12 or 15 feet high. The flowers are large, yellow, very numerous, and a little variegated with red spots and are succeeded by long narrow knotted pods. It grows readily from seed, and is well adapted for hedge rows, the stem from which the leaves spring is capable of being converted into a white fibre. Some of it was sent to the Exhibition of 1851, as a material for paper-making, and which could probably be afforded at a cheap rate, from the cuttings of the shoots of this plant. It, however, has been considered as wanting in strength. It might, nevertheless, be found useful in mixing with other fibrous substances, and beaten up into half-stuff. This plant has spread largely throughout the Punjab, but it is there only a scraggy small tree, and is not much valued by Europeans except for hedges, for which it answers well if sown close and well-cropped, and it needs but little water.—*Voigt*; *Dr. Riddell*; *Eng. Cyc.*; *Royle's Fib. Pl.*, *p.* 298; *Dr. J. L. Stewart's Panjab Plants.*

PARKSHITA, see Magadha.

PARKUTA, see India, Maryul or Lowland.

PARLA KIMEDY, see India, Kimedy, Kond.

PARLIPUR, see Rahtor.

PARMACELLA, a genus of molluscs.

PARMADANI, MALAY. Carpets.

PARMASANG, a hill 1,350 feet high, on the west side of Banca.

PARMAYINAN, MALAY. Toys.

PARMELIACEÆ, the Lichen tribe of plants, the Lichenaceæ of Lindley, are perennial plants, often spreading over the surface of the earth on rocks or trees in dry places in the form of a solid and foliaceous or hard and crustaceous or leprous substance called a thallus. Fee estimated their number at 2,400. The same species are found in different parts of the world; the lichens of N. America differ little from those of Europe and almost all those collected by Dr. Royle in the Himalayas were found by D. Don to be identical with European species.

Usnea florida, *Ach.*, syn. of L. floridus, *L.*
„ barbata, *Ach.*, syn. of L. barbatus, *L.*
Borrera ciliaris, *Ach.*, syn. of L. ciliaris, *L.*
„ ashneh, *Royle*, Chulcheleera.
„ furfuracea, *Ach.*, syn. of L. furfuraceus, *L.*
Rocella fuciformis, *Ach.*, syn. of L. fuciformis, *L.*
„ tinctoria, *Ach.*, orchil.
Cetraria islandica, *Ach.*, Iceland moss.
Cetraria nivalis, *Ach.*
Alectoria usneoides, *Ach.*
Cladonia rangiferina, *Hoffm.*,
Ramalina farinacea, *Ach.*, syn. of L. farinaceus, *L.*
Gyrophora murina, *Ach.*, „ L. murinus, *Ach.*
„ deusta, *Ach.*
„ pustulata, *Ach.*
Peltidea canina, *Ach.*, syn. of L. caninus, *L.*
Parmelia perlata, *Ach.*, syn. of L. perlatus, *L.*
„ caperata, *Ach.*, syn. of L. caperatus, *L.*
„ physodes, *Ach.*, syn. of L. physodes, *L.*
„ saxatilis, *Ach.*
„ omphalodes, *Ach.*
„ encausta, *Ach.*
„ conspersa, *Ach.*
„ parietina, *Ach.*
„ kamtschadah's, *Esch.*
Sticta pulmonaria, *Ach.*, syn. of L. pulmonarius, *L.*
„ scrobiculata, *Ach.*, syn. of L. scrobiculatus, *L.*
„ pulmonaria, *Ach.*
Stereo-caulon paschale, *Ach.*, syn. of L. paschalis, *L.*
Lecanora parella, *Ach.*, Orseille de terre, Perelle d Auvergne.
Lecanora tartarea, *Ach.*, syn. of Cudbear.
„ hæmatomma, *Ach.*
„ atra, *Ach.*
Variolaria lactea, *Ach.*
Urceolaria scripta, *Ach.*
„ cinerea, *Ach.*
Isidium westringii, *Ach.*
Lepraria chlorina, *Ach.*
Solorina crocea, *Ach.*

Lichens, are useful to man as food and medicinally and after maceration in urine can be employed as dyes, the chief dye plants are the Lecanora parella also the purple powder of L. tartarea, or Cudbear, from Cuthbert who introduced it: P. hæmatomma; Rocella tinctoria and R. fuciformis, furnish the orchil or archill dye called also Orseille des Canaries. The Borrera asneh is a common dye in India. The nutritive properties depend on the presence of an amylaceous substance analagous to glutone, which Berzelius says, exists in the form of pure starch or amylaceous fibre to the amount of 80·8 per cent in Cetraria islandica. —*Voigt.*

PARMELIA KAMTSCHADALIS, *Esch.*

Chalchalira, Himalaya.
Charcharita, „
Ausneh, Himalaya.

This lichen is found in the Punjab bazaars, and is probably gathered in the Himalaya. It is used as a dye, and is also officinal, being given as a stimulant to digestion, and on the Yunani system in mania. Honigberger states that it is also administered in disorders of the stomach and womb, and in cases of calculus. It is also said to be used for purifying the blood, and as a bitter tonic and astringent, is used in intermittent fever and hæmorrhage.—*Dr. J. L. Stewart's Punjab plants*, *p.* 269; *Powell's Hand-book*, *Vol.* i, *p.* 384.

PARMIAUN, HIND. Gymnosporia spinosa.

PARM-NARM, HIND., a name given by Akbar to the fabric of Ibex wool, the Shah-Tus.

PARNA, HIND., a small narrow bladed saw.

PAROOL, BENG. Bignonia suaveolens, *Roxb.*

PAROOPOO KEERAY, TAM. Chenopodium album.

PAROOSHAKA, SANS. Elate sylvestris.

PAROP, also Paropami, see Greeks of Asi

PAROPAMISADÆ, see Bactria, Greeks Asia.

PAROPAMISAN MOUNTAINS. The trac dependant on the Paropamisan mountains, inhabited by predatory Tokhees, and, from th character of the inhabitants, one would expec it to be rough and poor; it seems, accordingly to be composed of hills destitute of water, and perhaps of soil, with valleys too narrow to admit of much cultivation. The inhabitants live in tents, and are supported by their flocks. The Paropamisus west of Affghanistan is now occupied by intrepid and hardy nomades, the Eimak and Hazarah; and Affghans, whether coming from Balk, Kabul, Kandahar or Hera never venture into their mountain districts. The Eimak are shiahs and occupy that part of the range nearer Persia and the Caspian, while the Hazarahs (from Hazar-persian, a thousand), are sunnis, and dwell in the mountains adjoining Affghanistan. Mr. Vigne thinks the word Paropamisus is formed from "pahar," a "hill" or "mountain," and which was perhaps the word meant by Mr. Masson, and the other word "pam," a "roof," that is, a flat roof, such is used in the east. Mr. Masson informed him that the Paropamisan range is a good deal broken into mountains, with table-land on their summits. Professor Lassen prefers the reading of Paropanisus, and explains it to be the country upon or along (para) the Nishadha mountains; the Nishadha mountains forming a range in the Pauranik geography of the hindoos, north of the Himalaya. *Lassen on the Kings of Bactria;—Elphinstone's Kingdom of Cabul, p.* 430; *Vigne's A personal Narrative, pp.* 193, 195-6. See Kabul, Koh.

PARAPI, HIND. A grain measure.

PAROS, HEB. Flea.

PARPADAGUM, TAM. Mollugo cerviana, *Ser.*

PARPARAM, Pentatropis macrophylla.

PARPATAKAMU, SANS. TEL. Mollugo cerviana, *Ser.*, *W. & A.*, 159, alsoMollugo triphylla, *Lour.*, *W. & A.*, 157.—*R.* i, 360—*Rheede* x, 26,—Heyne, did not identify it. Wight says it is a medicinal plant with bitter leaves which he names doubtfully Oldenlandia biflora. The same name is used in Tamil; and Brown, on the authority of Rottler agrees and assigns it to Mollugo (Pharnaceum) cerviana.

PARRAKEET, a sub-family of birds of the Parrot family or Psittacidæ, peculiar to the eastern hemisphere, found in the tropical regions of Africa, Asia and Australia. See Parrots.

PARRA, a genus of tropical birds, belonging to the family Parridæ, the sub-family Parrinæ, the Jacanas; as under:

Sub-Fam.—Parrinæ.

Metopidius indicus, *Latham*, the bronze-winged jacana, all the East Indies.

Hydrophasianus chirurgus, *Scopoli.* The pheasant-tailed jacana, Ceylon, India.

The genus Parra is restricted to birds from South America, but Adams speaks of water-pheasant (Parra Sinensis) which was shot on the river near the head of the valley of Kashmir.—*Adams.*

PARRAWAH, BURM. A timber of Amherst, Tavoy and Mergui, of maximum girth 3 cubits and maximum length 22 feet. Abundant all over Tenasserim and Martaban provinces. When seasoned it sinks in water. It is a durable smooth-grained tough wood; used by Burmese for sticks, helves for pickaxes, and hoes; handles of chisels and other tools, &c. Recommended for helves and handles of tools generally.—*Captain Dance.*

PARROT.

Tota,	HIND.	Chiluka,	TEL.
Killi poolli,	TAM.		

The parrots are arranged by naturalists in the family Psittacidæ, belonging to the climbing tribe of birds, and divided into six sub-families as under,

Psittacidæ.

Psittacinæ, true Parrots.
Loriinæ, Lories.
Palæorninæ, Parrakeets.
Platycercinæ, Australian Parakeets.
Arainæ, Macaws of America.
Cacatuinæ, cocatoos of Australia and islands.

The sub-family Palæorninæ, *Vigors*, and the genus Palæornis are parrakeets, viz.:—

Palæornis alexandri, *Linn.*, all India.
" torquatus, *Bodd.*, Tropical Africa, all India, Ceylon.
" rosa, *Bodd.*, all India, Burmah.
" schisticeps. *Hodgs.*, Himalaya, Bengal, Sylhet, Assam.
" columboides, *Vigors*, Malabar Coast, Neilgherries.
" javanicus, *Osbeck*, all India to Java.
" calthropæ, *Layard*, Ceylon.
" caniceps, *Blyth*, Nicobars, Penang.
" erythrogenys, *Blyth*, " Andamans.
" longicauda ——— ? Sumatra, Malayana.
" modestus, *Fraser* ——— ?
" viridimystax, *Blyth* ——— ?

Adams mentions the plum-headed and rose-ringed Parrakeets (P. cyanocephalus and P. torquatus.) The parrakeets are of a green colour with yellow and red markings.

Loriinæ or Lories.

Lorilucus vernalis, *Sparrm*, the love-bird or Indian Lorikeet of Malabar the sub-Himalaya, Bengal, Sylhet and Burmah.
" galgulus ——— ? Malay peninsula.
" asiaticus or Indicus ——— ? Ceylon.

Other species in China and E. Archipelago,
Psittinus malaccensis ——— ? Malay peninsula.

PARROT CROSSBILL, see Crossbill.

PARROTIA JACQUEMONTIANA, DUC.

Wych hazel,	ENG.	Killar,	RAVI.
Killar; Kirru; Pare,	CHEN.	Sha,	SUTLEJ.
Psher; Pishor,	JHELUM.	Spilecha,	TR.-INDUS.
Pahu; Po,	KANGRA.		

A shrub of some size which grows abundantly in many places on most of the rivers up to the Indus as well as more sparingly beyond it, from 2,800 to 8,000 feet. It is generally seen in clusters and thickets, the stems ranging up to 12 or 15 inches girth, and 15 or 20 feet high. The leaf resembles that of the hazel, for which this plant has frequently been taken by Europeans, although the fruit is very different. In some places its leaves are said to be browsed by cattle. The wood is hard and strong, and makes good pegs, native bedsteads, rice-pestles, walking-sticks, &c., and Vigne states that he had an excellent flute made in England, of its wood. The twigs are used for binding loads, making baskets, &c., but the chief use of the plant is for the twig-bridges. These are in most places made of Parrotia twigs, either wholly, or mostly Cotoneaster, Olea and Indigofera heterantha, q. v., being sometimes mixed with these), and in some cases it must be read for the "birch-bark" of travellers. For the bridges, &c., Parrotia is cut at all seasons, and is not very lasting, requiring frequent piece-meal renewal. Longden mentions a birchen jhula at Koksar now replaced by a bridge, and willow is stated to be employed in Spiti, Ladak, &c. Near Mozaffarabad there are several bridges of the same construction, (viz., one longitudinal rope to walk on and two lateral ones to hold by connected with the former by thinner ropes), but made of twisted hide, and one is mentioned by Hutton in Kanawar made of Yak's hair.—*Dr. J. L. Stewart, M.D.*

PARROTIA PERSICA, grows in Persia and Kashmir and furnishes a very hard wood.

PARS, Fars or Farsistan, is a province of the kingdom of Persia which gives its name to the country. It lies between 27° 20′ and 31° 42′ N. lat., and 49° 20′ and 54 E. long., being nearly square and about 220 miles in length and breadth. It has Kirman and Laristan on the east; the Persian Gulf on the south, Khuzistan on the west, and Irak Ajem on the north, with a superficies of about 44,335 geographical square miles, or nearly one-third of France. It has many rich and picturesque tracts, and is less desert than other parts of Persia. The province of Persia contains the salt lakes of Bakhtegan (also called Niriz) and Dereachte, which are in the neighbourhood of Shiraz ; and there is a fresh water lake in the plain of Zerdan. The principal streams are the Bendamir or Araxes, which receives the Kur-ab or Cyrus river, as it falls into lake Bakhtegan : and the Nabon, whose course is from Ferozabad southward to the Persian Gulf. In this country are also the higher parts of the two branches of the Tab. Towards the north (according to Mr. Morier), Mader-i-Suliman marks the tomb of Cyrus (son of Cambyses) ; and to the west are the ruins of Kizla Safed, and, nearly in the centre, are those of the ancient capital, Persepolis. This territory represents ancient Persia, which was watered by the Araxes, Gyndes, Oroatis, Arasis, Pelevar and Bagrad. Its cities were Corna, Axima, Arbrea, and Artacana; besides many others whose sites are unknown. Persepolis was the capital in the time of Alexander : more anciently the seat of the government was at Persagada, (Strabo lib. xv, p. 729,) the Persagadis of Quintus Curtius (Lib. v, cap. vi.) but as this historian speaks of the fortress of Persepolis, and the city of Persagadis (qu. Farsa-Gerd ?) it is possible that the extensive ruins in the plain, near the former, may be the Pasargada of Pliny. (Lib. vi, cap. xxvi, Euphrates and Tigris, Col. Chesney, p. 210.) Fars or Pars, merely a division of the empire of Iran, is the term applied by Europeans to the whole of that kingdom. It is unknown, in the sense Europeans use it, to the present natives of Iran, though some Asiatic writers contend that Pars formerly meant the whole kingdom.—*Malcolm's History of Persia, Vol.* i, *p.* 1 ; *Colonel Chesney, Euphrates and Tigris.* See Fars, Parsee.

PARSAJI, see Bhonsla Rajas of Nagpur.

PARSEE, a name given to the Zoroastrians, now scattered through different parts of Asia; but principally located in Bombay and Guzerat. They originally came from Pars or Fars, the province of Persia, known as Persis by the Greeks. The followers of Zoroaster were a part of the great Arian race who left their original country in the high lands of Pamir, at the sources of the Oxus and journeyed westward. While they were still dwelling in Bactria, Zertusht, known to the western world as Zoroaster, reformed their worship. He was a priest of the fire worshippers at a time when the doctrine of a duality of good and evil was already in vogue, though the name of Ahriman does not occur in the oldest records. What is understood by evil, is evil thought (Ako mano,) or falsehood : and this is contrasted with good thought, which is identical with the good principle, and is now known as Horimazd. An absolute personification of the good principle is, however, hardly to be found in the songs of Zertusht. Zoroasters reform in Bactria, occurred about the time of Menes, or about 3500 B.C. He is altogether distinct from another Zoroaster, the Median conqueror of Babylon, who vanquished the realm and city of the Chaldees, and founded the second Babylonian dynasty in the year 2234 B.C. The worship of fire, and the ordinary receptacle of the sacred fire is called Adran; the more expensive places being called Atash Bahram. They now have a heaven, and the place to which the souls of the good go, is Gurasman Bahasht. They have a hell, called Dozakh, which they describe as a dark place with fiends and where Ahraman or Shaitan dwells as the arch fiend. They are strict in their ritual observances, particularly those inculcated for purification. The Kusti has frequently to be removed from the person, and their families like those of the Jews, Mahomedans and Hindoos dwell in rooms apart. They have 101 attributes or names of the deity. Before prayer they wash their hands and feet, take off the kusti, pray, and again fasten the kusti. In their prayer, they first invoke Sarozbas, whom they consider to be an angel in heaven. They them pray to Khorshad, the sun, to an angel named Mahir, (mihir, the sun) and to Hormuzd, the beneficent principle. Women, also, usually pray. The Parsi priests complain that the young men are becoming less strict in their ceremonial observances and are urgent on the elders to enforce them. Their ablutions for purification are much insisited on, after most of the natural functions, and,like the hindoo, the women dwell apart when unwell and similarly for the forty days after child-birth, as followed by the Mosaic and mahomedan ritual. The people are of a yellowish white colour, tall, large made men, with long arms and large feet. Their women are of a pale white, but mostly with a slightly xanthous hue. A new code of laws for the Indian Parsis was promulgated in the middle of the 19th century. In social life, they now can marry only one wife, though formerly, in case of barrenness, a second could be married. The young bride is taken to her husband's house, after she grows up. The women of the Parsi community are believed to be very chaste. They marry in comparative childhood, and this seems to have its usual resulting evils, for the immoralities of the men are constantly before the community in the public papers. The wife and husband call each other by their names. The Parsis do not eat the flesh of the cow or hog, and are permitted the use of spirituous liquors. Their women also use the latter, but they are a sober people, rarely partaking to excess. At their meals, when sitting down they pronounce two words, "Jamwani baz" which they suppose to be a thanks-offering, but the words merely seem to mean "be eating." They neither burn nor inter their dead, on the idea that the earth and the elements would be made impure by either course. The dying are never allowed to expire in a bed. When near death the sick are removed to the ground and bathed or washed. The reasons given for this removal to the ground are various, but the one ordinarily accepted amongst them is that a dead body is an unclean thing, necessitating that all who touch it must destroy their clothes, and whatever it touches must be destroyed. For these reasons the dead in Bombay are carried by a class of Parsis, called "Nessus salar," Nessus, meaning unclean. These men carry the remains to the dokhma or tower of silence, on the floor of which they lay it. The dokhma has a deep well surrounded by a platform with channels converging to the well. The body is laid on a partition of the platform and the fluids resulting from its decomposition flow along the channels into the well; but after a time the remnants of bones are also swept into that excavation. A small dokhma will cost Rs. 3,000 or Rs. 4,000, when the well is full the bones are removed and buried outside the dokhma. After the demise, before removal from the house, a dog is brought near to gaze on the departed. This is the Sag-did, or dog gaze, and by one account is said to have been had recourse to, with a view to ascertain from the movements of the dog, the state of the soul of the departed: by another, it is adopted in the belief that the dog is a naturally chaste animal and that the view of the chaste dog falling on the dead will expedite the translation of the soul to heaven. The fire priests are paid to pray for the dead, monthly, for a year, and thereafter on the anniversary of the demise. Addar jasan is the ninth day of the ninth month of the Parsi year. On this day, money is distributed to the priests, and offerings of sandalwood are made to the sacred flame in their fire temples, which are then much crowded. The educated amongst them are inclined to imagine their Gurusman, or Bahisht, in which Hormuzd dwells, a heaven something like that of the christians, but seven heavens are recognized amongst them: and their dozakh, where dwells Ahriman,or Shaitan, amongst dark fiends, is the equivalent of hell.

In childhood, a Jubhla or silken frock, is worn by the Parsee, both lads and girls, and lads are invested with the Sudra or sacred shirt, and the cord or kusti at the age of six years and three months. It is in reality deemed to be at the seventh year,—the nine months of the child's gestation being included. This investiture is the initiation of the child into the religion of Zoroaster, the silken "Jubhla," being then discontinued. The Sudra is made of cotton cloth, or gauze, or net, while the kusti is a thin woollen cincture or cord of seventy-two threads representing the seventy-two Has or chapters of the Izashne, one of the sacred books of the Parsees. The Sudra and Kusti are worn alike by men and women, but the latter likewise dress in the saree, generally of coloured silk and the short sleeved silk vest called the Kanchri or Choli. Provided the Sudra be worn any other material and of any colour may be added over it. It is to the Kosti, Kusti or Custee, the sacred thread or cord of the Parsees, to which Moore, in his Lalla Rookh, alludes, when he makes Hafiz thus declare himself a Fire worshipper,

> Hold! hold! thy words are death,
> The stranger cried, as wide he flung
> His mantle back, and show'd, beneath,
> The Gebr belt that round him hung.

The Kosti or Kusti is terminated by two small tails at each end, denoting the four seasons, three knots on each tail represent in the aggregate the twelve months of the year. Baron de Bode, however, states that the cord is twisted, of 27 threads, such being the number, according to Parsi interpretation, of the known kingdoms of the world at the time of Hushang. The assumption of the Sadaro shirt is part of the ceremony of initiation. The race the small but intellectual remnant of the once great Median nation are to be found scattered from Hongkong in the east, to Britain in the west. A considerable body of them dwell in Bombay, in Guzerat and the western towns of India. The dokhma is without any roof covering,—is open to the sky, so that birds of prey, vultures, kites, and crows have the freest approach. The raised floor has a deep well surrounded by a platform, with channels converging to the well. The corpse is laid on a partition of the platform,and the decomposing matters flow along the channels into the well. This mode of disposing of the dead is universal among the Parsis whenever they are able to give effect to the arrangements. At Bombay, they place the corpse in an iron chair at the top of a tower, whence, when the birds of prey have devoured the flesh, the skeleton falls into the abyss below. Parsis in China, have been heard to express regret that they lose the privilege of having their remains carried by winged messengers to all the quarters of heaven. What they next appreciate is to be buried with their faces turned towards the rising sun; and Dr. Bowring remarked, inscribed on the Parsi tombs at Macao, the beautiful verses of Ecclesiastes, "Surely the light is sweet, and a pleasant thing it is to behold the sun," &c. He once asked a Parsi why they copied from christians, he said, and very truly, that they had nothing more appropriate in their own. Physicians who attend Parsi patients are always charged (if the cases are likely to terminate fatally) to give timely warning to the friends of the sick man. When it is believed that he is drawing near his end, the attendance of the physician is dispensed with; the dying man is given over to two Parsi attendants who divest him entirely of clothing, and convey him to a chamber on the lowest floor from which all the furniture has been removed, and in which there is nothing but two stones. The dying man is placed upon these stones, held up in a sitting attitude by one of the men, and his body is besmeared with cow's urine. If possible, he must be made to drink some of the same; this is regarded as of great importance, and, under the circumstances, of singular efficacy in fitting his spirit to appear before the Judge of all. After this a quantity of warm water is poured upon the dying man, one vesselful after another, and in the great majority of instances the vital spark is extinguished at this time. In one instance a physician was summoned in all haste. Before he reached the house, however, the friends of the sick man thought him to be on the point of death, and without waiting, removed him to the death-chamber. The doctor arrived, and was told that the patient was dead. He asked to see him but was denied access. He enquired regarding the symptoms, and on being informed of them, he declared his belief that the man was not dead, and insisted on seeing him. But they would not allow him to approach the body; he might see it from a considerable distance. This ablution with the sacred element is regarded as a means of washing away sin. There is nothing less revolting in the usage than in the exposure of dying hindoos on the banks of the Ganges. We see in both the operation of the same superstition: the idea that the soul is happily dismissed to a better condition by virtue of the application of a reputedly sacred element. How strongly and indignantly have the hindoos been remonstrated with for their barbarous treatment of those whom they love in the very hour preceding dissolution, for the water and mud which they pour down the throat of a mother or father, as the final utterance of filial affection. It is truly remarkable that the analogous usages of the Parsis should have escaped animadversion as they have done. The idea is that this supreme ablution is a necessary passport to heaven, but this idea is inconsistent with the methods of salvation indicated in their sacred books. The Parsis glory in the Zend Avesta, but there is little connection between Parsiism and the Zend-Avesta.

Although it cannot be doubted that the modern Gabr and Parsi in allowing carcasses to be lacerated and disjointed by birds or beasts, imitate the example of their Magian fore-fathers who (as we learn from classical authority) did not, in general, cover the bones of their dead with earth, until they had been denuded of flesh by carnivorous animals. Some ancient race in the south of Persia seem to have had urn sepulchres. Amongst the urns found on the plain of Bushire each had a pointed end, and at its mouth a bowl or basin without bottom; not united to the main part by means of agglutination, but very closely fitted, and supported in its place by the general bed of earth. Those urns lay horizontally, not parallel with each other, but on a straight line, and in the direction of East and West. In one urn was a quantity of sand with the bones of a full-grown person, completely filled, and very heavy. The skull was placed about the middle or widest part; not, in the basin, which contained only sand. Of this urn the greatest circumference was two feet nine inches; its length three feet four inches; including the bowl or basin, which separately, was near eight inches. The urns, made of clay, and about one-third of an inch thick, and solid at the pointed end; but the bowls, without bottoms. The insides had evidently been coated with some bituminous substance; but the urns nowhere exhibited inscriptions, nor any other mark by which their degree of antiquity might be ascertained.

This sect have, in India, six fire-temples of the first class, or Atash-behram. If India and South Eastern Asia be looked at in their religious aspects, four polytheist faiths will be seen, Buddhism, Brahminism, Sintoism and Shamanism: three monotheistic faiths, Jewish, Christian and Mahomedan; a mixed faith the Sikh, partly monotheistic but believing in incarnations, and lastly the worship of fire as an element by the little numerous but intellectual Parsees. The followers of the various religions in the world, according to Hassel are, in millions.

Christians, millions.	120	Brahmins, millions.	111
Jews, nearly, „	4	Buddhists, „	315
Mahomedans, „	250		

The Persian word Gab'r, a fire worshipper, means any non-believer in mahomedanism. According to the manuscript dictionary, Burhan-i-Kattea, Gab'r is used in the sense of Magh, which signifies a "Fire-worshipper." Gab'r nami-i-Magh bashad, keh atash purust ast. This is sometimes written, and very often pronounced Gavr, by a change of letters frequent in Persian, as in other languages. "Gavr," we learn from the dictionary Jehangiri means "those fire-worshippers who observe the religion of Zardusht, (or Zoroaster), and they are also called 'Mugh.' But Origen, in the third century, defending Christianity against Celsus, an Epicurean, who had alluded to the mysteries of Mithra, uses Kaber as equivalent to Persians. "Let Celsus know," says he "that our prophets have not borrowed anything from the Persians or Kabirs." (*Orig. contr. Cels. Lib.*, *Vol.* vi, p. 291. *Cantab*, 1658.) A Jewish writer, quoted by Hyde, (Hist. Relig. Vet. Pers. Cap. xxix.) declares that the Persians call their priests (in the plural) Chaberin, (or Khaberin) whilst the singular Chaber or Khaber, (occurring in the Talmud,) is explained by Hebrew commentators, as signifying Parsai, or Persians. On this subject Hadrian Reland has offered some remarks, in Dissert ix, de Persicis Talmudicis. (See his "Dissert. Miscell. Part ii, p. 297." Traj ad Rhen. 1706.) Dr. Hyde, however, as above cited, thinks that Chaber or Chaver, denoted both a priest and a layman. Meninski says "Ignicola, magus infidelis, quivis paganus." The word is more familiar to the people of Europe under the same aspect of Guebre. A small remnant of this race exists in Persia, chiefly at Yezd, in Khorasan. Being persecuted and annoyed by the mahomedans, most of their countrymen have emigrated to India, where, especially at Bombay, they flourish under the name of Parsee. Parsi festivals are celebrated with but little show. Their day is divided into watches termed gah, of which there are four in winter and five in summer. Each gah has a heavenly watcher and its own special prayers. Pateti, Naoroz or New year's day, is held on the 1st of Farvardin, celebrated in honour of Yezdejird, the last king of the Sassanian dynasty. On this day alms are given and congratulatory visits paid in which the Hama-i-jor or hand-joining is practised. Rapitwar on the 3rd of Farvardin is in memory of Ardibehisht. Khordad Sal in memory of Zoroaster, who, they variously say, was born B. C. 638, 520 and 389 at Roh in northern Persia. Amardat Sal, is on the 7th, and Farvardin on the 19th of Farvardin; Ardibehisht; Mediozeren, or midsummer; Khordad Jasan, Medioshamor midwinter, Jasan, Amardat Jasan, Shahrivar Jasan, Petisham Nao roz: Meher Jasan, Eiruhrem Aban Jasan, Adar Jasan, Farvardin Jasan, Afshandyar Muktar, Maharaspaud Jasan, and Hamashpatmadan are are other festivals.

In 1861, at the 11th meeting of the Bombay Literary and Philosophical Society, Professor Dadabhai Naoroji gave a short sketch of the present condition of the priesthood, whom, he described as a body, not only ignorant of the duties and objects of their own profession, but entirely uneducated. They only know how to read and write, as that is necessary to the preparation by rote of a number of recitations and prayers required for their daily avocations. On account of this general ignorance among the priests, there is no pulpit among the Parsees. The religious education of the Parsee child consists only in the preparation by rote of a certain number of prayers in Zend, without understanding a word of it. Of late some effort has been made to supply this want. A dialogue is composed, which gives a general outline of the doctrines and morality of the Zaratosht religion, as believed by the present Parsees. The creed taught in it is summed up as follows :—To know God as one—to know the prophet, the exalted Zaratosht, as his true prophet—to believe the religion of the Avesta, brought by him from God, as true beyond all manner of doubt—to believe in the goodness of God—not to disobey any of the commands of the Mazdiashna religion—to shun evil and wickedness—to strive for good deeds—to pray five times in the day—to believe in the reckoning and justice on the fourth morning after death—to hope for heaven and to fear hell—to consider the day of general resurrection and judgment as certain—to remember always that God has done what he willed, and shall do what he wills—to turn the face to some luminous object while worshipping God. God is the creator of all things. Deeds shall determine reward or punishment after death, and none but God alone will and can save. But in order to give an outline of the creed as it really is taught in the original Zend Avesta, which the Parsees believe to be the religious books given to them by Zaratosht, Professor Dadabhai gave a series of extracts from the Zazshne. One of these was, O great judge Hormuzd, full of glory and brightness, I invoke thee, the highest, the all-virtuous, the greatest, the strictest, the allwise, of the purest nature; the holiest, the lover of gladness, the invisible among the invisible, the increaser; He created our souls, He moulded our body, He gave us existence, the eternal, the omnipotent, the creator of all things, Him I invoke, and complete this Yazashne. Good conscience, high piety, love of excellence, high and perfect thought, Khurdad and Amardad (two angels) I invoke." Then are invoked all the angels, the sheep and their souls, the days, months, years, the feasts of the season, the fire, the sun, the moon, the elements, nature, and all creation, and the spirits of all the different departments of creation. The souls of holy and prayerful men and women, everything that is holy and good; the soul of the prophet; his own soul, (of the person praying), each and all being described as created by God. "If I have by thought, word, or deed, intentionally or unintentionally, not kept Thy commands, and thereby saddened Thee, I invoke Thee in this invocation, I pray to Thee, and praise Thee, and beseech Thy pardon." "May I receive the reward for piety through your bounty. May the aspirations of the holy be fulfilled. May the wicked and evil-doers be disappointed, and be swept away from the creation of the Holy Creator." "Hom," an angel, is addressed by Zaratosht as destroyer of death, and is prayed for assisting in destroying all that is wicked, and to bestow the power of doing good. "I am of the religion of the worship of God. I praise that religion, and declare it before the wicked, and praise it with good conscience, good words, and good deeds." "Tell me, O God, the creator and promoter of all creation, what were Thy words before the existence of the heavens, before the waters, before the world, before the sheep and other animals, before the glorious fire created by Thee, before the holy man, before the wicked spirits of dull and perverted reason, before all Thy creation? God replied, O Zaratosht, those words were the parts of Honwar; those that I have told you, those were the words before the heavens, before the waters, before, &c. (The Honwar refer to the holy books of the Zaratoshtee religion.) Whoever shall study and meditate much upon the words of the Honwar, and recollect them, and act according to them, after death shall attain to everlasting exaltation." "Whoever tastes the pleasure of righteousness, which is above all other pleasures, and walks in righteousness, shall be perfectly holy." The righteous are immortal." "He who knows God through his works, reaches him." "On the great day of judgment, wickedness and evil shall be destroyed. To speak true words is true sovereignty. The wicked are punished according to their thoughts, words, and deeds. Better is it that they be introduced to wisdom. O Hormuzd, give them a desire for wisdom, that they may become the promoters of holiness. O Hormuzd, I worship thee, and in the heavens, also, shall I worship thee much. For holiness and purity, I ask the aid of Ardebehisht, (angel of fire;) for pure thoughts I ask the aid of Bahaman; I worship thee, O Hormuzd, above all others, I invoke thee above all others, all holy thoughts, all holy words, all holy deeds flow from thee, O Hormuzd, I invoke thy pure nature above all others. Who is the creator and promoter of holiness? How have the revolutions of the sun and moon been created? How does the moon wax and wane? Who has made the earth stand unsupported? Who has created the waters and the trees, the air which flows of itself with such force? Who has created the receiving of light and of darkness? Who has created the times of the day, and the last day of judgment? Who has created the desire to be exalted through virtuous thoughts? Who has created the affection that the child receives from the parent? Thou art the promoter of all goodness. Thou art the creator of all creation. May all men and women of the world become thy followers. I invoke the benefit and success of prayer. To arrive at prayer is to arrive at a perfect conscience. The good seed of prayer is virtuous thoughts, virtuous words, and virtuous deeds. May I love prayer to Hormuzd, for that prayer is joy to me. Prayer to thee, Hormuzd, is the giver of excellence, holiness, success, and high exaltation. May the fold (of sheep) of the people not diminish, may virtue not diminish, may the strength of the holy men not diminish. In this house may obedience prevail over disobedience, peace over quarrel, charity over miserliness, good thoughts over bad thoughts, truth over words of lie, piety over sin. I enjoy holiness on earth and in heaven. That to pray much to Hormuzd is good, I enjoy in heaven and on earth. The author then mentioned that the chapters xi, xii, xv, and xviii of Leviticus describe very nearly some of the present practices of the Parsis, with the exception of the sacrifices, the circumcision, uncleanness until even, and threescore and ten days for purification after the birth of a daughter. Marriage among cousins is recommended. The Parsis are monogamists. Priestcraft, acting upon ignorance, has not failed to do its work, and has left a legacy of a few works for which the Parsi has no reason to be thankful. Many ceremonies have been thus introduced, but the reformers contend that all those ceremonies that have no authority in the original Zend Avesta ought to be abolished. Of course, the old and the priests do not like this at all. A handful of persecuted exiles, living in a foreign land, surrounded for 1,200 years by idolatry, and persecuted at times by religious fanaticism, the Parsees have still preserved their national type and character, and their original worship. Though they have not altogether escaped contamination and have adopted many superstitious ceremonies and notions of the hindoos, they have always recoiled from degenerating to the worship of idols, and have clung tenaciously to the idea that they were worshippers of only the invisible Hormuzd, the great God. From the extracts it will appear that the Parsees believe in the existence of angels, created by God, and having the power given them to assist and benefit mankind. But they centre their prayers and their hopes, above all, in Hormuzd. Their whole morality is comprised in three words,—Pure thought, word, and deed; their reward and punishment depends upon their fulfilment of this injunction, and their pardon on the will and mercy of God. An evil principle is recognised? but eventually will be annihilated, or, as suggested by Dr. Ihne, converted. Whether, however, Ahriman was a self-created power, or an apostate angel, was doubtful. A French work, by M. Menant, containing an excellent digest of the Parsi Creed, describes it briefly as follows:—"There is one God, He is eternal, there was nothing before Him, and all things are by Him. The universe was truly created by Him, and is not an emanation from Him, but, from creation, has been distinct from the Creator. Creation is composed of spirits and matter. Matter is inert, but spirits are capable of morality. The world of spirits is double. Hormuzd is chief of the spirits of good for eternity. Ahriman is chief of the spirits of evil only for time which passes. Both were created by the eternal, and will endure for the eternity which follows. Souls are all sisters from the beginning, deprived of the body at death, to find it against the hour of resurrection, then never to be separated from it again; they were eternally pre-existent. The guilty will be punished, the just rewarded—both by God. Punishment will only last so long as the principle of evil (Ahriman) endures. The Zend authority is from God, and dogmatic. Hormuzd established religion for all mankind, and not for some only. It will be one day preferred by all mankind, and thus be universal, both as to time and space." This creed, it is, however, to be observed, is derived from the sacred books, and not from the present belief of the Parsis. But the Zend Avesta also contains much more of an apparently fabulous nature.

There is a remarkable similarity traceable between all the religions existing before the Christian era, which, may arise from the fact that all those religions, excepting the Jewish, were originally of a purely astronomical origin, the heavenly bodies received his first and earliest worship; and the religion of Zaratosht was derived from the prevailing forms of worship. At a very early period the origin of evil was a question which agitated mankind. Whence good comes, says one, we know—but whence is evil? It cannot come from heaven. Arnobius, the African, a writer of the third century, refers to this dilemma, "Either the deity is the author of good, or it exists in spite of him;" for it is not possible (thought Plutarch) that the same being, whether good or bad, can be the author of both. Hence arose the necessity of supposing two principles always opposing one another. These principles were early associated with physical phenomena. Light was good—darkness, evil; summer was the distributor of benefits which winter was always undoing and destroying. But it was the Sun which produced light, and covered the earth with verdure in summer, and his absence which bound it up in winter; and thus this luminary became early personified as the great principle of good, and his struggles and alternate mastery over, and conquest by, the evil principle, were symbolically described in the battles of the gods and giants—of Ouranos and Typhon, of Osiris and Typhon, of Hormuzd and Ahriman. The very name of Hormuzd signifies, according to the best authorities, the great principle of light; and the astronomical character of the early Persian fables may be illustrated by one incorporated in the Zend Avesta. Hormuzd made six deities, which represented virtues; whereupon Ahriman made six of a malevolent nature. Hormuzd raised himself three times higher than his wont, and decorated the heavens with stars, appointing Sirius sentinel over them. Again, Hormuzd created twenty-four gods, which (says the fable) he enclosed in an egg. Ahriman did the same, and these broke the first egg, and thus good and evil became intermixed. Now, all this evidently relates to the constellations—the six good deities were symbolical of the six zodiacal signs, between the vernal and autumnal equinoxes, when the sun was in power. The six evil ones were, of course, the six winter signs. Hormuzd raising himself three times his height above the earth, meant his elevation above the spheres of Mars, Jupiter and Saturn, which would bring him to the pure ether—the region of the stars. The twenty-four gods were the twenty-four northern constellations, six zodiacal and eighteen extra zodiacal, for before Hevelius formed constellations from the stellæ informes there were but eighteen constellations in either hemisphere. And the twenty-four gods of Ahriman were, of course, the remaining twenty-four southern or winter constellations. The equinoxes showed the term of duration of power of these great opposing principles; and whether we regarded the Persian statutes of the bull (Taurus, the vernal equinox) being destroyed by the scorpion, (scorpio, the autumnal equinox,) or the fable of Jupiter (the sun of summer) losing his thunderbolt (power, vigour) in winter, as related in the Dionysiac of Nonnus, the meaning is the same. The sun was personified with different attributes, according to his position in the zodiac. The vernal sun was the beardless youthful Apollo, the autumnal, the bearded, aged Æsculapius, son of Apollo, with a serpent twisted round his staff or even round himself. This serpent was the great serpent of the heavens which stretched its length beside the three autumnal constellations of Libra, Scorpio, and Sagittarius, and into whose folds the sun appeared to descend in autumn. Hence the explanation of the well-known mythical hindoo figures of Vishnu, conquered, (in autumn,) enveloped in the folds of the serpent, and triumphant, (in spring,) with the serpent raised aloft in his arms. And thus we can understand the enigma uttered by the oracle of Apollo at Claros, in Ionia, which said, "I am Jupiter Ammon in spring, and black Pluto in winter." Dr. Ihne, however, said the astronomical explanation might be very well applicable to the religion which prevailed before Zoroaster as it was to other ancient religions, but that introduced by him was entirely spiritual and moral—that he may have retained some of the institutions of the old faith, but the peculiar characteristic of the Zoroastrian faith was its spirituality and high morality, as must have been seen from the extracts read.

The Parsees are at present, to some extent, fatalists; but this was one of the corruptions which had crept in through their intercourse with the hindoos. They were monogamous; and their sacred books do not degrade woman below man, though it was only lately that their women had been allowed to mix in society. With regard to the worship of fire, which was brought against them, they regarded fire as the purest and best symbol of the Deity, and that one of His works which could be most conveniently isolated and circumscribed; hence they had sacred fires in the temples, towards which they turned when addressing their prayers, not to it, but to the god of which it was the symbol. The injunction is to turn their face to anything that is glorious, as the sea, the sun, &c. They would not abuse fire, nor extinguish it unnecessarily, nor use it in a contemptuous manner. Hence, the Parsis do not smoke. Gaomaezo or nirang is the urine of the cow, ox or she goat, and the second act of a Parsee, after rising from his bed and before touching anything with his hands is to rub it over the face and hands, after which he purifies himself by having water poured on his hands and feet. Women after child-birth have to drink a little nirang and are purified with it similarly. This process is laid down and enjoined as a purification rite in the 9th Fasgard of the Vendidad (page 120, line 21 in Berghaus edition.) The reforming Parsis object to its use. A pious Parsi has to pray about 16 times a day. They pray in the Zend language, which none of them understand. They pray on getting out of bed, after using the nirang, after bathing, after cleaning the teeth, after finishing the morning ablutions, after the ordinary natural functions, after washing the hands. Every one of the three meals begins and ends with prayer, besides the grace, and before going to bed, the day is closed with prayer. Amongst the Parsees, there is no pulpit, or pulpit orations in the vernacular of the people. Ordinarily every one goes to the fire temple whenever he likes, recites his prayers himself, and as long as he likes, gives, if so inclined, something to the priests to pray for him. On several occasions as in the occurrence of the Ghumbar, the bimestral holidays, there are assemblages in the temple and prayers are then repeated in which few or more join. The priests are the most bigoted and superstitious and exercise much injurious influence, especially over the women. Perhaps only a dozen of professional priests lay claim to a knowledge of the Zend-Avesta, to the extent of reading with meaning, the books they have been taught Parsis have one wife. They do not eat beef, pork or ham and do not eat food cooked by a person of another religion. The high priest is called Dustoor; the other priests are styled Mobed, and the priesthood is hereditary. They object to be called fire-worshippers, and claim never to address any unintelligent material object. They acknowledge to feel awe with regard to light and fire; they do not smoke and object to blow out a candle. There is, however, hardly a Parsee, man or woman, who can give an account of the faith that is in them. The Yasna, Vispered and Vendidad are their sacred writings. But they have not been translated into a vernacular, and each Parsee has to pick up his religion as best he may.

The form of marriage among the Parsees is a very simple ceremony, little more, indeed, than a civil contract, ratified by family consent, and abundant festivity. The rite performed by the priest, consists in placing the hands of the bride flat against that of the bridegroom, and binding their united wrists with a double thread of crimson worsted. Being severed, the cincture is secured on the wrist of each, where it remains for a period of eight days, the threads are then unbound, and cast into the water. The gift of loveliness is not alone bestowed upon the higher classes of Parsee women; but, "when the daughters of the men of the city come out to draw water," the Parsee maidens may frequently be remarked for their handsome countenances, and dignified, yet feminine deportment.

The ancient Persians reckoned a new era from the accession of each successive monarch, and as Yezdijird had no successor, the date of his accession to the throne, 16th June A.D. 632, has been brought down to the present time, thus making the year A.D. 1867, their year 1235-36. In their calculations only 365 days are allowed to the year; leap year is unknown to them, though it is alleged that in every 120 years one month was added to make it correspond with the solar year. The year is divided into twelve months of thirty days each, and five days, or "Gatha," as they are called, are added at the end to make up the deficiency. The months are,—

1 Farvardin.	4 Tir.	7 Meher.	10 Deh.
2 Ardibehisht.	5 Amardad.	8 Aban.	11 Bahman.
3 Khurdad.	6 Sharivar.	9 Adar.	12 Asfandyar

Gatha 5 days.

The Parsees do not now divide their time into weeks, but name the 30 days of their months each after a celestial being—7 Amshaspand and 23 Izad—supposed to preside over them. These are as follow :—

Gujerati.	*Pehlvi.*
1 Hormazd.	Anhuma.
2 Bahman.	Vahuman.
3 Ardibehisht.	Antavahisht.
4 Sharivar.	Shatnavin.
5 Spandarmad.	Sapandamad.
6 Kurdad.	Khundad.
7 Amardad.	Amandad.
8 Dep-Adar.	Dini pavan Atun.
9 Adar.	Atun.
10 Awan or Aban.	Avan.
11 Khurshid.	Khur.
12 Mohar of Mah.	Maha.
13 Tir.	Tir, or Tistar.
14 Gosh.	Gosh.
15 Dep-meher.	Dini pavan Matun.
16 Meher.	Matun.
17 Serosh.	Sarush.
18 Rashne.	Rashan.
19 Farvardin.	Farvardin.
20 Behram.	Varahram.
21 Ram.	Ram.
22 Guvad or Bad.	Wad, or Vat.
23 Dep Din.	Dini pavan Din.
24 Din.	Din.
25 Ashashang.	Ard.
26 Ashtad.	Ashtad.
27 Asman.	Asman.
28 Zamiad.	Zamiad.
29 Maharaspand.	Mansar-spand.
30 Aniran.	Aniran.

The 1st, 8th, 15th and 23rd days are sacred to Hormazd, and thus afford evidence of an older division into weeks.

The Parsees of India are divided into two sects,—the "Shahanshahi" or "Rasami," and the "Kadimi" or "Churigarian," the former of whom constitute the larger portion of the race. This division originated about the beginning of the 18th century, when a Persian priest, named Jamasp, arrived in India, and found that his co-religionists differed from their brethren of Iran in their calculation of time by a full month, and in other minor points relating to their "liturgy." Serious disputes arose in consequence, which ended in the formation of the two sects,—the Rasami adhering to their own views, and the Kadimi adopting the opinions imported by Jamasp—and thus agreeing with their Persian brethren. The difference lies in their computation of time, and in some slight variations in the forms of prayer. Those that begin their year a month earlier are styled Kadimi, and the rest Rasami, *i. e.*, 'customary,' and Shaharshai, for which some one proposed to substitute Shahanshahi ('of the kings of kings,') and this absurd change has ever since been adopted. The Kadimi Parsee Era of Yezdijird, or Dureai Naoroz, or sea-reckoning is made use of in nautical calculations among Asiatic mariners, and the New Year always commences on the 1st of Farvardin, which falls about the 25th of August, one month earlier than the commencement of the Rasami New Year. With the Rasami Parsees, the New Year begins on the 1st day of Farvardin, which in A.D. 1867, fell about the 24th of September, a month later than the commencement of the Kadimi New Year.

About A.D. 1705 Jelaledin Malikshah, finding that the commencement of this year in Persia had anticipated the epoch by 112 days, ordered that, in future, the Persian year should receive an additional day whenever it should be necessary to postpone the commencement of the following year, in order that it might occur on the day of the sun's passing the same point of the ecliptic. U'mar Cheyam, one of the astronomers appointed by him to construct a calendar, is said to have discovered that 8 intercalations in 33 years very nearly adjusts the calendar, giving the length of the year 365d. 5h. 49m. 5·65s. Scaliger and others say this was the period actually adopted, though Delambre shows that the Persian intercalation combines the two periods of 29 years with 7 intercalations and of 33 years with 8 intercalations.

Amsshashpand: in the existing Parsee religion seven Amshashpand are supposed to exist, they are called the immortal holy ones. These cannot be regarded as the elements.

The *Ardibehest-Jasan* festival, is maintained in honour of Ardibehest Amsaspund, the controlling angel, according to their theology, over their sacred fire; on this day the Parsis crowd their fire-temples to offer up prayers to the Supreme Being.

The *Ava Ardui Sur Jasan* festival, is held in honour of Ava, the angel, in their theology, who presides over the sea. On this day, Parsis should approach the sea-shore or any stream of water and chant prayers from the Zend, but these people now generally mix with their prayer several hindoo rites such as offering flowers, sugar, cocoanuts, &c., &c. In Bombay a fair is held on the esplanade on this day.

The *Amardad-Sal* holiday, is held on the day following the Khurdad-sal of which festival it is merely a continuation.

Amardad is from Ameretat, immortality, the seventh Amshashpan of the Parsee.

There is a new Parsee sect known by the name of "Shapoos," who pay great respect to foreigners, with the exception of Mahomedans, whom they treat with contempt. These people, like the Zoroastrians, pray while standing looking to the sun and near water. They never talk with anybody bare-head," &c. The admission of an individual into the Parsee faith is indicated by the assumption of the Sadara, or shirt.—*Lieut.-Colonel Stuart's Journal of a Residence in Northern Persia, p.* 171; *Elliot's Supp. Gloss.; Ouseley's Travels, Vol.* i, *pp.* 150, 217-219; *Postan's Western India, Vol.* i, *pp.* 110, 120; *Max Muller, Chips from a German Workshop, p.* 180; *Professor Daddabhai Naoroji and Dr. Ihne, in Proc. Bombay Literary Society*; *The Parsees, pp.* 61—70; *Wilson's Glossary of Indian terms*; *M. Menant on the Parsees*; *Bombay Almanac*; *Baron Clement de Bode's Travels.* See Addar, Bactria, Ghabr, Hamma-i-jor, Iran, Jasan, Kelat, Koist or Kusti or Custee, Kissa-i-Sanjan, Now-roz, Sadra Kirman.

PARSHAWARSHA, Hind. Adiantum.

PARSI, Hind.? A tree of Chota-Nagpore, with hard red timber.—*Cal. Cat. Ex.* 1862.

PARSI BADAMA, Tel. Amygdalus communis, *Linn.*

PARSI KUNJAM KORAY, Tam. Balm, Melissa officinalis, *Var.*

PARSI VADOM-COTTI, Tam., and Parsi vadom-vittulu, Tel. Amygdalus communis.

PARSIVAN, literally, speakers of Persian, a term applied by the Persians to the Persian speaking part of the Teimeni tribe of the Char Aimak. The Parsivan and Eimak who are subject to the Affghan, profess mahomedanism. The Parsivan live in towns, and the Eimak are nomades and live in tents. Their number is double that of the Affghans.—*Ed. Ferrier Journ., p.* 158. See Affghanistan, Kabul, Kandahar.

PARSLEY, Apium petroselinum, a well known seasoning herb, used in soups, garnishing, &c., grows well during the cold months, requires a free rich soil, and planted on a bed raised 6 inches above the surface level, raised from seed. Is cultivated from seed: may be sown in beds or rows, where it is to remain. The plants, when about two or three inches high, should be thinned, and a space of at least a foot left between each. It will, if watered and taken care of, continue all the year round. A good plan is occasionally to cut down the leaves to within four inches of the root, as it makes the parsley throw out young and fresh leaves. It bears transplanting well. Always give the preference to Europe seed. The common parsley of the country is very insipid. The roots of parsley are much used in French cookery.—*Jaffrey.*

PARSNIP. Hu lo p'u, Chin., is a vegetable very difficult to rear, as it does not often happen that the seeds come up; they should be sown broadcast in beds of a rich soil, and the plants, when of a sufficient size, carefully thinned, leaving a space of one foot between each plant and removing all weeds. They may be transplanted, but it must be done with the same care as recommended for beet-root. The proper time for sowing the seed is the latter end of July, and they will come in during March and April. It goes to seed freely, but the roots grown from it were by no means fine the second year.—*Jaffrey.*

PARSOJI, see Mahratta Governments.

PARSOK-TSHI. Lep. Gallus ferruginous, *Gmel.*

PARSONS, Abraham, Esquire, author of a voyage from Bombay to Mokha and Suez; Lond. 1808.

PARS PIPUL, Duk., Hind. Thespesia populnea, *Lam.*

PARSWA, the 23rd Buddha.

PARSWANATH, a buddha, of the Jains, see Jains.

PARTAL, Hind. of Kaghan, Jhilam, Chamba, &c. Pinus excelsa, lofty pine.

PARTHA, see Inscriptions.

PARTHAMASPATES, see Greeks of Asia.

PARTHENIUM LUTEUM, *Spreng.* Syn. of Guizotia oleifera, *DC.*

PARTHENOPE HORRIDA, *Ed.*, a crab of Madagascar, Bourbon and Mauritius, covered with long sharp rugosities.

PARTHIA, an ancient kingdom, known to

the Romans by this name. The rulers were as under:—

B. C.			A. D.		
255	Arsaces	I		(Tiridates)	III
253	Tiridates	I		(Cinnamus)	
216	Artabanus	I		(Artabanus)	III
196	Phraapatius		42	Bardanes	
181	Phrahates	I	45	Gotarzes	
173	Mithradates	I	50	(Meherdates)	
138	Phrahates	II	51	Vonones	II
128	Artabanus	II	51	Vologeses	I
123	Mithradates	II	62	(Artabanus)	IV
87	Mnaskires		77	Pacorus	
77	Sinatroces		108	Chosroes	
70	Phrahates	III	115	(Parthamaspates)	
60	Mithradates	III	116	Chosroes	
54	Orodes	I	121	Vologeses	II
37	Phrahates	IV	148	Vologeses	III
	(Tiridates)	II	192	(Vologeses)	IV
	(Phrahates)	IV	209	(Vologeses)	V
A. D.				Artabanus	V
4	Phrahates		235	Artaxerxes, king of Persia, 1st of the Sassanidæ.	
5	Orodes	II			
5	Vonones	I			
13	Artabanus	III			

The family name Arsaces was that applied to all the kings of Parthia, hence called the Arsacidæ. Very inaccurate ideas prevail, concerning the local situation of Parthia, by those, whose knowledge of it, is collected chiefly from its wars with the Romans. Parthia proper, was a small province, very near to the south-east extreme of the Caspian sea, which territory, after the division of Alexander's empire, fell to the share of the Seleucidæ, kings of Syria and of the east, about 300 years before the christian era. About 50 years after, Parthia rebelled, and, together with Hyrcania, and other adjoining provinces, became an independent state, under Arsaces. As the empire of the Seleucidæ grew weaker, the Parthians extended their country westward; and the fine province of Media (now Irak-i-Ajam) fell to them: and within a century after the foundation of their state, it had swallowed up all the countries from the Indus to the Euphrates, Bactria included, and this province had thrown off the yoke of the Seleucidæ, long before Parthia. The Parthian conquests in Armenia, 70 years before Christ, brought them acquainted with the Romans; whose conquests met theirs, both in that country and in Syria. The Parthians, together with their conquests, had advanced their capital westwards and had established it on the Tigris at Seleucia, or rather Ctesiphon (near the present Bagdad) before their wars with the Romans commenced. Their first wars with the Roman people, continued about 65 years, and were noted by the expeditions of Pompey and Anthony, and the defeat of Crassus. On occasion of this last event, the Parthians extended their conquests further westward, but were afterwards compelled to retire: and they generally lost ground in Armenia and Mesopotamia, during the time of the Roman emperors. Trajan penetrated to their capital; and satisfied his curiosity by embarking on the Indian sea. The moderation of Adrian restored the ancient boundary of the Euphrates. In A. D. 245, Persis, or Persia proper, which had for some ages ranked as a province of Parthia, gained the ascendancy; and, under Artaxerxes, put an end to the dynasty of the Arsacidæ; and restored the ancient name of Persia to the empire, after that of Parthia had existed about 480 years. So that, in fact, the Parthian empire, considered generally, was the Persian, under another name. In 256 or 252 B. C., Bactria had declared for independence under Theodotus or Deodotus. Parthia followed about the year 250 B. C., under the rule of Arsaces, who is variously described as a native of Soghd, as a Bactrian, and by Moses of Chorene, as of Balkh, this last author adding that the dynasty was known as Balkhavenses or Pahlavian. He used Greek only on his coins and in his public letters and correspondence. His coinage is ordinarily with the head of the sovereign on one side and only one coin has a lingual inscription. Great king of kings was a title first adopted by Mithridates II. Foster deems the practice of the Parthian horsemen of shooting arrows from on horseback, as a confirmation of their descent from the warriors of Tartary: but the usage is, and always has been, as common to Persian as to Tartar tribes. The Parthians, built C'tesiphon out of the ruins of Babylon. Parthians, Getes, Huns or Kathi, or a mixture of these seem to have overthrown Balabhipoora A. D. 524. But Thomas' Prinsep gives A. D. 745. In the genealogy of the Lunar races descended of Budha and Ella (Mercury and the Earth,) the five sons of Baj-aswa are made to people the countries on and beyond the Indus; and in the scanty records of Alexander's invasion, mention is made of many races, as the Asasenæ and Asacani, still dwelling in these regions. This period was fruitful in change to the old established dynasties of the hindoo continent, when numerous races of barbarians, viz.: Huns, Parthians, and Getes, had fixed colonies on her western and northern frontiers. —*Prinsep's Antiquities by Thomas, Vol.* ii, *p.* 176; *Rennell's Memoir, p.* 200–1; *Malcolm's History of Persia, Vol.* i, *p.* 88; *Tod's Rajasthan, Vol.* ii, *p.* 5. See Aqnicula, Greeks of Asia, Hindoo, Koh, Kabul, Saurashtra.

PARTHO-SCYTHIAN, see Kabul.

PARTHIVI, see Prithivi.

PARTI-VITTULU, TEL. Cotton seeds.

PARTRIDGE. This family of birds belongs to the grouse and partridge family, the Tetraonidæ and the sub-family Perdicinæ. The chief species of partridges, in the East Indies, are as under:—

Lerwa nivicola, *Hodgs.*, Snow partridge: Himalaya.

Francolinus vulgaris, *Stephens*, Black partridge, North India.
„ pictus, *Jerdon*, *Selby*, Painted partridge, Central and Southern India.
„ phayreii, *Blyth*, North Burmah.
„ pintadens, ——— ? ——— ?
Caccabis chukor, *Gray*, Chukor partridge, Western Himalaya.
„ græca, ——— ? Western Asia, South Europe, North Africa.
Ammoperdix bonhami, *Gray*, Seesee partridge, Panjab.
„ hayi, *Gould*, Arabia, Palestine, Western Asia.
Ortygornis ponticerianus, *Gmelin*, Gray partridge. South India.
„ gularis, *Temm*, Kyah patridge, Bengal.
Rhlzothera lengirostris, *Temm*, Malayana.
Arboricola torqueola, *Vigors*, Black-throated Hill partridge, Himalaya.
„ rufogularis, *Blyth*, Rufous-throated Hill partridge.
„ atrogularis, *Blyth*, Tipperah, Chittagong.
„ intermedia, *Blyth*, Arrakan.
„ brunneo-pictus, —— ?Tickell, Tenasserim.
„ sphenura, ——— ? China.
Perdix personata *Horsf*., Java.
„ javanica, *Gmelin*, Java.
„ hodgsoniæ, *Gould*, ——— ?
„ punctulata, *Gray*.
„ charltoni, ——— ?
„ chloropus, *Blyth*.
Rollulus coronatus, ——— Malacca crowned partridge.
„ niger, ——— ?

There are three kinds of partridges in the plains of India, black, painted, and grey, as they are called by the Indian sportsmen. The last-mentioned, the least handsome of the three, and far inferior to the English bird, the most nearly approaches it in appearance. The black excels all for the splendour of its plumage. The call of the black and painted partridge is very similar; both, as well as that of the grey, differing from that of the English bird. In the Bombay presidency the black partridge has not been seen south of Cutch. It is abundant north of it in Sind, but would appear to be replaced by the painted further south. The flesh of all the partridges in India is white, and far inferior to that of either the common English, or red-legged bird. The hen of the black partridge, is quite different in appearance to the male, is not unlike the painted partridge of both sexes, and is sometimes mistaken for it. The difference, however, is easily discerned by the experienced sportsman. The black partridge commences to pair about April in the Himalaya, but earlier in the plains; the young remain with their parents a long time, and are not fit for shooting until the middle or end of October. During the period of incubation the males can be heard answering each other all over the district; the call-note is harsh and composed of four distinct sounds following each other in succession, and not unlike the words: "Whee wha which a which," which it repeats at short intervals when perched on a stone in bushy places. The Tibet partridge (P. hodgsonii) was first discovered by Mr. Wilson of Mussourie in 1841, and subsequently described by Mr. Hodgson. It was, still later, 1854, met with by Lieutenant Smith, 15th regiment, near the Pangong Lake in little Tibet. This partridge seems to be common along the western slopes of the Tibetan Himalaya, and affects barren mountain sides. A white band crosses the forehead, and, passing over the eyebrows, meets the opposite at the occiput. Throat white; black patch at the corners of the lower mandible; breast and belly barred irregularly with black and rufous, the former in greatest abundance on the breast, the latter on the neck and sides of the belly and breast; vent and lower part of the belly dirty-white; the feathers, as usual, are soft and downy; crown rufous; occiput mottled with black and rufous, which is continued over the back and wing-coverts, resembling closely the same parts in the Indian grey francolin, whilst the quills of the bird assimilate in appearance with the same parts in the black partridge.—*Adams*.

PARTULA, a genus of molluscs.

PARUA-KALANGA, Maleal. Aponogeton monastachyon.

PARU-PARISANNA. This name first oc-curs in the tri-lingual tablets of Darius, whe the mountain range of Gandara is termed Par Parisanna. Paru merely means a mountai in Sanscrit. The country is not known by th name, by its inhabitants, who only speak of i by the tribe dwelling in, or the chief who com mands it. Ferrier includes in this name, a the mountain country enclosed by the cir formed by Herat, Meimuna, Balkh, Bamia Ghazni, Kilat, Ghilzi, Kandahar, Zimindaw and Sahlin. It may be looked upon as a v natural fortress, thrown on to the centre, a on the culminating point of the great Asiat table-land. From whatever side, it must b approached by rugged and high mountai and it is also intersected by others in vario directions, particularly east and west. It is country of incessant change, the Jemshidi, th Hazarah, the Zeidnat and the Taymuni bein in constant movement.—*Ferrier's Journal*, p. 254.

PARUS, a genus of birds, the tit-mice, of the sub-family Parinæ, family Ampelidæ, and orde Insessores:

Parus œmodius, *Hodgson*, Himalayan Cole-tit.
„ atkinsoni, *Jerdon*, Sikhim „ „
„ monticolus, *Vigors*, Green-bodied tit.
„ cinereus, *Viellot*, Indian grey tit.
„ nuchalis, *Jerdon*, White-winged black tit.
„ xanthogenys.

—*Jerdon*, iii, *p*. 276.

Parus Melanolophus, *Vigors*, is the black crested tit. P. erythrocephalus, is the red-capped tit.

Parus Spilonotus, see Parus subviridis.

Parus major. ('Great Tit.') Europe, N. Asia, Japan, N. Africa. Replaced in India, Ceylon, and Java, by P. cinereus, and in the Himalaya also by P. monticolus. If not also P. nuchalis (in addition to cinereus.)

Parus cæruleus. ('Blue Tit.') Europe, N. Asia, Japan, China, Formosa.

Parus ater. ('Cole Tit.') Europe, Siberia, Japan, Formosa. Replaced in Nepal by P. æmodius.

Parus subviridis, Tickell, *n. s.* Affined to P. xanthogenys and P. spilonotus; but the whole of the under parts dull yellowish-green, without a trace of black, passing to ashy on the vent and lower tail-coverts; back much the same, but darker with the feathers centred yellower, imparting a mottled appearance: crown and nape black, a few of the posterior long crest-feathers tipped with yellow; feathers at base of bill, the lores, cheeks and sides of neck, supercilia, and mesial nape-streak, bright yellow: wings and tail dull black, the great alars and caudals margined with ashy, and two or three of the primaries with whitish; a conspicuous white patch, also at the base of the primaries; and the tertiaries are tipped on the outer web with an elongate whitish spot, this line also extending up the inner web of the smallest tertiary, the smallest wing-coverts are tipped with ashy, and the first great range of wing-coverts with white upon both webs, the second range upon the outer web only; forming two cross bands on the wing: the anterior half of the wing is white underneath, but the axillaries are light yellow: the outermost tail-feather has its exterior web dull white, and a spot of the same tipping the inner web; this spot being successively smaller on the penultimate and ante-penultimate tail-feathers: bill black and legs plumbeous; length about [illegible] in.; of wing 2¾ in.; and tail 2 in.; longest crest-feathers ⅝ in. species of Parus are very uncommon in the Tenasserim forests. In fact, remarks Captain Tickell, "this is the only one I have seen."—*Mr. Blyth's Report.*

Parus xanthogenys, Jerdon, for which Mr. Blyth proposes the name of P. jerdoni, N. s. It much resembles P. xanthogenys, Vigors, of the N. W. Himalaya; but is conspicuous by having the back less tinged with yellow, larger portions of the plumage not so intense in hue, and the yellow sincipital streak is not continued forward over the eye, as in P. xanthogenys (verus). Length of wing 3 in.; and of tail 2⅜ in.; in P. xanthogenys the wing varies from 2½ to 2¾ in., and the tail measures 2⅛ in. This is the third species which has now been discriminated apart from P. xanthogenys, *Vigors*; the others being P. spilonotus, *Blyth*, from Nipal, Sikim, the Khasyas, &c., and P. subviridis, Tickell, Blyth, from the mountains.

Mr. Blyth further distinguished P. rubidiventris of Nipal and Sikim from P. melanolophus, *Vigors*, of the Simla and Masuri mountains; with which the P. melanolophus of Jerdon's catalogue still requires to be critically compared.—*Beng. As. Soc., Vol.* v, 1856.

PARU, MALEAL. Dolichos sinensis, *Linn.*

PARUA-KALANGA, MAL. Aponogeton monostachyon.

PARUL, MAHR. Bignonia suaveolens, *Roxb.*

PARU MARM, MALEAL and TAM. Ailantus malabaricus.

PARUMBE, TAM. Premna spicigera, *Linn.*

PARUNGI, HIND. Quercus dilatata, jangli, parungi, is Q. semecarpifolia.

PARUNIKI-MAVAH, MAL. Anacardium occidentale.—*L.*

PARUPU KIRE, TAM. Chenopodium album. *Linn*; *Roxb.*

PARUPU BENDA, TEL. Abelmoschus ficulneus, *W. & A.* 196—*W. Ic.* 154.

PARUPU VELAGA, or Velaga, TEL. Feronia elephantum, *Corr.* Parupu means "Soft."

PARUSARAMA, see Parasu Rama.

PARUSHAKA, SANS. Fruit of Elate sylvestris, *Linn.*

PARUSHA-MED'HA. Human sacrifices. Certain forms for this sacrifice are prescribed in the Puranas; Mr. Ward, affirmed, that it was generally reported that human sacrifices actually occurred in Bengal, and the Meriah sacrifices, and suttees in India, the head hunting of the Dyaks, and cannabalism of the further archipelago, of the present time, can but be regarded as the continuance of rites which have had a wider range in former ages. See Sacrifice.

PARUSSNOE POLOTNO: also Parussina, RUS. Canvas.

PARUTI, MALEAL. Paritium tiliaceum, *St. Hil*, also Gossypium indicum, *Lam.*

PARVATA, also Parbatya, a hillman, a mountaineer of Nepal, *Wils.*

PARVATI or Parvati Peak, 31° 51′ 5″, 77° 42′ 0″, in Kulu-Lahol, near the source of the Parbati, an affluent of the Bias, 20,515 feet, G. T. S. Presents a steep, broad wall, as seen from Jako.—*Schl., Herm.*

PARVATI, generally called Parbatti, a hill of considerable height at the southern end of the city of Poona, on the summit of which is a handsome, but not very elegant, temple in honor of Parvati, consort of Mahadeva. This temple is much resorted to, and when lighted up on great occasions, it shows well, and from its top is a fine view of the city and environs. On the annual hindoo ceremony of Dutchna, or alms-giving, great sums are given away at Parbatti. To this temple brahmans come to share the loaves and fishes from considerable distances; it would not be worth the pains for the majority to come so far merely for what they get here, but, as a gift on this day tells ten-fold of an ordinary alms, others make presents to some brahmans, so do generous people on the road to and from this meritorious pilgrimage. The whole month is, indeed, very fit for the benefit of hospitality and alms-giving, so that the travelling brahmans are fed, &c., all the way to Poona and home. Some come from Surat, Panderpoor and other more distant places; and it is confidently said, that forty thousand have been known to assemble on this occasion at Parbatti.—*Major Moor, pp.* 376 *to* 377.

PARVATI, Sans. The daughter of Parvata, a mountain in hindoo mythology. Parvati is the wife of Siva, known in her martial character as Durga, or active virtue, and as such she destroyed the Asura, or demon Mahesha, a personification of wickedness. On one occasion, when Vishnu beheld Siva dancing about franticly with the deceased form of Sati, in his arms, he cut it into fifty-one pieces; which Siva, who still continued in his frenzy, scattered in different parts of the earth. These spots he afterwards ordained to be places of worship, to his own and his energy's peculiar emblems. Daksha, who had been slain by Vira Badra, in consequence of the death of Sati, was restored to life, but with the head of a goat, on condition of his adopting the doctrines of Siva. Parvati as the consort of Siva, has maternal claims upon Kartikeya, the leader of the celestial armies, and Ganesha, or Ganaputti, the god of wisdom. They were both produced in a very extraordinary manner, as will be seen in the descriptions of them. Parvati is the goddess of a thousand names, and both her forms and powers are more various and extensive than those of any of the other hindoo deities. She acts sometimes dependent on, at others wholly independent of, her husband, Siva. Her numerous forms are only variations of the more important ones, Bhavani, Devi, Durga, and Kali. As Parvati, she is described of a white, as Kali, of a dark blue or black, and as the majestic and tremendous Durga, of a yellow colour.

Parvati has no particular temples, but her statute has a sanctuary apart, in the temples of Siva. She is worshipped by different names, particularly that of Mera, and, in Bengal, by that of Durga. She seems to be the same as the divinity of Hieropolis, called Rhea; and Cybele in Phrygia. In the temples erected in honour of Siva the officiating brahman, after bathing in the morning, enters the temple and bows to Siva. He anoints the image with clarified butter after which he bathes the image with water which has not been defiled by the touch of a sudra, nor of a brahman who has not performed his ablutions, by pouring water on it, and afterwards wiping it with a napkin. He next grinds some white powder in water, and dipping the ends of his three fore-fingers in it, draws them across the linga, marking it as the worshippers of Siva mark their foreheads. He next sits down before the image, and shutting his eyes, meditates on the work he is commencing; then places rice and doorva grass on the linga; next a flower on his own head, and then on the top of the linga; then another flower on the linga; then others, one by one, repeating prayers: he then places white powder, flowers, vilva leaves, incense, meat offerings, and a lamp before the image; also some rice and a plantain: he next repeats the name Siv, with some forms of praise; and at last prostrates himself before the image.

On the 14th of the increase of the moon in Phalgoonu, in the night, a festival in honour of Siva is kept at his temple, the image is bathed four times, and four separate services are performed during the night. Parvati, by the saiva sect is identified with the supreme sakti. Durga, who destroyed more giants than all the rest of the hindoo divinities together, is, under all the numerous names and forms derived therefrom, no other than Parvati, Bhavani, or Devi, the sacti or personified energy of Siva. The argha or yoni in hindoo mythology is Parvati's especial emblem. Anna Purna Devi, a goddess of the hindoo mythology, is a beneficient form of Parvati, she is described as of a deep yellow colour, standing or sitting on the lotus, or water-lily. She has two arms, and in one hand holds a spoon, in the other a dish. In her dress she is decorated like the other modern images of Durga, Anna Purna is a household goddess, and is extensively worshipped by the hindoos. Her name implies the goddess who fills with food, and they believe that a sincere worshipper of her will never want rice. She is possibly the Anna of Babylon and she has been considered as the prototype of the Anna Perenna of the Romans, whom Varro places in the same rank with Pallas and Ceres, and who was deified and held in high esteem by the Roman people, in consequence of having supplied them with food when they retired into Mount Aventine. Besides the great similarity of names, there is a singular coincidence in the times of their worship, the festivals of Anna Purna taking place in the early part of the increase of the moon in the month Choitru (partly in March,) and those of the Roman goddess on the Ides of March. In India, she is known simply as Anna, also as Anna Purna or Anna Devati. In a hymn addressed to her by the rishi Agastya, she is personified as Pitu or material food. Anna Purna is from the Sanscrit, anna, food, and poorna full. Another name is anna, food, and prashana, feeding. The rajpoot rite of Sati or self-sacrifice is traced to Parvati. Sati, to avenge an insult to Iswara, in her own father's omission to ask her lord to an entertainment, consumed herself in the presence of the assembled gods. With this act of fealty (sati) the name of Dacsha's daughter has been identified; and her regeneration and reunion to her husband, as the mountain nymph Mera, or Parvati, have by some been supposed to furnish the incentive to similar acts. In the history of the hindoo celestial beings, the Rajpootni has a memorable lesson before her, that no domestic differences can afford exemption from this proof of faith: for Jupiter and Juno were not more eminent examples of connubial discord than Mera and Siva, who was not only alike unfaithful, but more cruel, driving Mera from his Olympus (kylas,) and forcing her to seek refuge in the murky caverns of Caucasus. Colonel Tod supposes that female immolation, originated with the sun-worshipping Saiva, and was common to all those nations who adored this the most splendid object of the visible creation, and he notices in support of this view, the practice of the Scythic Gete or Jut warrior of the Jaxartes, who devoted his wife, horse, arms, and slaves, to the flames; the "giant Gete" of Scandinavia, who forgot not on the shores of the Baltic his transoxianian habits; and the Frisian Frank and Saxon descended from him. The chief characteristic of satiism is its expiating quality: for by this act of faith, the Sati not only makes atonement for the sins of her husband, and secures the remission of her own, but has the joyful assurance of reunion to the object whose beatitude she procures. Menu inculcates no such doctrine, "Let her emaciate her body, by living voluntarily on pure flowers, roots, and fruit; but let her not, when her lord is deceased, even pronounce the name of another man." Again he says, "A virtuous wife ascends to heaven, if, after the decease of her lord, she devote herself to pious austerity; but a widow, who slights her deceased husband by marrying again, brings disgrace on herself here below, and shall be excluded from the seat of her lord."—*Coleman's Myth. Hind.*, *p.* 82; *Sonnerat's Voyages*, *p.* 43; *Ward's view of the Hindoos, Vol.* ii, *pp.* 19-20; *Cole. Myth.*; *Wilson's Hindoo Theatre*; *Tod's Rajasthan*, *Vol.* i, *p.* 633-35. See Argha, Bhavani, Bhat, Chandra, Chinnu mustuku, Inscriptions, Kalusa, Kali, Kumar, Kylas, Linga, Maha devi, Siva, Sacti, Surya, Tantra, Uma, Vahan, Viraj, Vishnu, Yavana.

PARWAN is situated in a nook of the Hindoo Kush, and has from its position near the terminus of several of the chief passes, often been famous in Asiatic history. It is evidently the Karwan of Jaubert's Edrisi (a mistranscription for Farwan.) The town of Parwan is of no great size, but a nice enough place with agreeable environs, thronged bazaars, and rich inhabitants. At Parwan the army of Chinghez was checked for the moment in 1221, being defeated by the sultan Jalaluddin of Khwârizm. And in an action near Parwan in 1840 took place the ominous misconduct of a regiment of Bengal cavalry, which caused the day to be lost, with the lives of several officers, though Dost Mahomed Khan surrendered immediately afterwards.—*Yule Cathay, Vol.* ii, *p.* 558.

PARWAN, HIND. Tamarix orientalis, Tamarisk.

PARWARI, in the Bombay side of India, an outcaste race who reside outside the villages.

PARWAN, or Parman. On the summits of the hills on the island of Bombay, resided in 1842 about 75 families of cultivators. The costume of the women, and many of the words in their language are similar to the Hindi. They say that they immigrated from Rajpootanah.

PARWATTI, HIND. Cocculus leæba, also Hedera helix, Cuscuta reflexa, and Dioscorea deltoidea.

PARYAT, a river at Jubbulpoor cantonment.

PASA, a square ingot of silver weighing from thirty-two to sixty tolas. The word is current at Berhampur.

PASA, HIND. A die, plural pasé, those in use by the hindoos, are oblong, and both skill and chance are brought into play. The most celebrated match occurred between Yudhisthra, the eldest Pandava and Dhritarashtra.—*Wh. H. of I.*

PASA MAKATA, see Siam.

PASA LINIJA, a Penang wood of a light brown colour. A large tree; used only for planks: it soon decays.—*Col. Frith.*

PASALA, see Jains.

PASAND, HIND. Pleasing. Dil pasand, is Citrullus vulgaris, var. fistulosus Shah pasand, is Mangifera indica, the mango.

PASANI or Pusani kai, TAM. Cucurbita maxima, *Duch.*

PASAR, MALAY. A market.

PASARA GUNNA, TEL. Diospyros, *sp.* Mr. Beddome found this name given to Acacia sundra in the upper valley of the Godavari.

PASARGADA, see Fars, Pars.

PASARI PASER, HIND. Parrotia.

PASAS, SP. Raisins. Pasas de Corinto, Currants.

PASELAY, TAM. A Tinnevelly wood of a whitey brown colour. Used for furniture.—*Col. Frith.*

PASENDU, HIND. Diospyros montana.

PASENG, PERS. Ægagrus.

PASER, Hind., or Paseri of Hazara, Fothergilla involucrata, also Parrotia jacquemontiana.

PASH, Hind. Euonymus fimbriata.

PASH, Pys or Pashu, Hind. A cord or rope, seen in the hands of some of the hindoo deities to strangle sinners with. Whoever is caught by it cannot get away.—*Cole. Myth. Hind.*, *p.* 391.

PASH also written Pakh, Push and Pukh, in the district of Rudak and the highlands of Kashgar, in the Waziri country, the supposed seat of the Affghan tribes, and of the origin of the words Pushtu and Pukhtu.

PASHA also pacha and padshah, Pers. A king, a noble.

PASHAI. A race mentioned repeatedly by Leech as one of the most numerous tribes in the Punjshir valley and adjoining passes. These are supposed to be mahomedans, but as the name is mentioned also by Elphinstone as that of one of the Kafir tribes part of them in the mountains may have retained their heathenism and independence.

PASHANA CHEDDI, Tam. Ocymum basilicum.

PASHI, Tel. Anogeissus acuminatus, *Wall*,

PASHIA. Amber necklaces worn by the women of Tibet.

PUSHIUBA PALM, see Palms, Pashiuba.

PASHKAND, Panjab. Calotropis procera, *R. Brown.*

PASHM, also Pashmina, Hind., Pers. Wool, shawl-wool, the fine wool which forms the material of the shawls generally in the Panjab. Pashm and pashmina are specially applied to the fine shawl-wool of Turfan and Chanthan. Oangtu, is the only bridge in Kunawar by which laden sheep and mules can cross.—*Cleghorn's Panj. Rep.*, *p.* 50.

PASHMARAN, Hind. Thalictrum foliolosum.

PASHMINA FABRICS, embroidered with silk, and plain pashmina cloths, are produced extensively at Amritsar and Ludhiana, and a few at Lahore.

PASHONTI or Pachonti, Maleal. Syn. of Isonandra acuminata, *Lindl.*

PASHPAPUR, an ancient town on the N. W. frontier of British India, mentioned in a play,—

Rak.—What news from Pashpapur?
Vir.—I have not much to tell, Sir,
Where shall I commence.
Rak.—With Chandragupta's entry in the city,
Whatever my agents since have done, inform me.
Vir—You will remember, Sir, when in close league
United by Chanakaya, Parvateswara
And Chandragupta in alliance, led
Their force against the city,—a wild multitude
Of Sakas, Yavanas and mountaineers,
The fierce Kambojas, with the tribes who dwell
Beyond the western streams and Persian hosts
Poured on us like a deluge.

PASHU-VIN-PAL, Tam. Cow's milk.

PASIR, see Kyans.

PASITIGRIS, see Khuzistan or Arabstan.

PASOQUERIA DUMETORUM, Roxb. Syn. of Randia dumetorum, *Linn.*

PASPALUM a genus of grasses, of the order Panicaceæ which, like some species of Panicum, forms one of the small grains cultivated in tropical countries as food for the poorer classes of the community. The genus is characterised in habit by having a continuous spiked rachis, on one side of which the spikelets are attached. The glume is 2-valved, 1-flowered, closely pressed to the two plane converse paleæ. Seed adhering to the paleæ. The E. Indian species are P. stoloniferum, *Bosc.*, *Linn.* P. frumentaceum, P. pilosum and P. scrobiculatum.—*Eng. Cyc.*; *Mason*; *Voigt*, *p.* 699.

PASPALUM FRUMENTACEUM, *Linn.*

Harakah,	Can.	Kodravaha,	Sans.
Kodorow,	Duk.	Warroogoo,	Tam.
Khodra,	Guz.	Varagoo,	„
Kodow, Kodo, Kodu,	Hind.	Arikehloo,	Tel.

This small valuable grain tastes something like rice, and is prepared in the same way. There is a variety of it, called in Tamul, Serrookoo Warroogoo and in Teloogoo, Tikka Arikehloo, which if not dressed in a particular manner, is said to produce vertigo, nausea and other unpleasant symptoms. Dr. D. White of Bombay, writes that this variety is called in Guzerati, Menya, which he supposes is taken from the Sanscrit word Mana, signifying causing phrensy.—*Ainslie*, *p.* 220.

PASPALUM PILOSUM, *Roxb.*

Pani Warroogoo, Tam.

This is a grain cultivated in Coimbatore, where it is eaten by the poor.—*Ainslie*, *p.* 220.

PASPALUM SCROBICULATUM, *Roxb.*

Kodo,	Beng.	Korudoosha,	Sans.
Kodro,	By.	Kodrava,	„
Punctured paspalum,	Eng.	Walamu,	Singh.
Menya,	Guz.	Kiraruga,	Tel.
Kodaka, Koda, Kora,	Hind.	Allu,	„
Kodra,	Kangra.	Arikelu,	„

This is an inferior grain, only used by the poorest classes. It is cultivated over almost all parts of India. It delights in a light, dry, loose soil, but will grow in a very barren one. The seed is an article of diet with the hindoos, particularly with those who inhabit the mountainous parts of the peninsula, as well as in the most northern parts of the country, or where the soil is barren and unsuited to the cultivation of those grains which are more beneficial. Dr. Roxburgh states that the boiled grain is as palatable as rice. He distinguishes from this another species, which Linnæus called Paspalum kora, but it appears to be only a variety growing in moist situations. Both species are much relished by cattle either in a green or dry state. Its use is said to cause delirium, and the Kakum Rajputs of Ghazeepur never cultivate or eat codo; "Nefas violare et frangere morsu," and the reason assigned is that, while under the influence of Mutouna, they were set upon by some of the neighbouring tribes, and thus lost the greater part of their once extensive possessions. "Kisaree" (Lathyrus sativus) is another grain which is found to have injurious properties.—*Eng. Cyc.*; *Elliot.*

PASSES. In the Kuenluen, all passes above 15,000 ft. are closed in winter by the heavy snow-fall. The following are the principal passes in India.

1.—*Dekhan.*

Bapdeo	*Feet* 3,499	Pochama	*Feet* 2,446
Katraj	3,019	Nana	2,429
Par	2,698	Jam	2,328
Nagcherri	2,645	Malsej	2,062
Navi	2,617	Tal	1.912
Salpi	2,478	Bhor	1,798

2.—*Malwa.*

Pendera	3,498	Poppera	1,560
Silva	1,928	Gumba	1,553
Mandla	1,626	Singrampur	1,437

3.—*Carnatic, Nilgiris and Ceylon.*

Sigur	7,204	Kodur	2,401
Sispara	6,742	Gantvarpilli	2,373
Rangbodde	6,589	Kisnagherri	2,150

4.—*In the crest of the Himalaya from Sikkim to Kishtwar.*

Ibi Gamin	20,459	Sipu	17,670
Donkia	18,488	Uta Dhura	17,620
Janti	18,529	Birmkanta	17,615
Parang	18,500	Kiungar	17,331
Mana	18,406	Niti	16,814
Balong	18,312	Vallanchun	16,756
Kiobrang	18,313	Puling	16,726
Umasi	18,123	Shinku La	16,684
Langpia	17,750	Bara Lacha	16,186
Rayang	17,700		

5.—*In the crest of the Kara Korum from Long. E. Gr. 76° to 79° 30′.*

Mustagh	19,019	Kara Korum	18,345
Chang-chen-mo	18,800		

6.—*In the crest of the Kuen-luen from Long. E. Gr. 78° to 80°.*

Elchi	17,379	Yurungkash	16,620

7.—*In the Andes.*

Alto de Toledo	15,590	Assuay	15,526
Lagunillas	15,590		

8.—*In the Alps.*

St. Theodule	11,001	Old Weissthor (*a*)	11,871
New Weissthor (*a*)	12,136		

(*a*) These two passes cannot be used for practical purposes.

In the southern part of the peninsula of India, Colligal has numerous small jungle covered hills and to the west of Colligal are the Neilgherry hills. The Animullay hills are in the S. W. border of Coimbatore and are richly clothed with valuable forests and with many elephants and some of the lower hill ranges from the Neilgherries, between which is the valley and Gap or Pass of Palghat leading to the western coast. The Guzzlehutty pass leads up the deep valley, separating the Neilgherry hills from Colligal. The Mana and the Neetee passes are on the Saraswati and the Doolee branches of the Ganges. Juwahir Darma or Belong, and Byans, are passes on the Gouree, Dhoulee and Kalee rivers, branches of the Gogra. The Rotang pass, in the Himalaya in lat. 32° 24′ N., and long. 77° 10′ E., is 13,200 feet above the sea. The Rotang pass near Dharmsala leads to the heart of Central Asia. The Beas river rises in a sacred pool, called "Vyas Rikhi", in the Rotang pass, at the head of the Kulu valley. The scenery of the river valley is very beautiful, and is unlike that of the Chenab or Sutlej. The river is fringed with trees, and studded with green islands. There is a good riding path close along the bank which does not exist upon any other river in the Punjab. Besides deodar in the Upper Beas valley, "kail" P. excelsa, elm, maple, oak and walnut are abundant. On the Parbati, box occurs; also olive and the twisted cypress (C. torulosa) are found in small quantity.

Kunawar is usually divided into Upper and Lower Kunawar and includes the upper part of the Sutlej basin to the borders of Piti and Guge in Tibet. Its general direction is N. E. and S. W. It has two parallel bounding mountains. On the S. E. it is bounded by the Cis-Sutlej mountains and to the N. W. by the mountains of Piti. The mountains which descend from the two parallel bounding chains of Kunawar are very lofty. They are crossed in the usual route into Tibet by the Werang pass 13,200; by the Runang pass 14,500; the Kuibrang in the north, across the Cis-Sutlej, is 18,300. The Shatul pass across the Cis-Sutlej leading to Simla is 15,560, and the Hangrang into Piti is 14,800. The passes to Upper Piti are more lofty. The bed of the Sutlej from 8,000 to 9,000 feet at the upper part of Kunawar, descends to 4,000 feet in Lower Kunawar. In Lower Kunawar, the preponderating language is Hindi and is called Milchan, but the Bhot preponderates in Upper Kunawar. The Lubrung or Kanam and the Lidung or Lippa are varieties of the Milchan. In Sungnum, the word Theburskud is used to designate all variations from the regular form of speech. In Kunawar, budd'hism decreases in the central districts and disappears in the southern, where brahminism in an impure form occurs with local gods and irregular priests, every hill having its deota or genius. Polyandry is general in Kunawar from the higher classes to the lowest chamars, one family having one wife, the elder brother being the more special husband. It is called Koorpa. The tract of country belonging to Busehur, lies on both banks of the Sutlej, from lat. 31° 15′ to 32° 4′, and from long. 77° 50′ to 78° 5′. It runs in a N. E. and S. W. direction, and the habitable part seldom exceeds eight miles in breadth. The mean number of inhabitants to a house in various parts of Kunawar is six. Polyandry, or a plurality of husbands, prevails, also, in Chinese Tartary and in the hilly tracts towards the plains. Besides this drawback on the increase of the population, there is another peculiar to Chinese Tartary and the adjoining countries; that is, celibacy, which is professed by numbers of the inhabitants; and in some villages the monks or lamas and nuns form almost half the population. A tribe of Hungrung Tartars occupy 378 square miles. *Bootunte* is a name given to the Tartars by the people of Lower Kunawar. They also call the Tartars Zhad, also Bhotiah, and their country is called Bhot and Bootunt. These Tartars differ greatly in appearance from the people of Lower Kunawar. At all the elevated passes, in Kunawar, there are a number of square piles of stones, called Shughar, upon which passengers usually place a piece of quartz, or attach rags to poles, which are fixed in the middle, there are also several Shughar on the neighbouring heights, sacred to the deota or spirits of the mountains, who are supposed to inhabit the loftiest and most inaccessible points, especially where there is much snow. The Shughar at the passes are erected by travellers, but those on the higher peaks are commonly made at the expense of some wealthy pilgrim not much accustomed to the mountains, who has succeeded in crossing a pass which is reckoned an arduous undertaking by an inhabitant of the plains.

Statement of the Area and population.

Hungrung Tartar, Sq M.	**288**	**1.**	**Nako, Sq. M.**	**330**	
		2.	**Chango**	**378**	
		3.	**Hango**	**348**	**1,056**
Shooung or Shooe	**475**	**1.**	**Gungel**	**988**	
		2.	**Soomchoo**	**959**	
		3.	**Zhungram**	**750**	
		4.	**Yooshooung**	**798**	**3,495**
Tookpa	**977**	**1.**	**Sgeenam**	**1,030**	
		2.	**Reedung**	**576**	
		3.	**Tangling**	**444**	
		4.	**Kumroo**	**780**	**2,830**
Rasgramee	**131**	**1.**	**Oorlee**	**300**	
		2.	**Purlee**	**486**	**786**
Wangpo	**61**		**Wangpo**	**330**	**330**
Utharabees	**87**	**1.**	**Buree**	**186**	
		2.	**Nalche**	**162**	
		3.	**Grosnam**	**312**	
		4.	**Trade**	**276**	**930**
Pundrabees	**86**	**1.**	**Roopee**	**162**	
		2.	**Kambe**	**258**	**420**
Square miles	**2,105**		**Population**		**9,853**

The greatest part of Kunawar is occupied by vast chains of snowy mountains, inaccessible crags, or impenetrable forests. It was formerly under the dominion of a number of petty chiefs, of whom, there was almost one in each small district. The principal river in Kunawar is the Sutlej, which flows through it from one end to the other; the chief branch, or that which has the longest course, issues from Rawun Rudd Lake, better known by the name of Lanka, or Langa-Cho, the last word meaning a sheet of water. It runs within the Himalaya mountains for 280 miles, and the first part of its course is nearly W. N. W. for 200 miles, to clear the heads of the Ganges and its tributary streams; it then enters Kunawar, and winds considerably, generally in a south-western direction, but it oftens runs due south, and, near where it leaves the Himalaya, its course is west for a long way. Within Kunawar, its length is about eighty miles, after which it still flows W. S. W. for 160 more through the hills, and before it enters the plains it makes several bold sweeps, and penetrates the low sandstone range at Roopoor. It washes the hill towns of Rampoor, Bilaspoor, and Makhowal, and its course from Roopoor to its junction with the Beah or Beas, at Hurreeke Puttun, twelve miles above Ferozepoor, is about 130 miles in a south-westerly direction. Its whole length thus far is 570 miles, 440 of which lie within the mountains.

The passes from Kunawar through the outer Himalaya range, are fifteen in number:

Shatool, 15,555 feet, leading from Rol to Utharabee. This pass is reckoned worse than most of the others, not on account of its elevation, for it is inferior in altitude to many of the rest farther to the east, but from there being almost fourteen miles without even a single bush for fuel. It is open part of June, July, August, September, October, and sometimes November.

Soondroo. From Tangno to Rasgramee, the people represent it as crossing two ranges, and say it was very seldom attempted, and was never open more than two months in the year; so it is probably little below 16,000 feet.

Yoosoo, 15,877 feet, leading from Jangleeg to Rasgramee.

Boorendo, 15,171 feet, is the easiest pass in this quarter and most frequented; it leads from Jangleeg to Rasgramee, and is open seven or eight months. And during the rainy season almost all the snow dissolves.

Neebrung, 16,035 feet. *Goonas*, 16,026 feet. *Ghoosool*, 15,851 feet. From Chooara to Sungla of Tookpa. These three passes cross the top of the range within half a mile of each other.

The next is Roopeen, 15,480 feet, a very easy pass.

Nulgoon, 14,891 feet, is the lowest pass seen by Gerard, in the outer snowy range.

Barga, *Lumbeea*, *Manja*, *Seenga*. These four passes are contained in the space of little more than a mile; they lead from Sungla, Rakcham, and Chetkool, to Lewar of Gurhwal, and like Goonas, Neebrung and Ghoosool, are crossed in different months. Barga is reckoned lowest, so is probably little above 15,000 feet; it is chiefly travelled by the Sungla people, being on the direct road from that place. The others are most likely between 16,000 and 17,000 feet, and are frequented by the inhabitants of Rakcham and Chetkool.

Sungla, from Chetkool to Boorasoo of Gurhwal, is reckoned lower than Kimleea, and may perhaps be 16,000 feet. The road is said to be generally bad, and is travelled for six months. There are three passes to the westward of

Shatool, the Jalsoo, Khealig and Soongree, but they cannot be considered in the Himalaya, being from 2,000 to 4,000 feet below the circle of congelation. From the above account given of the passes, it will be seen that Mr. Fraser's saying there is no ghat for the conveyance of merchandise through the Himalaya, between Rampoor and Budreenath, was erroneous. The whole of these fifteen passes are almost as good as the Rampoor road, and many of them considerably better. Most of the passes to the eastward are said to be better than those mentioned: some of them are,

Shear Garh, a difficult pass.

Boorasoo to Chungsa, much snow, and rather difficult.

Jannubee to Chubrung, high, but very easy.

Kedarnath, said to be very difficult.

Domnees, from Budreenath to Chubrung, the pass is high, there is much snow, but the road is good, and is travelled by loaded cattle.

Birjee pass, Neetee pass, Dharma pass, and Jooar pass. These last four passes are travelled by cattle.

The passes leading from Kunawar to Chinese Tartary on the eastward, are six in number, all of which are practicable for loaded sheep.

Chungsakhago, from Chetka to Neilung, on the Jankee or Jannubee branch of the Ganges, a lofty pass, probably not under 18,000 feet.

Koono pass, from Koono to Tunge.

Teedoong, from Charung to Tunge.

These two roads are each about five days' journey, without an intermediate village, and like Chungsakhago, cross a high flat piece of ground.

Keoobrung, from Nisung to Bekhur, five stages without a village. The road leads up the Taglakhar river for 3½ days, and is often difficult.

Gangtung, from Dabling to Bekhur. This properly speaking, is not a distinct road.

From Numgea to Shipke, there are two roads:—1st. Peeming, the height of which is only 13,661 feet. Part of this path is very rugged in clearing the deep-worn glen of the Oopsung rivulet.

There are four passes leading to Speetee:

From Pundrabees, } open 5 months.
Taree from Wangpo, }
From Leepe, not ascertained.

Manerung from Soonguum, open three and a half or four months.

The Kunawari and Tartar races estimate the altitudes of the passes, by the difficulty of breathing they experience in ascending them. Those who cross the outer chain, attribute the symptoms from which they suffer to the noxious qualities of a poisonous plant; but the best informed, who are in the habit of traversing heights where there is no vegetation, know well that they are produced by the height alone.

In Kunawar, the greatest height at which rice that requires water has been observed, is 6,600 feet. There are other kinds, which are not watered, that grow at 8,000 and 9,000 feet, but what is produced in Kashmir, which forms the chief subsistence of the inhabitants requires the fields to be laid under water, as in Bengal. In the higher parts cows are rare, and their places is supplied by the Yak of Tartary, described by Captain Turner; the male is called Yak: Yag, or Yokh, and the female Breemo; the produce between them and the cow is common, the male being named Zo or Zofo, and the female Zomo. The Yak are strong and hardy, and like cold places.——*Lord Elgin; Powell's Hand-book, Vol.* i, *p.* 305.

PASSA, PORT. Raisins.

PASSAGE ISLAND, a name of Barn Island in the Straits of Singapore.

PASSALÆ, see Topes.

PASSALUS, a genus of coleoptera, which abounds over India and the Archipelago. See Coleoptera.

PASSALUM KOWOO, TEL. Tallow.

PASSAPA-WARNAM, TEL. Yellow.

PASSAPOO, also Pampi, TEL. Turmeric, Curcuma longa.

PASSAPU-VENNY, TEL. Gamboge.

PASSELI KEERAY, TAM. Portulaca quadrifida, *Roxb.*, *Linn.*

PASSERAWA, see Inscriptions.

PASSERINÆ, the sparrow sub-family of birds of the family Fringillidæ, as under:—

SUB-FAM.—Passerinæ.

Passer indicus, *Jard.* Indian House sparrow, all E. Indies.
„ **salicicolus, *Viellot*, Willow sparrow, Europe, N. Africa, Affghanistan.**
„ **cinnamomeus, *Gould.* Cinnamon-headed sparrow, Himalaya.**
„ **pyrrhonotus, *Blyth.* Rufous backed sparrow, Sind.**
„ **rutilans——? Japan.**
„ **montanus, *L.* Mountain sparrow, Himalaya to Java and China.**
„ **pyrrhopterus, *Lesson.***
„ **petronius, *L.*, S. Europe, Affghanistan.**
„ **flaveolus, *Blyth.* Burmah.**
„ **jugiferus, *Temm.*, Philippines.**
„ **salicarius, Spanish sparrow, Kohat, West frontier of the Punjab.**

Some ornithologists regard the Passer domesticus, P. italiæ (vel cisalpinus), and P. salicarius (vel hispaniolensis,) of Europe, as being local varieties merely of the same: yet they hold true to their distinctive differences of colouring, wheresoever found; and examples from Affghanistan and the extreme N. W. of India differ in no appreciable respect from Algerian specimens with which they have been compared.

Passer montanus, the Tree Sparrow of Europe, Asia (commoner to the eastward) Siberia, Tibet, Sikhim, Arrakan, Malayan peninsula, Java, China, Japan.

Passer domesticus, the House Sparrow of Europe, Asia, N. Africa; the Indian race (P. indicus of Jardine and Selby) differing slightly from the European in the paleness of the females and young, the much more albescent hue of the lower parts, and bright rufous colouring on the back of the adult male.

Passer salicarius (vel hispaniolensis,) of Barbary and the southern parts of Europe, Asia Minor, Bokhará, and Affghanistan, visits the Peshawar valley and Kohat in large flocks, being everywhere more highly gregarious than P. domesticus, P. petronia, (Petronia stulta), also of S. Europe and N. Africa to Medeira. It is common in Affghanistan. See Sparrow.

PASSERINA.

Kan sui, CHIN.

This Chinese plant has an acrid and poisonous juice, its tubercular or nodulose roots, are sold with the tubers separated: they are given in anasarca, ascites, tympanatis, hernia, hydrocele, and dysuria and are applied to ease pain and to the ears in cases of deafness.—*Smith.*

PASSERINA CHAMÆDAPHNE.

Yuen-hwa, CHIN.

In China, the small dried flowers of this plant are infused in a spirit much drunk in Central China as a sort of cordial, tonic and anti-febrile tincture. The leaves, flowers and root-bark are applied to buboes as counter-irritants. They are said to act on the womb.

PASSEWA, HIND. An extract from Poppy capsules.

PASS-HEADACHE, are headaches which occur in the high passes of the Himalaya, said to be caused by the odour of a species of Allium or Artemisia, or Pleurospermum gouanianum, but doubtless only occasioned by the altitude.

PASSIFLORACEÆ, the Passion flower tribe of plants comprise about 14 genera and more than 200 species of which 20 occur in the E. Indies. In several species, the succulent aril and pulp that surround the seed are fragrant, juicy, cooling and pleasant, others of them are cultivated for their ornamental flowers. The name is derived from a fancied resemblance between the parts of their flower and the emblems of Our Saviour's crucifixion. In the five anthers the Spanish monks saw his wounds, in the triple style the three nails by which he was fixed to the cross, and in the column on which the ovary is elevated the pillar to which he was bound; a number of fleshy threads which spread from a cup within the flower were finally likened to the crown of thorns. "There are cuts," says Sir James Smith, "to be found in some old books, apparently drawn from description, in which the flower is made up of the very things themselves." The tribe comprehends a large number of species, chiefly found in a wild state in America, and within or near the tropical parts of that continent. They are all twining plants, often scrambling over trees to a considerable length, and in many cases are most beautiful objects on account of their large gaily or richly-coloured flowers. This makes them favourites in gardens, where many are cultivated, particularly the P. alata, P. quadrangularis, P. edulis, P. cærulea, P. racemosa, B. loudoni, P. onychina, P. palmata, and P. filamentosa, all of which are strikingly handsome. It is, however, chiefly for their fruit that they are valued in the countries where they grow wild, in consequence of the pulp which envelopes the seeds being cool and refreshing, with something of a fragrant bouquet. Under the name of Granadilla the P. quadrangularis is well known in Brazil, where its fruit is as large as a child's head and it is now grown in many parts of the East Indies, the Water-Lemon of the West Indies is the produce of P. laurifolia; P. maliformis bears what is called the Sweet Calabash; and the pleasant pulp of P. edulis furnishes the confectioner with the most delicate material for the flavouring of ices. Many however are of no value for their fruit, and some are actually fœtid. Some of them are fruit bearing, as the P. edulis and P. laurifolia, the latter is known from its dark shining leaves. There are several wild varieties

Modecca palmata, Courtallum, Cochin.
Modecca dubia, Sumatra.
Modecca trilolata, Chittagong.
Modecca furfuracea, Prome.
Modecca extensa, Khassya.

—*Riddell's; Gardening Eng. Cyc.*

PASSIFLORA ALATA, an ornamental climber common in most parts of India, of easy culture. The greater number do well on the plains, they require abundance of water. Not at all adapted for pot culture, easily propagated by cuttings during the rains under glass; some of the common varieties can be propagated in the open air during that season, require a well manured soil. Natives of the tropics, many of which have been hybridized.

PASSIFLORA CHINENSIS, *Wall.*, a native of China.

PASSIFLORA FŒTIDA. A species with fœtid flowers, but very elegant moss-like involucres, though rarely noticed in gardens, it may be often seen creeping over the hedges in Maulmein like an indigenous plant.—*Mason.*

PASSIFLORA LAURIFOLIA: Laurel-leaved passion flower of the numerous species of passion flower seen wandering over the arbours and trellises of Tenasserim, none exceed in beauty and fragrance, the laurel-leaved passion flower, called in the West Indies, water lemon vine, which appears to have been the first of the tribe introduced into Burmah.—*Mason.*

PASSIFLORA QUADRANGULARIS, Granadilia, flourishes well in Burmah and on the Tenasserim Coast, and is very prolific. The smooth oblong fruit grows nearly as large as a cucumber, and contains a succulent pulp, which make a cooling delicious dish, and when prepared in tarts, can scarcely be distinguished from green apple. The Rev. Mr. Bennett of Tavoy, introduced it among the Karens, by whom it is highly esteemed, and much sought for, it possesses all the attractive qualities of fine fruit, handsome fragrant blossoms, and when trailed over an arbor, a rich passing shade.—*Mason; Jaffrey.*

PASTE, in jewellery, imitative gem.

PASTILLES.

Wan-yen-hiang, Chin. | Ood-batti, Hind.

The Ood-batti pastilles in use in India, burned at mahomedan tombs are made of benzoin. The Wan-yen-hiang of the Chinese are long, limp torches of bamboo covered with a composition of elm-saw-dust some fragrant substance, and a small quantity of sulphur or orpiment. They are burned to drive away mosquitoes or overcome bad smells. They are sold in China for one cash each.—*Smith.*

PASSULÆ CORINTHIACEÆ, Lat. Currants.

PASSU-MUNNÆ-KEERAY, Tam. Premna integrifolia.

PASSUPU, Tel. Curcuma longa.

PASSURUM KOWOO, Tel. Tallow.

PASTALE KAI ANTAGAREI, Tam. Wedelia calendulacea, *Less.*

PASTAWANA, Hind. Pshtu, Grewia oppositifolia.

PASTEIL also Glasio, Sp. Pastel: Guede: Voude, Fr. Woad.

PASTINACA, a genus of the Apiaceæ, of which P. hookeriana, P. rigens, P. sprengeliana and P. sativa are grown in the E. Indies. The name is (from Pastinum, the Latin name for a two-pronged fork.)—*Wight's Icon. No.* 1,008, 1,009, 1,010.

PASTINACA SATIVA, *L.*

Hu-lo-pu, Chin. | Parsnip, Eng.

var. a. Sylvestris, is the wild parsnip of Europe and the Caucasus.

var. b. Edulis is the cultivated parsnip. It is extensively cultivated in Guernsey and Jersey as fodder for cattle. In the north of Ireland parsnips are used in the composition of a kind of beer brewed with hops. Wine and ardent spirits are likewise made from the roots.—*Voigt. Eng. Cyc.*

PASTINACA.

Shikakul, Hind.

A plant of the N. W. of India.

PASTINACA SEKAKUL, *Honigberger*, is an edible species, a native of Syria and Egypt. It has a gray root; a terete downy branched stem; pinnate downy leaves; pinnatified cut leaflets, blunt and unequally toothed. Pastinaca secacul is the Shakakel misree (Sium sisarum, Ainslie) so much used by Eastern doctors, and not without reason, for this root is a very efficacious medicine. Dr. Royle thought it came from Cashmere to Hindostan, but Honigberger heard that it is imported fromEgypt; and hence, probably it is called the Egyptian (misree).—*Honigberger, p.* 322.

PASTO, Beng. Papaver somniferum, *Linn.*

PASTOO, the language of the Affghans, also written pushtoo, pushto. Since the invasion of Mahmud of Ghazni in the eleventh century, there has been a constant influx into India of Affghans, as conquerors and settlers and this has been so great from particular districts that some tribes have altogether disappeared from Affghanistan. In some localities in India, the Affghan settlers are said to have preserved the Pushto almost in its purity up to the present day, having from the outset married amongst themselves. In some parts of Bundelkund and in the territory of the Nawab of Rampur, whole towns and villages may be found in which the Affghan language is still almost exclusively spoken and is the medium of general communication. Captain Raverty considers that although on numerous points, the Pushto bears a great similarity to the Semitic and Iranian languages it is totally different in construction, and in idiom also, from any of the Indu-Sanscrit dialects.—*Capt. H. G. Raverty's Grammar and Dictionary to the Pushto, Pukhto, or Affghan language.* See Pash.

PASTOORMAH, Pasturma, Pastrama, in Asia Minor, beef preserved with garlic and pepper, and dried in the sun for winter food. It is prepared in Wallachia and Moldavia, and largely shipped from Varna. Besides providing Aleppo, and Damascus, 6000 cwt. or more is yearly sent from Kaissariah to Constantinople.—*Simmond's Dict.*

PASTORAL TRIBES. The principal feature in which the Western Affghans differ from the Eastern, is formed by the numerous pastoral tribes. These, though they have all some common points of resemblance, such as their living in tents, and moving with the seasons, differ among themselves in other particulars principally relating to the distance between their summer and winter stations, and to the degree in which they combine agriculture with pasturage. The summer station is called Eilauk, and the winter station Kishlauk, two words which both the Affghans and Persians have borrowed for the Tartars. The tents almost universally used among the Affghans are of a kind of black blanket, or rather of coarse black camlet, such as is used for the same purpose in the greater part of Persia. It is called Kizhdee in the Affghan language, Seeah-chadar, in Persian, and Karra-ooee in Turkish: both of these last phrases mean "black tents" the term generally given to them by Europeans. The tents of the tribes that move little are always larger and better than those of the very migratory people. The latter have often fine tents which they leave at the stations where the climate is most severe, carrying lighter ones on their journeys to the places where shelter is less required. The Western Affghans are not all shepherds: on the contrary, although the space given up to pasture may be much more extensive than that employed in agriculture, yet the number of citizens and villagers must, I should imagine, considerably exceed that of the wandering hordes.—*Elphinstone's Kingdom of Cabul, p.* 390. See Nomades.

Aharwarrah, is a territory on the north-east frontier of Malwa which contains many districts. The Ahar tribe or caste, from whom the territory derives its names of Aharwarah and the Aharat are spread through Rohilcund and other districts in the N. W. Provinces, following pastoral pursuits. They claim to be descended from the Yadu race of Rajputs. Agricultural tribes are originally pastoral and inclined to be predatory, farmers keep cattle and waggons and till the soil, generally possess great military vigor, most democratic constitution and occupy a dominant position, gardening tribes, peaceable, unmartial.—*Malcolm's Cent. Ind., Vol.* i, *p.* 325. See Rajput. These seem to be the Ahir, q. v.

PASTOR ROSEUS, syn. of Sturnus vulgaris. The 'Rose-coloured Pastor' of Europe, Asia, and Africa: common in India; rare in Britain.—*Adams.* See Starling.

PASUPU, Tel. Curcuma longa.—*Roxb., Rheede.*

PASUT, Hind., of Lahoul, a compound of alum, &c., used in dyeing.

PASTURE GRASSES of India, in the Himalaya many of the pasture-grasses are the same as in Europe, and the cereals are cultivated in the spring and summer, with some rice in the rains. See Graminaceæ, Panicaceæ.

PASTUWANNA, Hind. Grewia oppositifolia, also Grewia villosa, Perei pastu wanne, Hind., is Fluggea virosa.

PASUMMAH, Rejang is the alphabet of Lemba and Pasummah on the western side of Sumatra. It consists of 23 substantive characters, formed of upright scratches or strokes, and on the whole it is more complete than either the Batak or Korinchi. See India, Kyan, Language, Writing.

PASUMUNI KIRE, Tam. Premnia integrifolia.

PASUPATAS, see Kala Priyanath.

PASUPU, Curcuma longa, *R.* i, 32.—*Rheede*, xi, 11.

PASUPU KADIMI, or Daduga, Tel. Nauclea cordifolia, *R.*

PASWAJ, Hind. A woman's gown of a light texture and gay colour.

PAT, Hind. Part of the sugar-cane mill.

PAT is the wool of a goat of Kabul inferior to the real pashmina or shawl wool of Tibet.—*Powell's Hand-book, Econ. Prod., Punjab, p.* 21.

PAT, a desert country between Asnee and the hills west of the Indus, above Methenkote. It is wandered over by the Ghorkhar, the Equs onager.

PAT, Hind. A leaf of a plant; a book.

PAT. The five pat which still exist in Northern Hindustan, were Padipat, Sonpat, Indrapat, Tilpat, and Baghpat, of which all but the last were situated on the right or western bank of the Jumna. The term prastha, according to H. H. Wilson, means anything spread out or extended, and is commonly applied to any level piece of ground, including also table-land on the top of a hill. But its more literal or restricted meaning would appear to be that particular extent of land which would require a prastha of seed, that is, 48 double hands-ful, or about 48 imperial pints, or two-thirds of a bushel. This was no doubt, its original meaning, but in the lapse of time it must gradually have acquired the meaning, which it still has, of any good-sized piece of open plain. Indraprastha would therefore, mean the plain of Indra, which was seemingly the name of the person who first settled there. Popular tradition assigns the five pat to the five Pandu brothers.—*Cunningham's Travels of a Hindoo.*

PAT, Hind. Corchorus capsularis; Ban-pat, Hind. Corchorus olitorius; Tez-pat, Hind. Cinnamomum albiflorum.

PAT, Hind. Hibiscus cannabinus, *Linn., Roxb., W. & A.*

PAT, amongst Mahrattas, is a second marriage.

PAT, Mahr. A plank.

PATA, Leaf of Corchorus olitorius.—*Beng. Ph.*, 219.

PATA, Tel. Cissampelos pareira, *L.*—*Hook.* f. and *Th.* i, 198.—Cic. convolvulacea, *Willd.*—*W.* and *A.* 51.—*B.* iii, 842.

PATA, Maleal. Avicennia tomentosa.—*Rheede; L.*

PATA, Sans. Sida lanceolata.

PATA, Malay. Chart.

PATTA, Hind., a strip of iron for making gun barrel.

PATTA-KA-BANDUQ, Hind. A kind of gun-barrel.

PATA ARIGE CHETTU, Tel. Paspalum scrobiculatum, *L.*

PATAKA, Hind. Abutilon indicum.

PATAKA, Malay. Cucurbita citrullus, *Linn.*

PATAKAM, Tam., Tel. The sectarian mark on the foreheads of Hindoos.

PATA KE JAR, Hind. Pata root.

PATAKHEN, Hind. Cratægus oxyacantha.

PATA-KHUREE, Beng., Hind. Saccharum fuscum, *Roxb.*

PATAKI, Hind., of Salt Range, Gymnosporia spinosa, Celastrus spinosus, Cissampelos pareira.

PATAL, see Lead.

PATALA, in hindooism, the region below the earth, inhabited by the nagas or serpent demi-gods. The lowest of the seven lower worlds, by Ziegenbalg identified with Naraka, hell.—*Hind. Theat., Vol.* ii, *p.* 270. See Bali, Pratipada, Mehrawun, Vamana, Yama or Dhermarajah.

PATALA, or Pitasila, the capital of Lower Sindh, identified with Nirankot, or Hyderabad, also called Patalpur. The position of Nirankot is fixed at Hyderabad by the concurrent testimony of M'Murdo, Masson, Burton, and Eastwick. Sir Henry Elliott alone places it at Jarak as he thinks that that locality agrees better with the descriptions of the native historians. From a comparison of the narratives of Arrian and Curtius, it appears that the raja of Patala having made his submission to Alexander at Brahmana, or the city of brahmans, the conqueror sailed leisurely down the river for three days, when he heard that the Indian prince had suddenly abandoned his country and fled to the desert.—*Cunningham's Ancient Geog. of India, pp.* 279, 283, 285. See Pattala.

PATALANS, see Kabul.

PATALA GANDHI, or Patala garuda, Tel. Ophioxylon serpentinum, *L.*—*R.* i, 694.—*W. Ic.* 849—*Rheede*, vi, 47.

PATALEE, Beng.

PATALENE, see Bactria, Greeks of Asia.

PATALI, or Padarj chettu, Tel. Bignonia suaveolens, *R.* The Sans Bhuta padiri, *W.* 823, perhaps refers to this tree.

PATAL-GANNI, Tel. Ophioxylon serpentinum.

PATALI TIVVA, or Vekkudu tige, Tel. Cardiospermum halicacabum, *L.*

PATALIPUTRA. When Hwen Thsang entered the capital of Magadha, the city, originally called Kusumapura, had been deserted for a long time, and was then in ruins. It was 70 li, or 11⅔ miles, in circuit, exclusive of the new town of Pataliputra-pura. This name the Greeks slightly altered to Palibothra on the authority of Megasthenes, whose account is preserved by Arrian. The capital city of India is Palibothra, in the confines of the Prasii, near the confluence of the two great rivers Erannoboas and Ganges. Erannoboas is reckoned the third river throughout all India, and is inferior to none but the Indus and the Ganges, into the last of which it discharges its waters. Megasthenes assures us that the length of this city is 80 stadia, the breadth 15; that it is surrounded with a ditch, which takes up 6 acres of ground and is 30 cubits deep; that the walls are adorned with 570 towers and 64 gates. Diodorus attributes the foundation of the city to Herakles, by whom they mean Bala-Rama, the brother of Krishna, but this early origin is not countenanced by the native authorities. According to the Vayu Purana the city of Kusumapura or Pataliputra was founded by raja Udayaswa, the grandson of Ajatasatru, who was the well-known contemporary of Buddha; but the 'Mahawanso' makes Udaya the son of Ajatasatru. According to the buddhist accounts, when Buddha crossed the Ganges, on his last journey from Rajagriha to Vaisali, the two ministers of Ajatasatru, king of Magadha, were engaged in building a fort at the village of Patali as a check upon the Wajji or people of Vriji. Buddha then predicted that it would become a great city. From these concurring authorities General Cunningham concludes that the building of the city of Pataliputra was actually begun in the reign of Ajatasatru, but was not finished until the reign of his son, or grandson, Udaya, about B.C. 450. The position of the city at the junction of the Ganges and Eranhemay was formerly supposed to refer to the confluence of the Gandak or Hiranyavati, which joins the Ganges immediately opposite Patna. But it has been conclusively shown by Mr. Ravenshaw that the Son river formerly joined the Ganges just above the city of Patna, As the Sona, or "golden" river, is also called the Hiranyabaha, or the golden, on account of its broad yellow sands, its identification with the Erannoboas is complete both as to name and position. Strabo and Pliny agree with Arrian in calling the people of Palibothra by the name of Prasii, which modern writers have unanimously referred to the Sanscrit prachya, or "eastern." But it seems to General Cunningham that Prasii is only the Greek form of Palasiya or Parasiya, a "man of Palasa or Parasa," which is an actual and well-known name of Magadha, of which Palibothra was the capital. It obtained this name from the palasa, or Butea frondosa, which still grows as luxuriantly in the province as in the time of Hwen Thsang. The common form of the name is Paras, or when quickly pronounced Pras, which he takes to be the true original of the Greek Prasii. This derivation is supported by the spelling of the name given by Curtius, who calls the people Pharrasii, which is an almost exact transcript of the Indian name Parasiya. The Praxiakos of Ælian is only the derivative from Parasar.

As Magadha was the scene of Buddha's early career as a religious reformer, it possesses a greater number of holy places connected with buddhism than any other province of India. The chief places are Buddha-Gaya, Kukkutapada, Rajagriha, Kusagarapura, Nalanda, Indrasilaguha, and the Kapotika monastery—*General Cunningham's Ancient Geography of India, pp.* 452-455.

PATALPOOREE is a remarkable place, most probably once above ground, but on which two united rivers have deposited their silt and formed a soil. A cave leads to a spacious square temple, about seven feet high, the roof of which is supported by thick walls and ranges of pillars. In its middle is a large lingam of Siva, over which water is poured by the pilgrims. Surrounding this presiding deity, are other gods and goddesses of the Hindu Pantheon. Towards the left, is seen a dead forked tree, which, with its withered trunk, has stood there for several hundred years. General Cunningham's Archæological Report, states that, according to Hwen Thsang, Allahabad was situated at the confluence of the two rivers, but to the west of a large sandy plain. In the midst of the city there was a brahminical temple, to which the presentation of a single piece of money procured as much merit as that of one thousand pieces elsewhere. Before the principal room of the temple there was a large tree with wide-spreading branches, which was said to be the dwelling of an anthropophagous demon. The tree was surrounded with human bones, the remains of pilgrims who had sacrificed their lives before the temple,—a custom which had been observed from time immemorial. This tree is now situated underground at one side of a pillared court, which would appear to have been open formerly, and which is supposed to be the remains of the temple described by Hwen Thsang. Originally both tree and temple must have been on the natural ground-level, but from the constant accumulation of rubbish they have been gradually earthed up until the whole of the lower portion of the temple has disappeared underground. The upper portion has long ago been removed, and the only access to the Akshay Bat now available is by a flight of steps which leads down to a square pillared court-yard.—*Tr. of Hind., Vol.* i, *pp.* 313-317. See Chandragupta, India, Inscriptions, Palibotha.

PATALLOO GOTSA, Ooriah. Dioscorea.

PATAMAR, a vessel employed in the coasting-trade of Bombay to Ceylon. Patamar vessels may be considered the best in India; as they sail remarkably well, and stow a good cargo. They belong principally to Bombay merchants, and carry on the whole of the coasting-trade to that port. They are grab-built: that is, with a prow stem, which is the same length as the keel; and the dimensions of the large class are seventy-six feet six inches in length, twenty-one feet six inches in breadth, eleven feet nine inches in depth, and about two hundred tons burthen. They are planked with teak, upon jungle-wood frames; and are really very handsome vessels, being put together in the European manner, with nails, bolts, &c., and their bottoms are sheathed with inch-board, and a layer of chunam mixed with cocoa-nut oil and a portion of damar (country rosin): this is a very durable substance, and a great preservative to the plank against worms. Some of the smaller class of these vessels, of about sixty tons burthen, are sewed together with coir, as other native boats are. The small class has one, and the large class two masts, with the lattan sail: the foremast raking forward, for the purpose of keeping the ponderous yard clear when it is raised or lowered. The yard is slung at one-third of its length, the tack of the sail is brought to the stern-head, through a fixed block; and the sheet hauled aft at the side, as usual. The haul yard is a pendent and treble block, from the masthead aft to midships; thus acting as a back-stay for the mast's security, together with about two pairs of shrouds. These vessels generally export salt from Bombay to the coast, and take back coir, rice, cocoa-nuts, copera, oil, timber, sandalwood, pepper, and various articles, the production of the coast. They are navigated with much skill, by men of the Mopila caste and other mahomedans; and have a crew of ten or twelve men, and a tindal, who are good pilots and navigators off the coast from Bombay to Cape Comorin; generally speaking, honest and trustworthy.

PATAN, see Nepal.

PATANA, Guz. Pisum sativum.

PATANA, see Chandragupta.

PATANG, Hind. Patanga, Sans.

PATANGHEE, Singh. Cæsalpinia sappan, *Linn., Roxb., W. & A.*

PATANGA CHAKKA, or Bukkapu chettu, Tel. Cæsalpinia sappan, *L.* Bukkum wood.

PATANJALA, see Jogi or Yogi, Vedas, Vidya.

PATANJALA, Sans., from the sage Patanjali; which word is made up of pat, to throw down, and anjali, joined hands. This conjunction teaches us, that people went before him for instruction with joined hands.

PATANI, a Malaya-Siamese province on the opposite coast. The Orang-patani are supposed by Captain Osborn to be identical with the Orang-laut, or men of the sea. They are found hunting in small groups, for their numbers do not entitle them to, the appellation of tribes, in the neighbourhood of British colonies, as well as the most secluded and barren places in Malayia. They are usually found east of the Straits of Malacca, although, they reach the western side sometimes. Under fifty different names, they are known to the inhabitants of Siam, Java, Sumatra, Borneo, and the Moluccas, and in all cases bear a bad reputation. The best description of them is given by Mr. Thomson, a gentleman who has written on the archipelago. With the sarkab, or fish-spear, and the parang, or chopper, as their only implements, they eke out a miserable subsistence from the stores of the rivers and forests. They neither dig nor plant, and yet live nearly independent of their fellow-men; for to them, the staple of life in the east, rice is a luxury. Tobacco, they procure by the barter of fish, and a few marketables collected from the forests and coral reefs. The personal appearance of these people is unprepossessing, and their deportment lazy and slovenly, united to much filthiness of person.—*Osborn's Quedah*, *pp.* 254-256, 259.

PATANI HOEK, see Papuans.

PATANI LODE, DUK. See Kilioorum.

PATAR MOUNTAINS also Pat'har mountains. Central India is a table-land of unequal surface, from 1,500 to 2,500 feet above the sea, bounded by the Aravalli mountains on the west, and those of the Vindhya on the south, supported on the east by a lower range in Bundelcund, and sloping gradually on the north-east into the basin of the Ganges. It is a diversified but fertile tract. The Patar, or plateau of Central India, is distinct from the Vindhya to the south, and the Aravalli to the west, and its underlying rock is trap.

PATARA, a river nearShikarpoor in Bhopal.

PATARI, a wandering tribe of people who speak the Telugu language, some of whom have travelled into the Mahratta country pursuing their avocation of manufacturers of hand-mills, from which they are also named "Chakki Karne-walay" by mahomedans, and are seemingly identical with the Takinkar. They have a deity whom they term Satwai, whose emblem is suspended around their necks, and resembles the forms worshipped as Hanumantu. They dwell within the walls, in huts made of a fine grass. They marry at all ages; they do not eat the cow or bullock, and they bury all their dead.

PATA ROOT, Pata-ke-jur. HIND. Root of Sida acuta.—*Ben. Ph.*, 219.

PATA-SHEYALA, BENG. Blyxa octandra.

PATA-SEYALA, BENG.

PATATA, SP. Potato.

PATATE, FR., IT. Potato.

PATAYAT BAG, DUK. Felis tigris, *Linn.*

PATCHA-ARISE, TAM. Euphorbia thymifolia, *Linn.*, *Roxb.*

PATCHAK, HIND. Aucklandia costus, *Falconar.*

PATCHALAY WOOD, ANGLO-TAM. Dalbergia paniculata, *Roxb.*, *W. & A.*

PATCHAM, see Jhareja, Kattyawar, Kutch.

PATCHEAPPAH, a hindoo of the neighbourhood of Madras, from whose bequests, schools were founded.

PATCHET, MAL. Leeches.

PATCHI KALLOO, TAM. Emerald.

PATCHI also Coorvi, TAM., a bird.

PATCH LEAVES, ANGLO-HIND. White Horehound.

PATCHOULI, BENG. Pogostemon patchouli, *Pellet*, also written Patchooly or Pucha-pat, is found in every bazaar almost throughout India, and seems to grow abundantly as well as on the opposite shore of the Malay Peninsula, in province Wellesley, in India, and in a perfectly wild state at Pinang. M. de Hugel found it growing wild near Canton. The odour of the dried plant is strong and peculiar, and to some persons not agreeable, 'the dried tops imported into England are a foot or more in length. In Europe it is principally used for perfumery purposes, it being a favorite with the French who import it largely from Bourbon. They were led to use it because, a few years ago, real Indian shawls bore an extravagant price, and purchasers distinguished them by the odour of Patchouli, with which they were perfumed, and on discovering this secret, the French manufactures got into the way of importing the plant to perfume articles of their own make and thus palm off home-spun shawls for real Indian. The Arabs use and export it more than any other nation. Their annual pilgrim ships take up an immense quantity of the leaf, they use it principally for stuffing matrasses and pillows, and assert, that it is very efficacious in preventing contagion and prolonging life. The characteristic smell of Chinese and Indian Ink, is owing to an admixture of this plant on its manufacture. Some people put the dry leaves in a muslin bag, and thus use it as is done with lavender, for scenting drawers in which linen is kept; and this is the best way to use it, as this odour like musk, is most agreeable when very dilute. In India it is used as an ingredient in the Goorakoo compound of tobacco for smoking and also for scenting the hair of women. It requires no sort of preparation, being simply gathered and dried in the sun:

India, who are seeking a livelihood in it as soldiers, traffickers and chapmen. The Pathan styles himself by the titular designation of khan, but this is never permitted at courts, khan being one of the honorific appellations bestowed by Indian sovereigns. The term Pathan is also said to be derived from Butan the Arabic for a mast or chief of the tribe, a titulary appellation given to Kyse, a leader of the Affghans under Kalid. —*General Ferrier*, *p.* 5; *Chatfield's Hindustan*, *p.* 70; *Burton's Pilgrimage to Mecca*, *Vol.* i, *p.* 65; *C. p.* 87; *Rennell's Memoir*, *p.* 2; *Elphinstone's Kingdom of Cabul*, *p.* 350; *Bjornstjerna's British Empire in the East*, *pp.* 233-34. See Affghan, Derajat, India, Kabul, Khyber, Mahomedanism, Sikhs.

PATHANBED, Hind. Picrorrhiza kurrooa.

PATHANI, or Thani, a dependency of Siam, with a population of 100,000.

PAT'HAR, Hind. A big stone, a monument. Colonel Tod says he was particularly struck with that of a Charun bard, to whose memory they had set up a pallia, or tomb-stone, on which is his effigy, his lance at rest, and shield extended, who most likely fell defending his tanda. This tract had been grievously oppressed by the banditti who dwelt amidst the ravines of the Bunas, on the western declivity of the plateau. "Who durst," said his guide, have passed the Pat'har eighteen months ago? the Meenas would have killed you for the cakes you had about you; now you may carry gold. These green fields would have been shared, perhaps reaped altogether, by them; but now, though there is no superfluity, there is 'play for the teeth,' and we can put our turban under our heads at night without the fear of missing it in the morning. At one of the cairns, in the midst of the wood, they all paused for a second; it was raised over the brother of the Bhatti thakoor, and each, as he passed, added a stone to this monumental heap. —*Tod's Rajasthan*, *Vol.* ii, *pp.* 659-60.

PATHAR KA PHUL, Hind., a lichen, see Kal pashi.

PA-THA-YOU-SHA, Burm., a bast of Arracan from a species of Musa strips seven feet in length; fine in texture, light coloured: formed of several easily diffusible layers: the outer layers, rather dense, and compact, and the inner cancellar.—*Royle.*

PATHI, Burm. The term by which, in Burmah, native born mahomedans are known.

PATHI, Hind, of Shahpur, a weight of wool, equals the shearing of one fleece of a sheep.

PATHIRI MARAM, Tam. Bignonia chelonoides, *Linn.*

PATHLI, Hind. Chamba hills; Lonicera quinquelocularis.

PATHANGA, Hind. Cæsalpinia sappan.

PATHANISARKA, Hind. Symploeos cratœgioides.

PATHANKOT, see Kohistan.

PATHAR, the plateau of Central India. The whole of this tract was under the princes of Chetore, but the sack of this famed fortress by Alla, and the enormous slaughter of the Gehlotes, had so weakened their authority, that the aboriginal Meenas re-possessed themselves of all their native hills, or leagued with the subordinate vassals of Chetore.—*Tod's Rajasthan*, *Vol.* ii, *p.* 457. See Achari, Kunawar, Patar. Sankara.

PATHOR of Chenab, *Ayr.* Marsdenia roylii, *Wight.*

PATHOOR-CHOOR, Beng. Hibiscus rosa-sinensis, also Coleus amboinicus.

PATHRAINI, Hind., an iron graver used in Multan for tracing patterns for gold inlaying work, seemingly a curruption of pattern.

PATHUR CHUR, Hind. Plectranthus aromaticus, also Beng. Coleus amboincus, *Lour.*

PATI, Beng. Cyperus inundatus, *Lindl.*

PATIALA, runs the east boundary of Bahawalpoor. It was formed by a Jat family, of the Sikh religion, who emigrated from the Manjah, about the beginning of the 18th century. The area is 5,412 sq. m. with a population of 1,586,000, and a revenue of Rs. 30,00,000.

PATIENCE, Rumex patientia, *W.*

PATIKANDA, or Manchi kanda, Tel. Arum (Amorphophallus) campanulatum, *R.*

PATILI, Sans. Bignonia suaveolens.

PATINA, in Ceylon, grass land, for the most part rock, barely covered with a superstratum of soil, but producing long grass, and here and there a stunted and thorny bush or tree. Like the prairies of America the patinas are burned off every year.—*Simmond's Dict.* See Patena.

PATI-NEBOO, Beng. Common acid lime, Citrus bergamia.

PATING, Hind, of Thibet, dried apricots brought from Balti.

PATINGA, Tam. Cæsalpinia sappan.

PATIPAL, Anar. See Hot-springs.

PATI PATI, Beng. Maranta dichotoma, *Wall.*

PATIRA, Hind. Typha angustifolia.

PATIS, Hind. Aconitum heterophyllum.

PATISCHOROEEIS of Strabo, the Patiskhari of the cuneiform inscription, are the Bakhtiari of Luristan.

PAT JOL, Jav. A spade.

PATKA, Hind. A scarf, a labourers turban.

PAT-KILI, Beng. Hibiscus rosa-sinensis.

PATKEALE. A tree of the western parts of Ceylon, a cubic foot of its wood weighs 42 lbs. and it lasts 40 years. It is used for common house-building.—*Mr. Mendis.*

PAT-KOY, a pass leading to Bamo and China.

It was the route followed by the Burmans in their invasions of Assam and is the means of communication between the Singpho tribes on the north and south of the Patkoy mountains.

PATKURU, HIND. Roylea elegans.

PATNA, a revenue district of Bengal formed out of the ancient Bahar. Patna town is on the right bank of the Ganges in Bahar province. The following pergunnahs of Patna, were transferred by the British to the rajah of Najpore, on the 24th August 1806, viz., Patna: Khass Patna; Nawagurh; Ghureeland; Tonageer; Borasambre. To the extreme west of Nepaul, lies Almorah, a hill station, wrested from the Nepaulese in the wars of 1815-16; to the extreme east is Darjeling, another hill station, used by the supreme Government of India as a sanatarium for invalids. The principal British cities and military stations which border on the Nepaul territory along the line of the Ganges, are, Berhampore (contiguous to the Morung district), Monghyr, Patna, Dinapore, Ghazeepore, Benares, Allahabad, Cawnpore, Lucknow, Futtighur, and Bareilly; the last named town lying opposite to a Nepaulese fort called Doti, and a few miles from the hill station of Almorah. Vaisali, is to the north of Patna.—*Aitchison's Treaties, p.* 100. See Chandragupta, Hindoo, Inscriptions, Khutri, Megasthenes, Topes.

PATNA, a river of Panna.

PATNIA, see Krishna.

PATOLASAMU, or Adavipotla, TEL. Trichosanthes cucumerina, *L.*, *Br.*, 531. Roxburgh applies the same to T. dioica and in Bengal both have the same name. The word is Sans, and probably hence the Telugu word Potla.

PATONGA, CAN., SANS. Cæsalpinia sappan.

PATONWA, URIA., a species of Gardenia, a tree of Ganjam and Gumsur, extreme height 20 feet, circumference 1 foot and height from ground to the intersection of the first branch, 5 feet. Used chiefly for firewood being tolerably common. The fruit thrown into a pond of water kills all the fish in it and is used for that purpose by the keyout or fishermen. This mode of catching fish is designated "Macho Mohneebaro." The fruit is said to be poisonous, but the seeds are used medicinally for fever.—*Capt. Macdonald.*

PATOO or Asta, is a bast from Beerbhoom, is like the Putwa from Bhagulpore.—*Royle.*

PATOR, see Cocoa-nut.

PATPATI CHENCHKA, BENG.

PATPATULA, HIND. Oreoseris lanuginosa, Ban patrak, HIND., is Saxifraga ligulata.

PATRA, SANS, Cicer arietinum.

PATRA, HIND. Cinnamomum albiflorum.

PATRA, see Argha, Patera.

PATRA, HIND. The Kataya or wire drawers work bench.

PAT-RAJ, a Pujari amongst the Mahrattas, *W.E.*

PATRANG, HIND. A silk dress.

PATRAS,—? Mirabilis jalapa.

PATRAWALA DAMA, HIND. Solanum gracilipes.

PATRI, HIND. A neck chain of silk, carrying amulets.

PATRI, HIND. A hone; also a little iron wedge or plate.

PATR-I-ATISH, HIND., PERS. Flint.

PATRIS, HIND. Aconitum heterophyllum, Haiza-ka pattar, HIND. Kalanchoe varians. Mit pattar, HIND. Machilus odoratissimus. Til pattar, HIND. Acer creticum, and A. cultratum.

PATRISIA, see Flacourtiaceæ.

PATSA RAI, TEL. Emerald.

PATSA-KAYA, TEL. Citrullus colocynthis, *Shræd.*

PATSAN, HIND. of Delhi, &c., the Sankukra, Hibiscus cannabinus.

PATSHAING, BURM. A drum-harmonicum, a musical instrument used in Burmah. It consists of a circular tub-like frame about thirty inches high and four feet six inches in diameter. This frame is formed of separate wooden staves fancifully carved, and fitting by tenon into a hook.—*Yule.*

PATSHI-MAN, TEL. Conocarpus acuminata.

PATSUM, HIND. Helicteres isora.

PATSU-PULA-GUNTA-GALI-JERU, TEL. Wedelia calendulacea, *Less.*

PATTA, also Pat or Pattr, HIND. Any leaf, the leaf of the dwarf palm, Chamærops.

PATTA, MALEAL. Bark.

PATTAH, HIND. A lease of land: in India, under British rule, are three land tenures one known as the Zemindari or permanent settlement made in 1792 by Lord Cornwallis, of Bengal proper, and since then extended to Behar and Orissa. The lands are divided amongst landlords who pay a quit rent to Government, which in Bengal has been definitely settled. Something similar has been proposed for Oudh as the Talukdari. The Ryotwari tenure in Madras, established by Sir T. Munro, under which the cultivators are the owners of the soil and pay direct to Government. A modification of this has been introduced into Bombay.

The Pattadari tenure was established by Mr. R. Martins Bird in the N. W. Provinces, and it has since been extended to the Punjab. In this, Government deal direct with village communities who are jointly responsible for the assessment.

In Bombay and Madras, Government transacts its revenue buisiness direct with the cultivating ryot or farmer, who is regarded as the feuer or proprietor paying a feu duty, and so long as that is paid he cannot be dispossessed. Neither in Bombay nor Madras is there any middleman. In Bengal, however, the British took up the Zemindar system, who, under mahomedan rule, had been partly a rent collector and partly a landed proprietor, and elected him to be owner to the exclusion, in many cases, of the rights of the cultivators. Subsequently the Government to the exclusion of the real owner elected the tenant or the village community. In Bengal and Oudh, the land-tax is still levied on estates, in Northern India on villages and proprietary holdings. But, in Madras, on individual fields. In Bombay, however, the taxes levied on the blocks of 10 or 12 acres accords to the convenience of the occupiers and they are tenants for 30 years. In copper-plate grants dug from the ruins of the ancient Oojein (presented to the Royal Asiatic Society,) the prince's patents (putta) conferring gifts are addressed to the Patta-cila and ryots. Colonel Tod never heard an etymology of the former word, but imagined it to be from patta 'grant,' or 'patent,' and cila, which means a nail, or sharp instrument; metaphorically, that which binds or unites these patents; all, however, having pati, or chief, as the basis. *Tod's Rajasthan, Vol.* i, *pp.* 500-501; *Transactions of the Asiatic Society.*

PATTA DEL, Cyngh. Artocarpus, *sp.* See Ceylon.

PATTAH, Hind. Gold ribbon, broader than gotah.

PATTAI MARAM. Mimosa hexandrus, *Roxb.*, *W. Ic.*

PATTA-ISTRI, is the first lawful wife of a king.

PATTAKARI, Sans. Euphorbia neriifolia. E. nivulia, *Buch.*, *W. Ic.*

PATTAL, Hind. Plates made of leaves by the Dosali caste.

PATTALA, an ancient town in Sind. It is impossible to fix the exact site of Pattala, because there are properly two deltas, a superior, and an inferior one; exclusive of the many islands formed by the Indus, when it approaches the sea. Tatta is near the head of the inferior delta, and the ancient accounts mention only one great delta, having Pattala at the upper angle of it. In Ptolemy's map (Asiæ, Tab. xx.) Pattala is placed very far below the place where the Indus begins to separate into branches. Pattala (Tattah) and the delta itself are now looked for with uncertainty, also the "Barbaricum emporium," of the "Periplus."—*Rennell's Memoir, p.* 179; *Postan's Personal Observations, p.* 117.

PATTAM, Tam. A gold frontlet ornament worn by hindoo women.

PATTANA, Pattan, Patnam, Sans., Tam., Tel. A town.

PATTANG, Duk. Cæsalpinia sappan, *Linn.* *Roxb.*, *W. and A.*

PATTANG, Hind. A paper kite, pattang-bazi, flying kites, pattang saz, a kite maker.

PATTANGA CHAKKA, Tel. Cæsalpinia sappan, *Linn.*, *Roxb.*, *W. and A.*

PATTANGAY, Hind. Cæsalpinia sappan, *Linn.*, *Roxb.*, *W. and A.*

PATTAN-SOMNATH, is 29 miles N.W. of Diu, in lat. 20° 53′ N. and long. 70° 35′. See Somnath.

PATTAR-KA-TEL, Hind. Petroleum.

PATTARU, Tel. Tribulus lanuginosus.

PATTA TAMARA, Maleal. Macaranga indica, *R. W.*

PATTAYA, Can. Bark.

PATTHARMAN, Jh. Callicarpa incana, *Roxb.*

PATTHRA, Hind. Malcolmia strigosa.

PATTE, Hind. Leaves, see Olay.

PATTEEL——? an article of jewellery.

PATTENGI CHUCKA, Cæsalpinia sappan.

PATTENS, Arab. Kulkal, worn in all eastern countries.

PATTEOON, Duk. Euphorbia neriifolia.

PATTERI: also piger, Mal. Borax.

PATTEUN or P'tun, Duk., Hind. Euphorbia nivulia, *Buch.*, *W. Ic.*

PATTI, Tel. Gossypium herbaceum, *L.*

PATTI or Chinapati, in the eastern Panjab, residence of Chinese hostages in time of Kanishka.

PATTIALA, its Maharajah aided with supplies in the revolt of 1857 when before Delhi. He was elected a member of the Viceroy's council and proposed a bill prohibiting the killing of cows.

PATTICARAMU, Tel. Alum.

PATTI KASHMIRI, Hind. Rhododendron campanulatum.

Sitawur patti, is Asparagus punjabensis.
Gillar pattr, is Laminaria, *sp.*
Tarar pattr, is Dioscorea deltoidea.
Til pattra, is Marlea begonifolia.
Tre pattra, is Trifolium pratense.
Tri pattra, is Marsilea quadrifolia.

PATTI KARPASAMU, Tel. Gossypium indicum, *Lam.*

PATTI VAYNGU, Mal., one of the inferior sorts of jungle-wood: of little use or value.—*Edye, M. & C.*

PATTRA, Sans. Aristolochia bracteata, *Retz.*, *Roxb.*

PATTRA, Hind., of Muzaffargarh, palm leaf fibre.

PATTUNGA CUTTAY or Vattunga cuttay, Tam. Cæsalpinia sappan wood, used for dying cotton, cloth, mats, &c., of a bright red colour. The dye is fixed by means of the Chebulic myrobalan and alum.—*Ains. Mat. Med., p.* 204.

PATTUNGH, Tam. Cæsalpinia sappan, *Linn.*, *Roxb.*, *W. and A.*

PATTU TIGE or Bhu sarkara, Tel. Niebuhria oblongifolia, *DC.*

PATTU, Hind., white woollen cloth. A blanket or wrapper made of pattu, a breadth of woollen cloth sewn together.

Pattu abshar, Hind. Striped woollen cloth.

Pattu chet, woollen cloth stamped with a woollen pattern.

Pattu-dahzang, cloth made at Dahzang near Ghazni.

Pattu-foduk, a Ladakh woollen fabric.

Pattu ramnagri, the pattu fabric made at Ramnagar.

PATU, Hind. See Asta, Patoo.

PATU, see Veddha.

PATUAH, or Juanga, a forest race inhabiting the Tributary Mahals, to the south of Singhboom in Cuttack, scattered in the Mahals or Killahs of Keonjur, Pal Leyra, (30 villages,) Dhekenal (6 villages,) and Hindole 6 villages. In Dhekenal alone their numbers are stated at 1,005 persons. The stature of the men does not exceed 5 feet 2 inches and in the women 4 feet 3 inches or 4 feet 4 inches. Their forms are slight with little muscular developement, and physique weak. Their face is shorter and broader than that of the Uriah, nose is flat and nostril wide. Their colour is not darker than the Uriah peasant. The men are not handsome, but the women are repulsively ugly. The men dress like the peasantry of the neighbourhood, but all the covering of the women consists of two bunches of twigs with their leaves attached, one before and one behind, which are changed daily, kept in their position by a strip of bark or a string of glazed earthenware beads passed twenty or thirty times round the waist and over the stems of the twigs, hence the name of the tribe, Patuah, literally people of the leaf, but they call themselves Juanga. The women also wear necklaces of the same kind of beads, and their hair is gathered together in a knot at the back of the head fastened by a string with a silver or brass button at each end of it. The women wear no blanket or covering at night but sleep between two fires. Their traditions are to the effect that they were formerly vain of fine dress and were wont to lay aside their good clothes to prevent them being soiled, and wear such leaves when attending to the cleaning of the cow-house or other duty, when one day, a Thakurani or according to some, Sita, appeared and commanded them as a punishment for their vanity always to wear such leaves. Dr. Shortt mentions that the legend of Killah is that a Rishi commanded them to wear the leaves. They believe that if they violated these commands they would be devoured by tigers. Women dance in a circle to the noise of a large drum beaten by the men, moving round and round in the same measured step, occasionally advancing towards the musicians and then retreating, but keeping the body inclined towards the musicians. Their villages are in some clearing or opening in the forest; are small with about 6 or 8 families in poor and mean thatched huts of wattle and dab, each family in its own dwelling. They have no lands, but sometimes assist in the cultivation of the neighbourhood. Their avocations are chiefly those of the chase, using the bow and arrow and dogs; they kill deer, hogs and not unfrequently snakes, of the flesh of which, especially that of the Python molurus, they are very fond. Except the cow, they are omniverous. Their usual food is insipid and nauseous roots (tunga, kurba and panialu,) and the seeds of the jungle grasses. They all call themselves pudhan, and have no system of caste. If they have any worship, it is one inspired by a desire to avert evil; they, however, deny that they worship any deity or have any image, but they pay homage to nameless spirits who inhabit the woods and mountains, and make offering of a fowl, a goat or rice or spirits to the genus loci. In the month bysakh, they offer libations to the manes of their deceased ancestors. They bury their dead. Marriages are arranged by the parents and are scenes of revelling and drunkenness. They adhere to one wife unless she prove unfruitful; like many hindoos, they will not pronounce their wives names. Their language is not similar to Uria. They are perhaps only an offshoot from some of the forest races occupying the mountainous region from Mirzapore to the shores of the Bay of Bengal. The Kurambar women of the Wynaad and the Chenchur of Masulipatam and Guntoor, are said to have all the same costume. And the Holier, a degraded race near Mangalore, are said to have worn the same but have now a cloth in front.—*Mr. Samwells, in Ben. As. Soc. Jour. No.* iv, *of* 1856.

PATU-GALI-GITSA, Tel. Crotalaria retusa.

PATULEE, Beng. Bignonia suaveolens, *Roxb.*

PATUN CITY occupies a rising spot of ground, situated about two miles S. by E. of Khatmandoo, and close to the confluence of the Munnohra, Tookcha, and Bhagurutty rivers. The figure ascribed to it, is that of the Chucro, or wheel of Narain. Patun is called Yellodaise by the Newart; and it is likewise occasionally distinguished from Deo Patun, by the appellations of Lallit-Patun and Lall-Patun. It is a neater town than Khatmandoo.

PATUNGH, Tam. Cæsalpinia sappan, *Linn.*

PATUREA, a river of Kotah.

PATWA, Hind. The red juicy calyx of Hibiscus subdariffa used for making jelly, &c.

PATWA MAWAL, also Ada, Tel. Bauhinia racemosa. See Maljhun.

PATWARI, Hind. A village accountant, responsible for keeping the accounts of the village, noticing changes in the list of proprietors, and accounting between the head man or lamberdar and the proprietors for the share of revenue paid by each.

PATTY, and Pajel, or short and pointed headed, and Wallampory, the right-hand chanks. Bertolacci mentions, as a peculiarity observed by the Ceylon fishermen, that all shells found to the northward of a line drawn from a point about midway from Manaar to the opposite coast of India are of the kind called "patty," and are distinguished by a short flat head, and all those found to the southward of that line are of the kind called "pajel," and are known from having a longer and more pointed head than the former. The "Wallampory or 'right-hand chanks,' are found of both kinds."

PAUCHI MANU, or Pauchinon, Tel. Anogeissus acuminatus, *Wall.* Conocarpus acuminata.

PAUCHONTEE, or Indian gutta tree, Isonandra acuminata, *Lindl.*, interesting in an economical point of view, is common in the densely crowded tracts of Coorg, abounding at the foot of the ghats N. E. of Trevandrum, the eastern part of Wynaad, Anamally mountains, and Cochin territories, from lat. 8° 30′ to lat. 10° 30′, and at an elevation of 2,500 feet to 3,000 feet above the level of the sea. It attains a height of 80 to 100 feet, and a diameter of 2 to 4 feet, and it rises up to a great height without giving off any branches. It is the Pauley tree of Wynaad, and the Pauchontee tree of Cochin; it belongs to the natural order Sapotaceæ, and has a close affinity to the gutta-percha tree of the Malayan peninsula. It yields a milky juice which concretes, and is brittle at an ordinary temperature. It softens by the heat of the hand and mouth, and may be moulded between the fingers. It readily melts by the application of heat, and becomes very sticky. This stickiness is gradually destroyed by contact with water. It forms a paste with coal-tar, naptha, and oil of turpentine. The substance has excellent insulating powers, and may be used successfully for coating the wires of telegraphs. It is probable that at present several thousands of these trees fall annually under the axe of the wood-cutter, as the Government forests in Wynaad give way to the extension of coffee-planting, and the private forests in Malabar to raggi cultivation. In 1855, General Cullen forwarded a drawing and description of it. The wood of the Pauchontee tree is in gravity not less than 55 lbs. the cubic foot, and a bar of one inch square, with 18 inches clear of the supports, at each end, broke with a long fibrous fracture, after a weight of 440 lbs. had been imposed:—though not till this weight had for some minutes been suspended from the bar. This tenacity, is as high if not higher than that of teak. A tree when tapped, two taps at every three feet, from the base to sixty feet high, or 40 taps in all, yielded in twelve hours about eight pints or pounds of the sap. The exudation from the trunk has some resemblance to the gutta-percha of commerce. According to General Cullen, in 5 or 6 hours upwards of 1½ lbs. was collected from 4 or 5 incisions in one tree.

The tree abounds in the Cochin Sircar territory and on the cardamum table-lands of Travancore, and at the Pool on the summit of the ghauts above Chocuraputtee, it appears to be common in all the forest tracts at all within the influence of the S. W. rains.—*Report of the Madras Museum of* 1856.

PAUDY PAVEL of Hort, Mal. Momordica charantia.

PAUJALIN, Javan. Ratan.

PAUK-BAN, Burm. Agati grandiflora, *Desv., W. & A.*

PAULASTYA, see Kuvera.

PAULLINIA ASIATICA, *Linn.* Syn. of Toddalia aculeata, *Pers.*

PAULOWNIA IMPERIALIS.

Tung,	Chin.	Peh-tung,	Chin.

A tree of China, furnishing an excellent timber, much prized for musical instruments. The large cordate-leaves are used as a wash for sores and to strengthen the hair when turning grey. Bark vermifuge and diuretic.—*Smith.*

PAUMBEN, in lat. 9° 17′ N., long. 79° 14′ E., is a small town on the western end of the island of Ramisseram. The Paumben Channel is betwixt Hindoostan and Ceylon. Operations for the widening of it, were undertaken by Col. Monteath and described in Mad. Lit. Trans., Vol. vi, 3. The Paumben channel is between the islands of Ramisseram and Manaar. These two almost connect Ceylon and the Continent and form what is known as Adam's Bridge at the head of the Gulf of Manaar. By a long continued series of operations from 1838 to 1856, this channel was deepened by the Madras Government to thirteen feet of water. See Ramisseram, Adam's bridge.

PAUNA-THA, Burm. Laurus nitida.

PAUNCHA-TIGA, Tel. Cassyta filiformis.

PAUNCHE, Hind. Woollen leggings made by women in Kulu.

PAUNI, Hind. A kind of cotton cloth, also a cullender or straining-ladle.

PAUNDA, Hind. Saccharum officinarum.

PAUNDRA VARDDHANA, or Pubna.

PAUNDU, a dynasty of Indraprashtha or Delhi. It was continued from the line of Puru of the Chandravansa or Lunar line, and collateral with the Magadha princes, descending from Jarasandha: Colonel Tod makes four dynasties of the Indraprashtha sovereigns, the last king of the fourth dynasty being Rajpala, who invaded Kemaon, and was killed by Sakwanti, who seized on Indraprashtha, whence he was expelled by Vikramaditya. Major Cunningham mentions that in the year 60 B.C., Delhi taken by Sakaditya or Sakwanti: B.C. 57, was retaken by Vikramaditya Sakari.—*Thomas' Prinsep, Vol.* ii, *p.* 239. See Pandu. Pat.

PAUPOY. MALEAL. Carica papaya.

PAUSRA, a shrub; wood used as fuel, and the leaves as fodder for cattle.—*Commr. Jullr. Divn.*

PAUSSIDÆ, a family of insects, comprising the genera,

Cerapterus,	*Swed.*	Westermanni,	*West.*
Pleuropterus.	*West.*	Paussus,	*Linn.*

PAUSSUS JERDANI, *Hope.* A native of the East Indies. Length three lines. Mr. Westwood mentions that there were then sixty-two known species, a great portion of which belong to the East Indies. They frequent ant-nests.

Merismoderus bensoni, *West.* Cawnpore, Saharunpore. Length 3 lines.

PAUT, BENG. Corchorus olitorius. See Dhunchee.

PAVA-KAI, TAM. Momordica charantia, *L.*

PAVALAPULA, TAM. Melanthesa rhamnoides, *Retz.*

PAVALUM, TAM. Coral.

PAVANA, is the hindoo god of the winds, and is by some represented sitting on a deer, holding in his hand a hook for guiding the elephant.—*Cole's Myth. Hind. p.* 111. See Hanuman, Jain, Pandu, Polyandry, Rama, Saraswati, Vahan.

PAVATTY-KAI, TAM. Pavetta indica.

PAVAY-KAI, TAM. Momordica charantia.

PAVEL, MALEAL. Momordica charantia.

PAVETTA? TAM. Pavetta tomentosa.

PAVETTA, a genus of plants of which Wight names in Icones, Pavetta breviflora, Brunonis, Indica, Rothiana.

PAVETTA ALBA, *Vahl.*, syn of Pavetta indica, *Linn.*

PAVETTA INDICA, *Linn.*: *W. & A.*

Pavetta alba,	*Vahl.*	Ixora pavetta,	*Roxb.*,
Ixora paniculata,	*Lam.*		*Rheede.*
Kukura chura,	BENG.	Pavatti maram,	TAM.
Kakra,	HIND.	Papatta chettu,	TEL.
Malia mothi,	MALEAL.	Nune papata,	„
Pappana,	SANS.	Papata: Tella papatu,	„
Pavetta,	SINGH.		

The Fruit.

Pavatty kai,	TAM.	Paputta kaia,	TEL.

An ornamental shrub 4 or 5 feet high with white flowers, timber very small. The berrics are not very palatable. In Ceylon, very abundant up to an elevation of 3,000 feet. β var. Ambagamowa district. γ var. Common at an elevation of 3,000 to 4,000 feet. a third var. occurs at Batticaloa.—*M. E. J. R.*; *Ainslie, p.* 243; *Thw. Enum. Pl. Zeyl.*, ii, *p.* 155.

PAVETTA TOMENTOSA, found at Tavoy, flowers resembling a white ixora.—*Mason.*

PAVETTA VER, MALEAL, root of Pavetta indica.

PAVETTA WIGHTIANA, *Wall.* Syn. of Stylocoryne webera, *A. Ridi.*

PAVIA, a small division of the natural order Æsculaceæ, differing from Æsculus in little except its conversing petal and spineless fruit. It consists of small trees or bushes with yellow or red flowers, inhabiting North America, where they are called Buck's-Eye Chesnuts. They are often cultivated in shrubberies under the name of the Yellow or Scarlet Horse-Chesnut. Two species, P. indica and P. punduana, have also been in the colder parts of India.

PAVIA INDICA, *Wall.*

Indian Horse-Chesnut, ENG.

Ban-akhrot,	PANJ.	Kanor knor,	PANJ.
Hane,	„	Kanur,	„
Hanudan,	„	Torjaga,	PUSHTU.
Gugu, gagai	CHENAB.	Jauz makkaddam,	„
Gun, guah; juah,	KULU,	Himalayan Horse Chesnut,	ENG.
Pu	of Kanawar,		

This fine picturesque tree grows in most of the higher hills, Cis and Trans-Indus, at from 4,000 to 9,000 feet, is found in the Sutlej valley between Rampur and Sungnam at an elevation of 5,000 to 8,000 feet, and attains girths up to 10 and 15 feet. The wood is light coloured and easily worked but is not much valued, being used for ordinary building purposes, packing cases, water troughs, tea boxes, rough pattern making. Some of the Tibetan drinking cups are made from it. Seeds eaten in time of scarcity. The Indian horse chesnut is a lofty and not less ornamental tree than the common horse chesnut, abundant in Kulu and other parts of the hills, from 6,000 to 8,000 and 9,000 feet; and is found on the mountains at elevations of from 8,000 to 10,000 feet, in Kemaon, Gurhwal and Sirmore, also near the sources of the Ganges and in Kanawur. The seed contains a large proportion of fecula, and though combined with some bitter principle, is eaten in the Himalaya. The root called Jauzmukaddar bankhor, is used for horses in cholic, and is recommended as an external application in rheumatism. The wood is white and soft, sometimes used for furniture, and turns well in the lathe. It is a beautiful tree, yielding a grateful shade; the seeds are eaten by the hill people in times of scarcity but require long maceration in water first, as they are very acrid. Grows to a very great size and strength; wood soft and strong, of a white colour, veined, fine grained; polishes well; used for building and cabinet-making purposes.—*Royle's, Ill. Him. Bot., p.* 135; *Powell's Handbook, Vol.* i, *p.* 330; *Balfour, p.* 185; *Commr. Jullundur Division*; *Dr. J.*

L. Stewart ; *Dr. Cleghorn's Panjab Report, pp.* 32, 64.

PAVILA KURA, Tel. Portulaca meridiana, *L.*—*R.* ii. 463—*W* and *A.* 1108. Roxb. iii, 47, applies the name Pavila to a sp. of Ruellia or more properly Lepidagathis.

PAVITRA, Sans. Zonar.

PAVO CRISTATUS, *Linn.* Peacock.

Mab-ja,	Bhot.	Pavon, pavone,	It.
Paon,	Fr	Pavo,	Lat.
Pfau,	Ger.	Mong-yung,	Lep.
Taon, Taos,	Gr.	Pavon,	Sp.
Mohr, mor,	Hind.	Myloo,	Tam.
Manjur	„	Nimili,	Tel.

The head is surmounted by an aigrette of 24 upright feathers. In the male the tail-coverts consist of feathers with loose barbs and of unequal size, the upper one shortest, each terminated by numerous eyes or circlets of a metallic iridescent brilliancy; these the bird has the power of erecting into a circle or wheel, which presents, when the sun shines on it, an object of dazzling splendour. The female has the aigrette, but has not the splendid ornament with which the male is gifted; her colours generally are sombre. This species is spread over India, it is readily domesticated, and many hindoo temples have considerable flocks of them.' The bird as domesticated in Europe, is identical with the wild bird of India. Col. Williamson, in his account of peacock-shooting, states that he had seen about the passes in the Jungletery district surprising quantities of wild pea-fowls. Whole woods were covered with their beautiful plumage, to which the rising sun imparted additional brilliancy. 'I speak within bounds,' continues Colonel Williamson, "when I assert that there could not be less than twelve or fifteen hundred pea-fowls, of various sizes, within sight of the spot where I stood for near an hour."—*Eng. Cyc.* See Pecock.

PAVO JAPONENSIS, *Aldrov.*

P. Javanicus, *Horsfield.*

Prevailing tints blue and green, varying intensity and mutually changing into each other according as the light falls more or less directly upon them. In size and proportions the two species are nearly similar, but the crest of P. javanicus is twice as long as that of P. cristatus, and the feathers of which it is composed are regularly barbed from the base upwards in the adult bird, and of equal breadth throughout. Head and crest interchangeably blue and green.—*Jerdon.*

PAVO MUTICUS, *L.*

P. assamicus, *McLelland.*

Is found in all the countries from Assam through Burmah to Malacca, and the islands. It has spurs, its crest is composed of about ten or more slender barked feathers. It has more green and gold and less blue in its plumage than P. cristatus.—*Jerdon Birds of India.*

PAVONIA ODORATA, *Willd.*

Pavonia sidoides, *Horn. D.C.*
Hibiscus odoratus, *Roxb.*
„ chitlbenda, *Roxb.*

Bulla,	Sans.	Mutopolaghum	Tel.
Perimutie pu,	Tam.	Chitti benda,	„
Erra kati,	Tel.	Muttava-pulagam,	„

Major Moor alludes to this flower in his Hindoo Pantheon, under the name of Bela, and which he erroneously supposes to be that of a species of Jasamine. It is a most delightful smelling flower, and is one of those with which the arrows of Kama, the god of love, are said to be tipped.—*Ains. Mat. Med., p.* 163; *Moor, Pantheon, p.* 450. See Kama.

PAVONIA ZEYLANICA, *Cav., Roxb., W.& A.*

Hibiscus zeylanicus, *Linn., Roxb.*

Sitramuti,	Tam.	Tsinna mutapolgum,	Tel.

Grows in southern India and is used in infusion, in fevers.

PAVONIA SIDOIDES, *Horn. D.C.* Syn. of Pavonia odorata, *Willd.*

PAVONINÆ, or pea fowl, a sub-family, of the Phasianidæ, includes

Pavo cristatus, *L.*
„ japanensis, *Bennett.*
„ muticus, *Linn.*
Polyplectron tibetanum, *Temm.*
„ lineatum, *Hardw.*
„ bicalcaratum, *L.*
„ napoleonis, *Massena.*
„ emphanum, *Temm.*
„ chalcurus, „
Argusanus giganteus; „

PAVO or Puvarasa marum, Tam. Thespesia populneus.

PAWA or Padraona, an ancient city on the Gandak river. See Topes.

PAWANG. The Rev. P. Favre, Apostolic Missionary of Malacca, mentions that the Pawang are priests, teachers, physicians, and sorcerers. Under any of these titles they have not much to do amongst the members of their own nation; many of them do not believe that the Pawang have any supernatural powers as sorcerers or as priests, nor do they attribute any efficacy to the acts they perform under these two titles. The functions of priests amongst them consist only in performing some superstitious practices as they have no true and real worship. Amongst the Malays their skill is much in honour, and their persons objects both of veneration and of fear. The Malays have a firm faith in the efficacy of the supplications of the Pawangs, and an extraordinary dread of their supposed supernatural power. The Malays imagine that they are endowed with the power of curing every kind of sickness, and of killing an enemy however distant he may be, by the force of spells; and with the gift of discovering mines and hidden treasures. It is not uncommon to see Malay men and women, at the sight of a Binua Pawang, throw themselves on the ground before him.—*Journ. Ind. Arch.*, *Vol.* iii, *No.* 2 *Feb.* 1849, *p.* 155.

PAWANNE, Hind. Clematis nepalensis; also Boucerosia aucheri.

PAWIN, see Kathi.

PAWNEE TRIBE, see Hindoo.

PAYA, Nepalese. Puddiem tree.

PAYA, see Semang.

PAYANI, Maleal. Vateria indica.

PAYASA, in brahmanism, sacred food, consisting of rice and milk. It is prepared at brahmanical sacrifices.

PAYASA-HOMA. A hindu sacrifice with ghi and fire, a hindu sacrifice with rice and milk, but products of the cow are mixed with them.

PAYA-TULLO, Hind. Beesha rheedii.

PAYMUSTE, Tam. Argyreia malabarica.

PAYA-VERA, Maleal. Cassia occidentalis, *Linn.*

PAYA WOOD, or Paya kurra. Tel.

PAYEN ANBHAT, Burm, Ambergris.

PAYEN-DWEN, Burm. Amber.

PAYN-GUNGA, tributary to Wein-gunga. Lat. 20° 32', long. 76° 4', in Candeish course, is very circuitous, but generally East, into Wurda. —Length, 320 miles. Receives the Araun, 105; Koony, 65 miles; about 8,000 square miles drained.

PAYONG, Jav. Umbrella. See Payung.

PAYND K'HUJUR, Duk. Phœnix dactylifera.

PA-YOK, also Paroak, Burm. Camphor.

PAYR EETCHUM, Tam. Elate sylvestris.

PAYER-EETCHUM PULLUM, Tam. Fruit of Phœnix dactylifera.

PAYRIN-TUTHI, Maleal. Abutilon indicum, *G. Don.*

PAYSH-QABZ, a particular kind of dagger.

PAYTARA, a large, or Paytaree, a small rattan box.

PAYUDA KHAN, see Khyber.

PAYUNG in Malay and Javanese, and Songsong in Javanese only, an umbrella. Among the civilised nations of the Malayan Archipelago, this is the universal badge of rank from the prince to the humblest office-bearer and stands instead of the crowns, coronets, stars and ribbons of the nations of Europe. The quality of the party is expressed by its size, colour, or material.—*Crawfurd's*, *Dict.*, *p.* 330.

PA-ZAHER-KANI, Pers. Bezoar.

PAZEB, Hind. A foot jewel.

PA-ZEND. The book containing the religious code of the present Parsees is called the Vendidad. It has undergone three various processes of composition of the Avesta, Zend, and Pa-zend. The Avesta is of very ancient date, and is the groundwork of the present Vendidad, though all of it almost is post-Zertushtrian. In the course of time, several explanations and interpretation of the laws were made, which acquired as much force as the original, and were incorporated with it. This is the Zend, and the incorporation of further explanations was styled the Pa-zend. Avesta means direct higher knowledge, divine regulation. Zend means the explanation of this, and Pa-zend the supplement to the Zend or further explanation of the Zend doctrine. All the three steps exist in the present Zend Avesta, or more properly Avesta Zend.—*Bunsen.*

PE, Hind. Lahaul, Picea Webbiana, Picea pindrow, the silver fir.

PE, in the weights of Burmah, is the 1-20th part of a kyat or tikal.

PE, Tam. Wild, uncultivated, a devil.

PEA.

Tsing-sian-Tau	Chin.	Kachang,	Malay.
Wan-tau,	„	Kirseneh,	Pers.
Erwten,	Dut.	Goroch,	Rus.
Pois,	Fr.	Harenso,	Sans.
Erbsen,	Ger.	Pesoles, Guisantes,	Sp.
Buttana,	Guz., Hind.	Puttani,	Tam.
Bisi, Piselli,	It.	Gundu Sanighelu,	Tel.
Wan,	Jap.	Burtshak,	Turk.
Pisum arvense,	Lat.		
P. sativum,	„		

The pea is grown as a vegetable throughout all the southern and eastern parts of Asia, wherever Europeans reside. It is a well-known leguminous plant, of which two species are commonly distinguished in Britain; the grey field pea, and the white or yellow pea. Of these two species there are many varieties. Leguminous crops are very extensively cultivated in India. The large white, green, and brown, are now the common pea in the Deccan; the latter sort are boiled and eaten often in the shell. Peas may be sown there in the beginning of June, and continued at pleasure until February, when the weather becomes warm and the stalks dry up, although Dr. Riddell had known peas to be had much later in the sheltered gardens in the city of Aurungabad. The method of sowing is very simple; they should not be too thin, or placed deeper in drills than two inches, and a space of three feet between the rows. The first crop in double rows, with a space of a foot between: when they are ready to climb, earth up both sides well, leaving room for the water to run in the middle. Then place good strong sticks in the centre of the rows, and on the outer side of each lay good old manure, after which little trouble is required. Keeping them free from weeds is of course essential, and to preserve the seed, take care and remove any of the plants that appear of a different kind when in blossom; also draw out all the thin and bad-looking plants, to prevent the pollen impregnating the good, and if this seed be the produce of the rain crop, you will find that if sown again in the cold weather they will be much finer and last longer than the seeds of the former season. For late crops, put down in single rows, and in lines from east to west: this enables the sun to act upon the whole, and tends to prevent mildew from damp on the stalks. In growing crops that you do not intend to stick, it is advisable to put brushwood on one side for them to creep over, and prevent much loss in seed from damp and otherwise. The kinds that grow best at Madras are the Bangalore and Cape seed, sown in drills after the heavy rains are over. The best manure for this vegetable is street sweepings and wood ashes: do little good at Madras after the middle of February. May be sown successively once a fortnight during the cold-months. The Japan pea has been introduced into the United States, and returns two and three hundred per cent.—*Agricultural Report for* 1854 *from Commissioners of Patents to House of Assembly*; *Faulkner*; *Riddell*; *Jaffrey*.

PEACH, Amygdalus persica.

Khookh,	AR.	Shaft-aloo.	HIND., PERS.
Sien-kwo.	CHIN.	Aroo.	"

In the vicinity of Shanghae, is a fine and large variety of peach, which comes into the markets there about the middle of August and remains in perfection for about ten days. It is grown in the peach orchards, a few miles to the south of the City; and it is quite a usual thing to see peaches of this variety eleven inches in circumference and twelve ounces in weight. This is probably, what some writers call the Peking peach, about which some exaggerated stories have been told. Trees of the Shanghae variety are now in the garden of the Horticultural Society of London. In China, Yu-t'au is the nectarine; Ping-t'aù and Hoh-t'au are names of the flat peach, and the Kin-t'au is a yellow-fruited peach. The peach was introduced into Europe from Persia, a country in which the fruit is very fine, and where both the free and cling-stone varieties are known, and called kulloo and kardee, the general name for peach, being Persian aroo; and Arabic khookh. They ripen well, and are of a fine flavour in Peshawur; also in the north of India, with the well-flavoured flat peach from China. With care, it succeeds also in the elevated land of Mysore; it is found wild in different parts of the Himalaya, as about Musooree, at elevations of 5,000 and 6,000 feet. In the district of Bissehur there is a distinct kind, called bhemee by the natives, Persica saligna, *Royle*, which though small, is juicy and very sweet. The nectarine is found in gardens in northern India, where it is called shuft-aloo, and moondla-aroo (smooth) though it does not perfectly ripen its fruit, nor is it known from whence it was introduced, though probably from Cabul. The apricot is very abundant around almost every village in the Himalaya rendering it difficult to ascertain whether it be ever found wild, as the trees remain the only vestiges of deserted villages. It has been supposed to be a native of the oases of Egypt, in consequence of its name burkook being probably the original of the old term apricoke and praecocia; but as that is its name in the Arabic language which prevails, like the apricot, over a great extent of the oriental region, the same name is likely to be everywhere applied to it. At Cabul it is said to be preserved in fourteen different ways, with and without the stones, or the kernel left, or an almond substituted. It is generally brought in this state into N. India, under the name khoobanee; the Arabic name is mish-mish; in Bokhara, where they are particularly fine, they are called bakur khanee. In the Himalaya the fruit is called zurd-aloo, chooloo, and chinaroo: in Kunawar the fruit is dried on the tops of their houses, and when pounded, mixed with their meal. It is chiefly cultivated on account of the beautiful oil which is expressed from the kernels. These may also be found in the bazaars, under the name of badamkohee, or hill-almonds. The oil has a slight smell of hydrocyanic acid, and must resemble that from almonds, especially the bitter kind, or that obtained from Prunus brigantiaca. Of other plants of the same order, the fruit of Cerasus puddum, common in the Himalayas, is not edible, but is employed for making a well-flavoured cherry-brandy, though not distilled like the kirschenwasser; the bark, puddmak, is used in medicine, as is that of species of cherry in the United States and Mexico, Cerasus undulata and capricida, the last so called from the leaves being poisonous to goats; and C. cornuta remarkable for its pod-like monstrosity, are handsome and showy trees growing on lofty mountains and worthy of introduction into England. Specimens of the plants from Cashmere appear to Dr. Lindley to be a new species, Prunus bokhariensis, *Royle*. To this kind kokamalis (kokumelea) is applied as the Greek name in Persian works on Materia Medica. From Irki, near Sabathoo, a small, yellow, thin-skinned and very juicy sweet plum was introduced into the Saharunpore garden and which, though considered by Dr. Royle to be a new species (P. aloocha), is very like a variety of the common plum. It is this, probably, which is called green-gage by travellers. Mr. Moorcroft, also mentions a plum in Ludak, Cerasus tomentosa. The Peach is supposed to be a modified almond under cultivation, and though many hundred varieties have been produced, the Peach and the almond are believed by Professor Koch to be of the same stock.—*Wall. Cat., No.* 715; *Royle, Ill. Him. Bot., p.* 204, 205.

PEACH GUM.

T'au kiau, CHIN.

In China employed medicinally.

PEACH PALM, Guilielma speciosa, the "Pupunha, produces an agreeable fruit of a red and yellow colour."—*Seeman.*

PEACH WOOD of Nicaragura. An inferior kind of brazil-wood, used to dye a fugitive "fancy red."—*Waterston, Faulkner.*

PEACOCK.

Pea-fowl,	ENG.	Marak,	MALAY, JAV.
Paon,	FR.	To-gei,	MALEAL.
Pavo,	LAT.	Manura,	SANS., JAV.
Pfau,	GER.	Sikhin,	"
ταως,	GR.	Tokei,	SINGH.
Tukeyiun,	HEB.	Maĭl,	TAM.
Tukhi-im,	"		

There are three species of peafowl known in India, Pavo cristatus, P. japanensis and P. muticus, *Linn.*, the former of British India, the latter from Assam to the Archipelago, confined to Java, Sumatra, and the Malay peninsula, and has never been domesticated by the natives of the Archipelago. The two wild species P. cristatus, and P. muticus are recognized and Mr. Sclater has lately named P. nigripennis or Japanned Peacock, but its country is unknown. Peacocks are called in Hebrew tukhi-im, and this finds its explanation in the name still used for peacock on the coast of Malabar, togei, which in turn has been derived from the Sanscrit sikhin, meaning furnished with a crest. In many parts of India, they live in a semi-domestic state in and about the villages. Being deemed sacred they are unmolested. The Peacock is said to have been introduced to Europe by Alexander the Great. Peafowl were so rare in Greece that a male and female were valued at Athens at a thousand drachmæ or £32-5-10. Samos possibly was the next place they were known at, where they were preserved about the temple of Juno, being a bird sacred to that goddess, but their use was afterwards permttted to mortals, for Gellius, in his Noctes Alticæ, c. 16, commends the excellency of the Samian peacocks. They were, however, known in Judæa many years before the days of Alexander. The peacock was a favourite armorial emblem of the Rajput warrior; it is the bird sacred to their Mars (Kumara), as it was to Juno, his mother, in the west. The feather of the peacock is used to decorate the turban of the Rajput as that of the warrior of the Crusade, adopted from the hindoo through the Saracens. "Le paon a toujours ete l' embleme de la noblesse. Plusieurs chevaliers avaient leurs casques des plumes de cet oiseau, un grand nombre de families nobles le portaient dans leur blazon ou sur leur cimier, quelques uns n'en portaient que la queue. A bunch of peacock's feathers is still the implement of conjuring and is carried by mendicants in India who pretend to skill in magic, it is especially borne about by Jaina vagrants. The peacock enters into the hindoo mythology. Siva, for the amusement of Parvati his bride, originated a particular dance, to the musical accompaniment of the tabor, struck by his attendant Nandi. His sons were present: Kartikeya mounted on his peacock, and Ganesa with the head and trunk of an elephant. Siva is embellished with a collar of the hooded snake twining round his neck and surmounting his head. The peacock is supposed to be particularly delighted by the approach of the rainy season, and the bird of Kartikeya, mistaking the deep sound of the drum for the rolling of thunder indicative of a storm, screams with delight. The peacock is considered the natural enemy of snakes, and the snake of Siva alarmed at the approach of his mortal foe, deserts his place on the neck of the deity, and makes for the first hiding place he can find. This happens to be the tip of the Ganesa's elephant trunk; his entrance into which disturbs the bees that are supposed to settle on the temples of an elephant. The European fable of the jackdaw borrowing the plumage of the peacock, has its counterpart in Ceylon, where the popular legend runs that the pea-fowl stole the plumage of a bird called by the natives avitchia. Sir J. E. Tennent had not been able to identify the species which bears this name; but it utters a cry resembling the word matkiang! which in Singhalese means "I will complain," This they believe is addressed by the bird to the rising of the sun, imploring redress for its wrongs. The avitchia is described as somewhat less than a crow, the colours of its plumage being green, mingled with red. The wild pea-fowl of the jungles is a better bird for the table, and when young is no despicable food.—*Crawfurd's Dictionary, p.* 330; *Darwin, origin of species*; *Muller's Lectures, p.* 190; *Tod's Rajasthan, Vol.* i, *p.* 137; *Hind. Theat., Vol.* ii, *pp.* 10, 306; *Tennent's Nat. Hist., pp.* 244. *Art. Armoirie, Dict. de l'ancien Regime*; *Pennant's Hindoostan, Vol.* i, *pp.* 211, 212. See Sacti, Vahan.

PEAH SAUL or Yegasee. A timber of the Northern Circars.

PEA-NUT, ENG. Arachis hypogea, *Linn.*

PEAR.

Naspati,	HIND.	Nakh,	PUSHTU.

Fruit of the Pyrus communis, a tree of Europe and Kashmir.

PEAREA, a river near Dodur in Sindheah's territory.

PEARCE, a traveller from Antalo to Lake Ashangi.

PEARL.

Looloo; Lulu,	AR.	Maragdos, margarites,	GR.
Paarlen,	DUT.	Mutti,	GUZ.
Perles,	FR.	Moti,	HIND.
Perlen,	GER.	Perle,	IT.

Margarita,	LAT.	Maracata,	SANS.
Muti: Mutya: Mutiyara lulu,	MALAY.	Mootoo; Mutu,	SINGH.
Marwarid,	PERS.	Perlas,	SP.
Shemtschug, Perlii,	RUS.	Muttu,	TAM.
		Mutiamu,	TEL.

In Arabic poetry pearls .are fabled to be drops of vernal rain congealed in oyster shells. Benjamin of Tudela says that in the month of March the drops of rain water which fall on the surface of the sea, are swallowed by the mothers-of-pearl, and carried to the bottom of the sea, where being fished for and opened in September, they are found to contain pearls. The hindoos poetically describe them as drops of dew falling into the shells when the fish rise to the surface of the sea in the month of May, and becoming by some unexplained action of the sun's rays transformed into pearls. Pearls are produced when the transparent envelope of the animal, called the mantle, is wounded or irritated. There are small, boring worms, which pierce the shell and penetrate to the body of the animal. The mantle then sends forth a quantity of pearly matter over the wounded spot, and this becomes a little knob or pearl. It appears probable also that some minute substance, such as a grain of sand, may find its way into the shell and produce irritation, and that the animal, unable to expel it, renders it less injurious by covering it with calcareous matter. It is sometimes affirmed, that to produce pearls, the oyster must have received some external injury: and this is corroborated by the fact that nearly all the shells in which pearls are found are outwardly contorted, and that a smooth regular shell is a pretty sure sign of the absence of the pearl. It was therefore suggested to the Swedish government by the celebrated Linnæus, to pierce small holes in the shell of the freshly caught pearl oyster, and then restore it to its original bed. The experiment was tried, but without success. A somewhat similar plan is said to be adopted by the Chinese, and with favourable results. These ingenious people thread upon fine silk small beads of mother-of-pearl, and fasten them within shells of pearl oysters, when they rise to the surface of the water at the beginning of summer. The animals are then restored to their bed, where they soon cover the beads with calcareous matter, and thus convert them into pearls. Small pearls which have been immersed in acetous acids, and thus reduced to their membranous constituents, have the appearance of being formed of concentric coats of membrane, and carbonate of lime, thus resembling in composition the mother-of-pearl with which oyster shells are lined. Mr. Robert Garner, F. L. S., particularly examined those formed in the mantle of the Conway and Lancashire mussel,—not the beautiful pearls of the Alasmodon, from the upper Conway at Llanrwst, but those of the salt-water mussel: and he attributes the same origin to all pearls, the oxidation of a minute species of Distoma causing their formation, much in the same way that galls are formed in plants. In whatever way produced, pearls of considerable size, on account of their beauty and rarity, have been valued at enormous prices in past ages, and are still among the choicest objects of the jeweller's art. Their delicate and silvery lustre has been as widely celebrated as the brilliance of the diamond. The Meleagrina margaritifera furnishes the finest pearls and finest nacre. When secreted in the globular form it is the pearl, on the inner walls of the shell—the nacre. The pearl oyster is met with in the Persian Gulf, Arabian coast, the Japanese and American seas, on the shores of California, Australia, near the islands of the South Seas, Bay of Bengal, Ceylon, Gulf of Manaar, and near the mouth of the Indus. The Meleagrina margaritifera, or pearl mussel multiplies by means of what is technically called spat or spawn, which is thrown out in some years in great quantities —perhaps similar to the edible oyster of Britain which threw much spat in 1849, and not again until 1860 and not then up at least to 1866. The "spat" floats in and on the water and attaches itself to anything it comes in contact with, attaining it is said the size of a shilling in six months. In its seventh year, the pearl mussel attains its maturity as a pearl producer, pearls obtained from a seven year mussel being of double the value of those from one of six years of age. In mussels under years the pearls are not of any mercantile value and after 7 years the pearls deteriorate. Those from mussels of about 4 years old have a yellow tinge and the older kinds a pinky hue, but pearls of a red and even black as also with other colours are likewise met with. The Baghdad dealers prefer the round white pearl Those of Bombay esteem pearls of a yello hue and perfect sphericity, while other natio choose the gems with a rich pink colou There seem reasons to believe that the pea mussel spat is migratory, forming colonies places remote from the parent bed. Betwe the years 1732 and 1746, there was little pea fishing atCeylonand there were long suspensio between 1768 and 1796: between 1820 an 1828: and between 1837 and 1854. Th late Dr. Kelaart is stated to have been opinion that the molluscs are capable of leavin their shell. In the Persian Gulf, the pear banks extend three hundred miles in a straigh line and the best beds are level and of whi sand overlying the coral in clear water an any mixture of mud or earthy substance wit the sand is considered to be detrimental to th pearl mollusc. In the Persian Gulf, there is both a spring and a summer fishery and as many as 5,000 boats will assemble from Bahrein and the islands, and continue fishing from April to September. The amount of money derived in the pearl fisheries of the Persian Gulf, has been estimated at £400,000. The net revenue from that of Ceylon, from 1828 to 1837 was £227,131. Each Ceylon boat is manned with a crew of 23 persons, ten of whom are divers, two divers to each stone, of which there are 5 in the boat. When fishing for government or for a speculator, these receive three-fourths of all the produce. Pearls in some instance, though full of lustre without, are dead like a fish eye within, and vice versa. They occur of all colours, those of Asia, from the sea pearl oyster Meleagrina margaritifera, are found on the West Coast of Ceylon, in the gulf of Manaar, in the Persian gulf, in the Sooloo islands, near Papua and in the Red Sea. Off the coast of Ceylon, the fishing season is inaugurated by numerous ceremonies, and the fleet, sometimes of 150 boats, then put to sea. Each boat has a stage at its side and is manned by ten rowers, ten divers, a steersman and a shark charmer (pillal karras). The men go down five at a time, each expediting his descent by means of a stone 20 to 25 lbs. in weight, and holding their nostrils, gather about 100 shells in the one or two minutes which they remain under water. Each man makes 40 to 50 descents daily. The pearl oysters are thrown on the beach and left to putrify. In the Persian gulf, so many as 30,000 persons are said to be employed in the pearl fishery. According to European taste, a perfect pearl, should be round or drop-shaped; of a pure white, slightly transparent: free from specks, spots or blemish and possess the peculiar lustre characteristic of the gem. In India and China, the bright yellow colour is preferred. Cleopatra is said to have dissolved in vinegar, a pearl of the value of 150,000 aureos or golden crowns in the presence of Anthony and to have drunk it off, but it would have required a larger quantity and stronger acid than any one could have taken with impunity, to have done so. Cæsar is said to have paid a sum equal to £50,000 sterling, for a single pearl. The fellow-drop to the pendant destroyed by Cleopatra, is said to have been sawn in two by command of the emperor Augustus, and used to adorn the statue of Venus.

The pearls of Scotland, of the best kind, range in price from £5 to £50, but £100 has been paid for a fine specimen. A pearl is found in every thirteen shells, but only one in ten is saleable. The rose tinted pearl of Scotland is in large esteem amongst Paris ladies. Pearl fisheries exist in Ceylon, on the Coromandel coast, and in the Persian Gulf, the last-named being the most productive. Fisheries of less importance also exist in Algiers, and in the Zooloo islands. In Northern Queensland in 1873, a fleet of sixty schooners was engaged in the remunerative work of raising the mollusca, and one vessel alone realized in six months £8,000, the divers having raised 80 tons of pearl shell, and found over 150 pearls of large size. Two thousand years ago, the Romans found pearls in Britain, and in modern times the rivers of Scotland have afforded considerable quantities, though not of the best quality. Several rivers of Saxony, Silesia, Bavaria and Bohemia afford pearls, and they are also found in two or three Russian provinces. There are also pearl fisheries in the western hemisphere. The coast of Columbia and the Bay of Panama have furnished considerable quantities, but they are not considered equal to the pearls of the East in shape or colour. Pearls are found in China; and Marco Polo speaks of a salt lake, supposed now to be in Yunan, which produced them in such quantity that the fishery in his day was farmed out and restricted lest they should become too cheap and common, but such is not now the case judging from the numbers annually imported from India. The Quarterly Review speaks of an artificial mode practised by the Chinese of making pearls by dropping a string of small mother-of-pearl beads into the shell which in a year are covered with the pearly crust. Pearls, to the amount of £500,000, are annually brought to Canton; coral is also a part of cargoes from the Archipelago to China. The principal pearl fisheries are on the Coast of Madura, the Strait between Ceylon and the Continent, the Island of Bahrein, in the Persian Gulf, and at Hainan, on the Coast of China. The pearl divers pile the shells upon the shore in little pits, and cover them with sand, till the shell opens, and the fish is destroyed. The pearls are then procured, cleansed, and passed through a kind of sieve, according to their sizes: the smallest are denominated seed or ounce pearls, and are of very inferior value. The quality or value of pearls depends chiefly upon their size and colour. Their true shape is a perfect round. The colour should be a pure white; not dull and lifeless, but clear and brilliant; free from foulness, spot, or stain; surfaces naturally smooth and glossy. The shell, which has the mother of Pearl, is compressed and flat, nearly orbicular; the inside exquisitely polished, and of the whiteness and water of the pearl itself. It has the same lustre on the outside, when the external coats have been removed by aquafortis. It is used (especially by the Chinese and Japanese) in a variety of in-laying works, toys, &c.

Pearls worth fishing are found in the seas about the Arro Islands, and in those of the Sulu Archipelago, but none in size or quality to be compared with those of the Manar or Persian gulfs. Mother-of-pearl oysters are found in the same situations and on the coast of several of the Bisaya islands of the Philippines much more abundantly. From Manilla there are yearly exported about £200,000 pounds worth of them. In the Arro Islands on the coast of New Guinea, the great sources of wealth are the pearl and tripang banks, which lie on the eastern side of the group, and are often several miles in width, being intersected by deep channels some of which will admit vessels of burden. The pearl oysters are of several varieties; first, the large oyster with its strong thick shell from six to eight inches in diameter which furnishes the mother-of-pearl shell of commerce. These are obtained by diving and are highly prized, being nearly always in demand at Singapore for the European and Chinese markets. This oyster produces few real pearls, but gnarled semitransparent excrescences are occasionally found on the surface of the inner shell, which are so highly esteemed by the Chinese that they often fetch enormous prices. The other description is the small semitransparent pearl oyster, having the inner surface of the shell of a bluish tint. The shell is of small value as an article of commerce, but the oyster itself often contains pearls which although individually of no great value, are so numerous, as amply to repay the labour of collection. Pearls of sufficient size to undergo the process of boring are sometimes found, but the greater portion are what go by the name of seed pearls, and are only marketable in China, where they are much valued as a medicine when pounded and mixed with some liquid. The names for the pearl in Malay and Javanese, mute, mutya, and mutyara, are all Sanscrit, and it is not known that in any of the Malayan languages there are native names for it. Occasionally the Persian word lulu is used. The name for the mother-of-pearl oyster, indung-mutyara, is exactly equivalent to our own, for the Malay word indung signifies mother or matrix. From this we may suppose that both the pearl and mother-of-pearl were most probably made known to the Malayan nations by the hindoos. It may be remarked, that the pearl-fishing of the Sulu islands was certainly carried on before the arrival of Europeans, for they are mentioned by the indefatigable Barbosa. "Going on," says he, "in a northerly direction towards China, there is another island abounding in the necessaries of life called Solar (Sulu) inhabited by a gentile people almost white, and in person well made. They have their own proper king and language. In this island is found much gold by washing the soil, and over against it, the people go to fish small pearls, and even find occasionally larger ones, fine as to colour, and roundness."

Mankind had probably no sooner taken to the use of oysters as food than pearls were discovered and at no period could they be so rude as not to prize the beautiful animal gem: hence in the most ancient records which have come down to us we find the pearl enumerated amongst precious articles. *Job* xxviii, *Prov.* iii. In China, so early as twenty-two and a half centuries before the christian era, pearls are enumerated as tribute or tax: and at a later period they are mentioned in the Rh-ya (the most ancient of dictionaries compiled more than ten centuries before our era) as precious products of the western part of the empire. They are also mentioned as ornaments and as amulets against fire, &c. When western naturalists, adhering to Pliny, taught that the oyster produced pearls from the heavenly dew on which it fed, a Chinese writer plainly states that pearls are the result of discoriation in the shell. Fresh water pearls were first in use in China, but soon after the commencement of intercourse with the continent of the Indian ocean they doubtless got them from thence in greater abundance. It was very early that official intercourse first took place. The Emperor Wuh (140-86 B. C.) sent to the sea for the purchase of pearls. After the introduction of buddhism and when intercourse with India became more common, pearls were also frequently referred to in buddhist writings as ‘ ‘Moni pearls.” From one of these Moni pearls, the product of a dragon's tail, sufficient light was emitted to a cockatrice. A strange but not incredible story is given (806 A. C.) of a pearl as large as a pear which retained its lustre only three years, the result doubtless of molecular changes. Amongst the pearls of note is one of Japan as large as a hen's egg of remarkable lustre by night; of another sent to court in the middle of the eighth century of extraordinary brightness like that of the moon; and of another three inches seven-tenths in circumference which, with several others was sent up from Fokien probably derived from Ceylon. A curious account is recorded of an embassy sent in 1023, A. C., from Shiloch-ayenthoh by the king of Chinlicn by his ambassador named Puyahtoil and others with presents of a cup and saucer and of a quantity of true pearls: and thirty or forty years later tribute bearers again came from the same court and solicited that in their audience they might be permitted to follow the customs of their own country which was graciously accorded. On the day appointed, the messenger appeared at the door of the audience chamber kneeling and holding a golden tray containing pearls and golden figures of the water lily, and on approaching the throne they tossed the contents on the floor before the emperor which the courtiers instantly swept up and divided. They are noted as the most deferential of people. They must have been from some country which then existed in India or Ceylon or thereabouts. Marco Polo also mentions pearls in his work on China. At what period the Chinese fishing for pearls commenced cannot be ascertained except perhaps by reference to local topographical works which it is very difficult, nay almost impossible, to obtain. One account represents pearls as being found on the coast generally south of Canton. No particulars are given except of the fishery in the department of Lien-chan in the extreme southern part of the empire in the Canton province (Kwantung.) On the sea is an island on which there is a pool or lake which the district magistrate annually visits to receive the tribute; personally inspecting the operation. The pearl fishers dive into the lake for shells. The old shells are opened for pearls. The bottom of this lake is supposed to communicate with the sea—unfathomable in the centre—the crater probably of an extinct volcano; pearls as large as beans, sometimes an inch in circumference have been found. The young shells are strung on a bamboo stick and dried in the sun mixed with cassia : then roasted in some medicinal production : they contain pearls as large as millet, thus the womb of the shell is the flesh, either of the large or small kinds. Another account names the district in Lien-chan where the pearl fisheries are conducted. In the sea there is an island with a lake into which the barbarous natives dive for shells : some years they are abundant and in others scarce. There is a myth amongst the fishermen, of a walled city at the bottom, guarded by monsters, containing pearls of large size and splendour but which cannot be obtained for fear of the guards ; small ones growing outside the city walls like grass being the only ones obtainable. Another writer says, south-east of the Too city there is a smooth river with a sea (an island with a lake), Yuenmei river, containing large oysters having pearls. Visited by moonlight fishermen descend into the waters with a basket fastened to their waists : when they can hold their breath no longer they give a signal to be brought up. Voracious fish sometimes attack the divers when the rope floats upwards. Yung-tai-kei when at Canton appointed a Pearl-Inspector. The fishers would collect several baskets of sea plants, something similar to the willow which they detached from the rocks under water and brought them to the office. On the middle of these bushes were shells which contained pearls. Another writer says the rude sea people at Canton dive for pearl shells and cut them out; they leave their sea vessels in which they live and take to boats and then with a rope about the waist descend into the water ; when they require breath they make a signal and are aided up. It is stated that between 1403-25, in consequence of so many of the divers being devoured by the sand-fish (shark) or nothing left but their limbs, the fishers contrived an iron rake for gathering shells without diving, but they got a few only. Afterwards they contrived the method now pursued of a dredge or a scoop-like implement one on each side of the boat which as the boats sailed along gathered the shells." The above remarks are gathered from old native authors, but it is not likely that the pearl fishery exists at present at all in China, the places being exhausted as many others have been elsewhere. Were they now in existence they could hardly have escaped the notice of foreigners resident at Canton. These ingenious people were the first to devise methods to imitate the pearl. There is a note that at the commencement of the seventh century pearls were made of a composition of medicine. The art may have been lost or it may be the same as that now employed at, and which originated, at Canton, and which appears to resemble that pursued by the French, who however have carried the art to a very much superior degree of perfection.

Feeling much interest as to the method pursued by the Chinese with the Pearl Mussel in the winter of 1851-52 (in conjunction with a friend,) Dr. McGowan, an American Physician resident at Ningpo by whose assistance he has been enabled to put together the preceding data, the writer dispatched an intelligent native to Hoochow in the adjacent province about three days journey from Ningpo, where the manufacture of artificial pearls, &c., by means of the muscle fish is carried on to a great extent, and he succeeded in obtaining shells shewing the process during the different stages and also some live fish the first ever seen by foreigners. The fish are collected together in April or May and are opened principally by children who put a small bit of bamboo in the orifice : the elders then insert whatever they wish. The foreign substance made use of is composed of brass, bone, pieces of round pebble or mud. When the latter is used it is first well powdered, after which the pitch or juice of a tree is mixed with it to give it solidity. These are put indiscriminately into the mollusc and require nothing to keep them where they are placed, indeed it would appear that the molluscs have no power of themselves to reject anything which may be placed in them. After the fish have been operated upon, three spoonfuls of the scales of a fish, well powdered and mixed with water, are put into the smaller ones and five spoonfuls into the larger ones, the pieces of bamboo are then withdrawn and the fish are placed carefully in the ponds at a few inches apart. Some of the ponds being small will hold only about 5,000 fish but the larger ponds contain a far greater number. The water in the ponds does not require to be deeper than from three to five feet and in dry seasons water is occasionally worked with them from the canals which intersect the country in every direction for the irrigation of the land. Four or five times each year the ponds are well manured with night soil. The fish are generally taken out of the ponds after ten months, but if allowed to remain a longer time they come to greater perfection, three years being considered the maximum time. Several millions of these shells annually find a market at Hoochow; the price varies considerably, some being worth a penny the pair while others readily fetch eight pence the pair. The greater portion of the shells are sold to the dealers as they are taken out of the ponds but the Hoochow people prepare some few themselves and the price of each pearl or image ready for use is from one farthing to four pence. The shell is cut through with a fine saw as close to the pearl as possible the bit of shell which remains attached to the pearl is then removed as well as the brass, bone or whatever may be inside of it, white wax being substituted and at the extremity a piece of the shell is again placed so as to render the pearl as perfect as possible. There are only a very few pearls of the best description which no doubt arises from the haste in which the Chinese force them upon the market. It is several years since the attention of foreigners at Ningpo was drawn to the mussel pearl and previous to the discovery, most persons imagined the articles resembling pearls which the wealthy natives wear so prominently on their caps were real and valuable gems. The production of the artificial pearls is quite a trade in the neighbourhood of Hoochow whole villages being engaged in it: indeed it is stated that some 5,000 people find a livelihood by these means. The process was first discovered by Ye-jin-yang, a native of Hoochow, A.D. 1200, 1300. At his death a large temple was erected to his memory at a place called Seaou-shang about twenty-six miles from Hoochow. This temple is still kept up and plays are performed there every year to Ye's honour. A book is extant which contains every particular connected with this interesting subject but it could not be purchased. Mention of the art is made in the book of the district and of its producing an important article of commerce. The trade is a monopoly amongst a certain number of villages and families and any other village or family commencing it is required to pay for some plays at Ye's temple and likewise to subscribe something towards the repair of the temple. The Chinese in the south of Canton, also manufacture artificial pearls: the two provinces it is stated having exchanged their secrets many years ago, but the Hoochow people do not succeed very well with the Canton process, and there must be some very great peculiarity in either the climate or fish as it does not appear that the Canton people who are so noted for their perseverance with anything by which they can earn even a trifle have ever succeeded with the Hoochow method. From the circumstance of the trading junks both from the northern and southern provinces buying up all they can meet with in the shops at Ningpo, it would seem as though Hoochow was the only place in China where the trade is pursued. An extensive pearl fishery exists on the north-west coast of western Australia, extending for 1,000 miles along the coast. Pearls obtained from the banks at Perth are valued from £1 to £20 each. The pearl fisheries of western Australia appear to be still progressing favourably. One consignment to Melbourne from the banks consisted of twenty-five very handsome pearls, some of them perfect in shape and of a very fine colour. The largest were valued at £15 for the London market, the others at prices ranging from £8 to £15.

The Arabs of the Persian Gulf, according to Colonel Pelly, attribute the decay of the Sind and Ceylon fisheries to the mixture of mud and earthy substance with the sand of the beds. A late return from the Bahrein pearl fishery values the produce at twenty lacs of Rupees, and the other fisheries in the Persian Gulf yield an aggregate of other twenty lacs. Colonel Pelly suggested that a few hundred oysters from the Gulf should be transported to the Ceylon coast as an experiment. If the oysters survived and prospered, the Ceylon banks might be again stocked from the Gulf.

The mother-of-pearl oyster also abound, in the Sooloo Archipelago, and the pearl fishery of the Sooloo islands has been long known and highly valued: in proper hands it would be the finest in the world; but pearls are produced in plenty all along the northern coast.

Pearls, by the Japanese called kainotamma, which is as much as to say, shell jewels, or jewels taken out of shell, are found almost everywhere about Saikoko in oysters and several other sea-shells in Japan, and Thunberg relates that the natives had little or no value for them, till they were apprized of it by the Chinese, who would pay good prices for them, the Chinese women being very proud of wearing necklaces, and other ornaments of pearls. The largest and finest pearls are found in a small sort of oyster, called Akoja, which is not unlike the Persian pearl-shell, much of the same shape, both valves shutting close, about a hand broad, exceeding thin and brittle, black, smooth and shining on the outside, within pretty rough and unequal, of a whitish-colour and glittering like mother-of-pearl. These pearl-shells are found only in the seas about Satzuma, and in the Gulf of Omra. Some of the pearls weigh from four to five condonins, and these are sold for a hundred colans a piece. The inhabitants of the Riuku islands buy most of those, which are found about Satzuma, they trading to that province. Those on the contrary which are found in the Gulf of Omra, are sold chiefly to the Chinese and Tunquinese, and it is computed that they buy for about 3,000 thails a year. He says that there is another shell, which sometimes yields pearls, found plentifully upon all the Japanese coasts, and called by the natives Awabi. It is an univalve in shape almost oval, pretty deep, open on one side, where it sticks to the rocks and to the bottom of the sea, with a row of holes, which grow bigger, the nearer they come to the circumstance of the shell, rough and limy on its outward surface, frequently with corals, sea-plants and other shells sticking to it, on the inside of an exquisite mother-of-pearl glimmering, sometimes raised into whitish pearly excrescencies, which are likewise observed in the common Persian pearl-shell. A great lump of flesh fills the cavity of this shell, for which sole reason they are looked for by fishermen, being a very good commodity for the market. They have an instrument made on purpose to pull them off from the sides of the rocks, to which they stick close. Another shell, the name of which he could not learn, yields a very large pearl, which sometimes weighs from five to six condonins, but they are of a dirty yellow colour, ill-shaped, and worth but little. A pretty good sort of pearl, is sometimes observed to grow in the very flesh of a shell, which is called by the natives Tairaggi, and is found in the Gulf of Arima, between Janagana and Isafaje. It is a flat sort of a shell, oblong, almost triangular, a little crooked on each side, about a span and a half long, and a span broad, where broadest, thin, transparent, smooth and polished like horn, but very brittle.

Pearl-fishing is carried on at the Ceroo islands.

Pearl fisheries are, from time to time, undertaken on some points of the coast of the island of Mindanao, and some of the smaller ones, not far from that of Zebu, but with little success and less constancy, not because there is a scarcity of fine pearls, of a bright colour and considerable size, but on account of the want of skill in the divers, and their just dread of the sharks, which, in great numbers, infest these seas.

Pearls are fished up on nearly all parts of the Ceylon coast and are frequently large and beautiful, but the pearl fisheries for which the island is still famous have very much varied in their yield. The natives account for the diminution by declaring that the pearl oyster has the power of locomotion and has shifted its former quarters to some new ground not yet discovered. The scarcity is probably owing to the fact that the pearls have been disturbed before they have reached their full development which is said to require a period of seven years. Among the natives of Ceylon, a skilful diver can earn ten times the wages of a farm labourer. Detailed accounts of the pearl fishery of Ceylon have been given by the Count de Noe and others, who have had ample means of watching the operations of the pearl-divers during a residence in that island. The pearl oysters occur in banks at greater or less depth in the sea on the western side of the island of Ceylon, the average depth, however, being about 12 fathoms, and the distance from the shore about 15 miles. The right to fish on these banks is sold by the government every season, generally to one individual, who afterwards disposes of shares in the fishery to other parties. The biddings at the auction are regulated by the produce of some thousands of oysters taken from the beds at hazard. If the average quality of pearl contained in them be good, the competition is strong in proportion. The pearl fishery commences in April and lasts till towards the end of May. It attracts a concourse of visitors not only from the interior of the island, but from various parts of India, whose diversities of language, dress, and manners produce a striking effect. The sea-shore, at other times solitary, is, on the eve of the fishery, suddenly covered with innumerable huts, composed of a few poles stuck in the ground, inter-woven with bamboo and covered with the leaves of the cocoanut palm : these temporary dwellings often shelter as many as 150,000 persons. The signal for commencing the fishery is given at day-break by the firing of cannon, and at that moment the several boats cast anchor in the fishing ground, for at midnight they had left the shore in an extensive fleet, so as to be on the spot at the desired moment. Each boat has its own proper bounds, beyond which it is not lawful to work, and government vessels are on the spot to see that no infringement of contract takes place. The boats each carry a captain, a pilot, and 20 men, of whom 10 are experienced divers. Five divers descend at once, the other 5 taking the plunge when the first ascend. Thus a little time is allowed for regaining strength. In order to descend as rapidly as possible through the water, the diver places his feet on a large stone made fast to one end of a rope, the other end being secured to the boat. He also takes another rope, to the end of which is attached a net, or basket, to contain the oysters. The upper extremity of this second rope is held by two men in the boat. The diver is also provided with a strong knife for detaching the oysters, and as a means of defence against sharks, which are very numerous in those seas, but which do not often attack the divers, being perhaps scared by the noise of the assemblage, and the continual plunging of so great a number of persons. The diver no sooner reaches the ground than he gathers oysters with all possible speed into his basket, and then letting go the rope to which the stone is attached, he pulls that which is held by the sailors, and rapidly ascends to the surface. Some divers make very dexterous use of their feet, holding the net with one foot, clasping the stone with the other, and thus leaving one hand free to close the nostrils, while the other hand holds the rope in descending. The time during which the divers can remain submerged is variously stated, and no doubt it differs greatly according to the constitution of the individual. Some observers declare that in their experience it never exceeds 50 seconds; but Captain Percival, in his work on Ceylon, gives two minutes as the usual time of remaining under water. The longest authenticated period which a diver has remained below water, is 87 seconds, and the greatest depth attained is 78 feet—but 57 seconds and 54 feet are the ordinary efforts. Faraday found that by first exhausting the lungs, by several deep exhalations, so as to expel the carbonic acid, and then taking a deep inspiration of fresh air, he was able to hold his breath for two minutes and a half. Serious effects are produced by this employment, and the divers may frequently be seen with blood issuing from their mouth and nostrils. Yet this does not hinder them from going down in their turn. They will make from 40 to 50 plunges in one day, and bring up on each occasion about 100 oysters. Their day closes before noon, for as soon as the sea breeze sets in, the signal is given for the return of the boats to the shore. Their owners, and a large assemblage of persons of all classes, are eagerly looking out for the arrival of the flotilla, and are soon busily employed in examining and stowing away the cargoes. Each owner has a shallow pit fenced round and secured for his own use, in which his store of oysters is deposited, and left open to the air. This pit, or coutto, as it is called, is in the midst of a group ging to the same owner, so that it is under the guard of his party. Here the oysters are allowed to putrefy under a burning sun, and a stench arises from them which would seem enough to depopulate the shore of its thousands of inhabitants. Yet such is not the case. The health of the people does not appear to be materially affected, and the oysters are allowed to remain till dry, when they can be easily opened and the pearls extracted. To open them when fresh would require much greater force, and would be likely to injure the pearls. When the putrefaction is sufficiently advanced, the oysters are taken from the coutto, and placed in troughs made of the trunks of trees. Sea water is thrown over them: they are easily opened, and render their pearls to the washing and shaking of a number of men who stand all on one side of the trough, while inspectors at each end closely watch their proceedings, and other inspectors examine the shells which are thrown away, lest they should contain some of the precious substance. The workmen engaged in washing pearls dare not lift their hands to their mouth under penalty of a flogging, yet a man will sometimes contrive to swallow a pearl of high price. After all the pearls are washed out, the largest are carefully picked out from the sand at the bottom of the troughs and washed repeatedly in clean water: the next in size are spread out on white napkins to dry in the sun. The remainder are left to the care of women, who pick them up and dry them. Pearls are assorted by means of three sieves placed one above another, the meshes in which are smaller as the pearls descend. Thus the pearls which will not pass through the uppermost sieve are of the first class, and so on with the others. Another assortment is made as to colour, regularity of form, &c., and here the tastes of different nations have to be consulted. The Europeans prefer pure white pearls, the Indians yellow pearls, and the natives of Ceylon those which are tinged with rose colour. Besides the number of persons who arrive in Ceylon in the fishing season for the sake of speculating in pearls, there are also numerous Indian artisans who are very expert in piercing and drilling pearls, and who practice their trade on the spot on economical terms. Captain Percival thus describes their operations:—"A machine made of wood, and of a shape resembling an obtuse inverted cone, about 6 inches in length and 4 in breadth, is supported upon 3 feet, each 12 inches long. In the upper flat surface of this machine holes or pits are formed to receive the larger pearls, the smaller ones being beat in with a little wooden hammer. The drilling instruments are spindles of various sizes, according to that of the pearls; they are turned round in a wooden head by means of a bow handle, to which they are attached. The pearls being placed in the pits which we have already mentioned, and the point of the spindle adjusted to them, the workman presses on the wooden head of the machine with his left hand, while his right is employed in turning round the bow handle. During the process of drilling he occasionally moistens the pearl by dipping the little finger of his right hand in a cocoanut filled with water, which is placed by him for that purpose; this he does with a dexterity and quickness which scarcely impede the operation, and can only be acquired by much practice. They have also a variety of other instruments both for cutting and drilling the pearls. To clean, round, and polish them to that state in which we see them, a powder, made of the pearls themselves, is employed. These different operations in preparing the pearls occupy a great number of the black men in various parts of the island. In the black town or pettah of Columbo, in particular, many of them may every day be seen at this work, which is well worth the attention of any European who is not already acquainted with it."

Dr. Kelaart, in his report for 1858, on the pearl banks of Arippo, off Ceylon, advanced the opinion that a species of Filaria, which he found within most of the pearl bearing shells, in the liver, ovary, mantle and other parts of the oyster, had muchto do with the formation of pearls. He also considered, that the ova of oysters, and of wormsform the nuclei of many pearls, according to the doctrine of Sir E. Home.

The mollusc which produces the pearls is not an oyster, but belongs to the genus Avicula or Meleagrina, the Meleagrina margaritifera of Lamarck. Dr. Kelaart has shown that the pearl mollusc, to enable it to migrate for food, can sever its byssus, and reform it, at pleasure, so as to travel and remoor itself in favourable sites. The pearl molluscs make periodical migrations in search of food, and the Arabs were well acquainted with the fact. Albyrouni (a contemporary of Avicenna) who served under Mahmood of Ghuzni,in the 11th century, notices their disappearance from Serendib or Ceylon, and appearance of Sofala in the country of Zend, where pearls were before unknown and it was conjectured that they had migrated. The Dutch were unsuccessful in their Ceylon fisheries from 1732 to 1746, and again from 1768 to 1796. An interruption occurred from 1820 to 1828, and again from 1837 to 1854.

Pearl oyster shells are imported into England, from the East Indies, Panama and Manilla: the quantities arriving in Liverpool in five years, being as follows—

1851, 415 tons 1854, 550 tons.
2, 480 ,, and
3, 430 ,, 1855, 570 ,,

The art of making artificial pearls has been brought to such perfection in Paris, that even jewellers and pawnbrokers have occasionally had a difficulty in deciding between the artificial and the real. A French bead maker named Jaquin, observing that when the small fish called ablette, or bleak (Cyprinus alburnus), was washed, the water was filled with fine silver-coloured particles, collected some of these for the purposes of his trade. He found that the soft shining powder thus obtained had, to a remarkable degree, the lustre of pearls; hence, he called it essence of pearl, or essence d'orient. He first made small beads of gypsum and covered them with this substance: they were greatly admired and eagerly sought after; but it was found that this pearly coat, when exposed to heat, separated itself from the bead, and attached itself to the skin of the wearer, ladies it is said, suggested to Jaquin the making of hollow glass beads, and covering the inside with essence of pearl. This he did, Slender tubes of glass are first prepared, called girasols; a term applied to opal, and sometimes to the stone called cat's eye, and given to these tubes because the glass is of a peculiar bluish tint. From these the artist blows minute globules, to the extent of from two to six thousand per day, not caring to make them all perfectly regular, or free from blemish, because the natural pearls are not so. The pearl essence is then mixed with a solution of isinglass, and is blown while hot into each bead by means of a fine glass pipe. The solution is spread equally over the whole internal surface, by shaking the pearls in a vessel placed over the table where the workman sits, and to which he gives motion by his foot. When the varnish is equally diffused and dry, the beads are filled with white wax; this gives them the necessary weight and solidity, and renders them less fragile. They are then bored with a needle, and threaded on strings for sale. The holes in the finer sort are lined with thin paper, that the thread may not adhere to the wax. To produce one pound of scales no fewer than 4,000 fishes are required; but this quantity of scales only yields 4 ounces of pearl essence. The fishes are about 4 inches long; they are sold at a cheap rate in the markets after being deprived of their scales. The value of a pound of washed scales in the Chalonnais is from 15 to 25 livres. The early manufacturers suffered great inconvenience from not knowing how to preserve the scales from putrefaction, and consequently being obliged to use the essence immediately it was obtained, lest it should acquire the intolerable odour of decayed fish. Attempts were made to preserve them in spirit of wine or brandy, but those liquors wholly destroyed their lustre. At length it was discovered that these fishy particles can be kept for a long time in solution of ammonia, and this enables the manufacturers of artificial pearls to carry on a considerable traffic with distant places where the fish is plentiful, the supply from the Seine, though abundant, being insufficient for the purposes of the trade of Paris. Down to a late period the heirs of M. Jaquin continued to manufacture pearls to a considerable extent, in the Rue de Petit Lion, at Paris.

The productiveness of the Ceylon pearl fisheries has been very variable—

In 1797	£144,000	In 1804	£120,000
1798	,, 192,000		

The pearl fisheries of Japan, Persia, &c., are valued at £800,000. The oyster banks off the island of Bahrein produce £240,000 and off Arabia £350,000.

In consequence of the falling off of the Ceylon fishery, Dr. Kelaart was appointed to examine the pearl banks and he found that the mussel will leave its old moving place in search of another if the water be agitated to an inordinate degree, or if the water become muddy or impure; that it is gregarious in its habits; that in an aquarium they are fatally affected by thunder-storms; that it can live in brackish water, and in places so shallow, that it must be exposed for three or four hours daily to the sun, and other atmospheric influences; that it is more tenacious of life than any bivalve mollusc with which he is acquainted, though about one-third die from being injured by the force necessarily applied when detaching them from the rocks to which they adhere; finally that old as well as young, are in spawn from March to September, and that there is probably no stated period for spawning. He found the whole system of the methods pursued in the fisheries, defective in the extreme; and that it was left to the divers and others to do just as they pleased. The banks were rented from the Government for the season by a contractor whose interest it was of course to make the most of his opportunity, and to leave as little as possible behind. This he did in the following manner. Several scores of boats, each boat being manned by ten divers, he sent to the bank to collect the oysters. The divers went on day by day fishing up the oysters from one end of the bank to the other; this done, a still larger number of boats appeared upon the scene, and the same ground was fished over again, till the divers failed to bring up a remunerative quantity; then the fishery was closed. By this method, the amount of oysters left upon the banks, depended wholly upon the divers' exertion; sometimes it might happen that small patches might remain here and there, at other times that very few oysters were left; the inspectors could be aware of their actual state, only by information supplied by the divers, who being in the pay of the contractors, were interested in giving a false account, and thus the government were working in the dark, and ignorant of the injury done to the revenue. Further, all oysters, old and young, little and big, were brought up indiscriminately, and the havoc thus made was frightfully increased by the kicking and splashing of the divers in the water. Heavy anchors, and ponderous stones let fall upon clusters of oysters destroyed many, and examination showed that the mortality wrought by these means was very great. Besides this, the divers clutched at and tore everything before them, and other molluscs, zoophytes, and sea-weeds were left to float about in the water, and decompose to complete the ruin of the bank. Added to this, the fisheries were carried on at no set period, and for many months in the year; in short, a more effectual system could not have been devised if the object had been to put an end to the fisheries altogether, instead of preserving them, and, in point of fact, had choleraic epidemics and other sicknesses been of less frequent occurrence among the divers in the diving season, the majority of the banks would long ago have ceased to yield a single pearl. For the better preservation of the pearl oyster, Dr. Kelaart suggested that the fisheries should be held only for two or three months in the year; say April, May and June; that no oyster under a certain size be allowed to be removed from the banks; that portions of each bank should be buoyed, and reserved for breeding purposes; and that government itself should undertake the fishing, and sell the oysters to the highest bidder. Dr. Kelaart also suggested that the French system, which has proved so successful, of placing fascines on oyster beds for the collection of the spawn be adopted, and that each bank be girdled or barricaded with coir-matting supported on iron frames, and placed ten yards beyond the edge of the bed, fascines, corals, and oyster shells being freely deposited between the barricade and the bank. Thus sufficient room will be allowed for the roaming disposition of the oysters, and the impediments thrown in their way will give new surfaces for them to cling to, while at the same time they will form barriers sufficient to prevent the escape of the oysters, and the spawn from being carried away by currents to distant parts of the sea. In this manner old banks can be renewed, and new ones formed to any extent; and since it is impossible to avoid bringing up many millions of young ones, attached to the larger oysters, these should be at once carefully removed, properly cared for, and carried to some favourable parts of the sea, where they will live and grow to perfection; hitherto this course has been entirely neglected.

The market value of a bed of pearl oysters, two miles in circumference is from three to four lakhs of rupees, the cost of fencing it less than three thousand rupees, so that there is much to gain pecuniarily by adopting the barricade system. Oysters are liable to numerous accidents, thousands of voracious marine animals prey upon them ; a thin layer of sand is sufficient to destroy a whole bed ; and what has happened to the pearl fisheries of the Red Sea may happen at any time, unless precaution is taken, to those of India and Ceylon. A few years ago the edible oyster was growing scarce in France, fascines and fences promptly applied stopped the evil, and now the French oyster fisheries are among the most successful in the country. Dr. Kelaart's suggestions were acted upon to some extent, and the fisheries have been improving. Dr. Kelaart found that the byssus was capable of being formed at the pleasure of the animal, even to the extent of five or six times in the course of a month ; during the day the creature remains in a state of rest, but at sun-set its shell opens, and if desirous of changing its site it shakes off its byssus and moves to another locality.

The most extensive pearl fisheries are those of the gulf of Manaar in Ceylon, and Bahrein in the Persian gulf. Pearls are imported into Bombay from the latter place, and are re-exported to England and China, but in all the localities in which the pearl mussel thrives there occur frequent periods in which the mollusc becomes scarce or altogether disappears.

Pearls are designated in Europe by their colours white, yellow, or black, or by their size as seed pearl. The best pearls are of a clear bright whiteness, free from spots or stains, with the surface naturally smooth and glossy. Those of a round form are preferred, but the larger pear-shaped ones are esteemed for earrings. Seed pearls are those of the smallest size.

The dealers in Ceylon, recognize twelve classes, in none of which is the actual weight taken into consideration.

No. 1, is called Ani, comprising those pearls to which Pliny first applied the term 'unio,' in which all the highest perfections of lustre and sphericity are centred.

No. 2, Anathari, are such as fail a little in one point, either in lustre or sphericity.

No. 3, Sanadayam,
No. 4, Kayeral, } Such as fail in both.
No. 5, Massagu, or confusion.
No. 6, Vadivu, beauty.
No. 7, Medangu, bent, or 'folded' pearls.
No. 8, Kurwal, double pearls.
No. 9, Kalippu, signifying abundance.
No. 10, Pœsal,
No. 11, Kural, } 'Mis-shapen.'

These find a ready sale in India, all kinds and shapes being indiscriminately used to adorn the roughly made breastplates of gold worn by women of high caste.

No. 12, Thool, literally 'powder.' These are all easily disposed of in India, where they are sometimes made into lime for to chew with betel.

About the years 1865, 1866 the pearl banks off Tuticorin were almost nude of the pearl mussel, Captain Phipps examined the Cruchanpar, the Cruchan Tondoopar, and the Nagarapar and others off Tuticorin, off Vypaur, off the coasts of Madura and Tinnevelly and found them almost all bare.

The Tinnevelly Pearl Banks.—From time immemorial the pearl fishery in the narrow sea which separates India from the island of Ceylon has been famous in all the marts of the old world, and has rivalled the still more renowned fishery of Bahrein, in the Persian Gulf. Tavernier, the old travelling jeweller, said, in 1651, that the pearls from the sea that washes the walls of Manaar, in Ceylon, are, for their roundness and water, the fairest that are found, but rarely weigh three or four carats. Master Ralph Fitch, a London merchant, who made a voyage to the Indies in 1853, says, on the other hand, that, though the pearls of Cape Comorin are very plentiful, they have not the bright orient lustre that those of Bahrein have. Whatever the truth may be respecting the water and orient lustre of the pearls of these rival fisheries, there can be no doubt that a vast concourse of merchants and others has been annually attracted to the fisheries in the Gulf of Manaar from the most ancient times, which is a sufficient evidence of their value. The Ceylon fisheries have retained their old reputation down to modern times. There are smaller and hitherto less productive pearl banks, on the opposite side of the Manaar gulf, off the shores of the Indian Collectorate of Tinnevelly.

In the golden age of the Tamil people of Southern India, the Tinnevelly pearl fishery, then established, as Ptolemy states, at Koru, the more modern Coil, paid tribute to the Pandyan kings of Madura ; and at this period, we are told by the author of the Periplus of the Erythræan Sea, none but condemned criminals were employed in the fishery. Marco Polo, in the end of the thirteenth century, mentions the land of Malabar, Maabar of Ibn Batuta and Marco Polo, the southern region of the Coromandel coast, comprised in the modern districts of Madura and Tinnevelly. Colonel Yule has suggested that the word may be Arabic (Maabar, a ferry), in reference to the passage or ferry to Ceylon, where many beautiful and great pearls are found off the coast. The merchants and divers, he says, congregate at Betaler, in April and May, and he relates how the divers, called Abraiamain, performed incantations to preserve themselves from the attacks of great fish in the depths of the sea. In those days the sovereign received a tenth, and the divers a twentieth of the proceeds of the fishery. The great number of pearls from these Tinnevelly banks excited the wonder of all the bold wanderers who completed the perilous voyage to India in early times. Friar Jordanus, a quaint old missionary bishop, who was in India in 1330, says that 8,000 boats were engaged in this fishery and that of Ceylon, and that the quantity of pearls was astounding, and almost incredible. The head-quarters of the fishery was then, and indeed from the days of Ptolemy to the seventeenth century continued to be at Chayl or Coil, literally "the temple," on the sandy promontory of Ramnad, which sends off a reef of rocks towards Ceylon, known as Adam's Bridge. Old Ludovico di Varthema mentions having seen the pearls fished for in the sea near the city of Chayl, in about 1,500 A.D., and Barbosa, who travelled about the same time, says that the people of Chayl are jewellers who trade in pearls. This place is, as Dr. Vincent has clearly shown, the Koru of Ptolemy the Kolkhi of the author of Periplus, the Coli or Chayl of the travellers of the middle ages, the Ramana-Koil (temple of Rama) of the natives, the same as the sacred promontory of Ramnad and isle of Rameswaram, the head-quarters of the Indian pearl fishery from time immemorial.

But Tuticorin, the present head-quarters of the fishery, has supplanted the ancient Coil for the last two centuries; and, since the middle of the seventeenth century, the powers which have successively presided over the fishery, whether native, Portuguese, Dutch, or British, have uniformly taken their station at this little port, which is about ninety miles north-east of Cape Comorin, on the Tinnevelly coast. When the Portuguese were all powerful on the coast, the Jesuits were allowed the proceeds of one day's fishing, and the owners of the boats had one draught every fishing day. The Naik of Madura, the sovereign whose family succeeded the ancient Pandyan dynasty, also had the proceeds of one day as Lord of the coast. These Naiks were the builders of all the magnificent edifices which now beautify the city of Madura, and their dues from the fishery were probably used as offerings to Minakshi, the fish-eyed goddess of the vast Madura pagoda, who now possesses, amongst her jewellery, a numerous collection of exquisitely beautiful pearl ornaments. In the days of the Naiks and Portuguese there were 400 or 500 vessels at the annual fishery, carrying sixty to ninety men each, a third of whom were divers; and at the subsequent fair held at Tuticorin, there was an assembly of from 50,000 to 60,000 persons. The divers, at that time, were chiefly Christians from Malabar. Captain Hamilton, who was travelling in the East from 1688 to 1723, described Tuticorin when the Dutch were all powerful at that port, as well as in Ceylon. He says that a Dutch colony at Tuticorin superintended a pearl fishery a little to the northward of the port, which brought the Dutch company £20,000 yearly tribute.

The Dutch may have fished too recklessly and too often; and, when the British succeeded them at Tuticorin, the banks were very far from yielding £20,000 a year.

In 1822 the Tuticorin pearl fishery contributed about £13,000 to the Indian revenue, and in 1830 about £10,000; but after the latter date there was no yield at all for many years. Between 1830 and 1856 there were thirteen examinations of the banks, and on each occasion it was found that there was not a sufficient number of grown oysters to yield a profitable fishery, and none was therefore attempted. The unsatisfactory condition of the banks was attributed to several causes. Captain Robertson, the Master Attendant at Tuticorin, thought that the widening of the Paumben channel, which caused a stronger flow of current over the banks on the coast, prevented the molluscs from adhering; and that the fishers for large conch or chank shells anchoring their boats on the banks, killed the oysters. The dead oysters would, of course, have a fatal effect on their neighbours. The native divers attributed the state of the banks to the pernicious influence of two other shell-fish, called soorum (a kind of Modiola) and kullikoz (an Avicula), which are mingled with the pearl oysters on the banks, and, as the natives believe, destroy them.

In 1856, however, an examination was made by Captain Robertson, and it was found that at least four of the banks off Tuticorin, called Cooroochan Paur, Navary Paur, Oodooroovie Paur, and Clothic Paur were well covered with young pearl oysters, which would be old enough to be fished in 1860-61. The Madra government, therefore, determined that ever precaution should be taken, in order that th banks might receive no injury during the interval. The chank fishery off Tuticorin wa ordered to be entirely put a stop to at the termination of the contract, and vessels were provided to protect the pearl banks from poachers, on board one of which Captain Robertso was unfortunately lost in March, 1859.

Captain Robertson was succeeded as Maste Attendant of Tuticorin and Superintendent o the Tinnevelly Pearl Banks by Captain Phipps under whom the fishery of March, 1860, th first that had been attempted since 1830, was opened.

A Government pearl fishery is a most legitimate source of revenue, for pearls are simply articles of luxury in the strictest meaning of the word; the seas in which they grow cannot well become private property; and, if a profit can be derived from their sale, it is certainly a branch of revenue which can give just cause of complaint to no man, while it benefits the community at large. McCulloch says that the Government monopoly ought to be abolished, because the expense of guarding and managing the banks exceeds the sum for which the fishery is let, and that any one who likes should be allowed to fish on paying a moderate license duty. The last edition of his Commercial Dictionary was published in 1860, and during the two following years the Tinnevelly pearl fishery yielded a large nett revenue to the Government, which is a sufficient answer to Mr. McCulloch's argument.

The fishery of 1861 commenced on March 7th, and the sale of the government share of oysters was conducted by public auction, which began at Rs. 15, and gradually rose to Rs. 40 per 1,000. As many as 15,874,500 shells were sold, realizing upwards of £20,000, as the nett result to government, exclusive of all expenses, and of the shares allowed to the divers. The annual expense of the guard boats for protecting the banks is only £500.

In 1862 the results of the fishery were also satisfactory; but in 1863 the banks were found to be in a most unpromising state, and no fishery was attempted. Out of seventy-two banks that were examined, only four contained oysters free from soorum, eleven had young oysters mixed with soorum, and fifty-seven were blank, this unexpected failure of properly grown shells gave rise to Captain Phipps' experimental culture.

The pearl banks are about nine miles from the shore, and 8 to 10 fathoms from the surface, being scattered over an area 70 miles in length. They are exposed to ocean currents, which, by washing sand into the interstices of the rocks, often destroy the young oysters, over a considerable area; the dead fish, when not removed, soon contaminate their neighbours; and, in addition to these sources of evil, the soorum shells, a species of Modiola, like a mussel with a swollen face, which often grow amongst the pearl oysters, exercise a pernicious influence, either by dying or spreading death around them, or by accumulating sand. It is obviously quite impossible to watch these banks efficiently, and to eradicate the evils caused by sand accumulations and dead molluscs, owing to their great depth and exposed situation in the open sea at a distance from land. Unless some plan is adopted for rearing the young fish on banks which shall be constantly accessible, and free from the above drawbacks, the fishery will always be liable to failures, sometimes of long duration. The perfection to which science and intelligent care have brought the fisheries of edible oysters on the English, and especially on the French coasts, leaves no doubt that equally satisfactory results might be obtained from similar measures on the Tinnevelly pearl banks.

The pearl oyster (Meleagrina margaritifera, *Lam.*) has a byssus, or cable, by which it secures itself to the rocks—one of the most important points in its organization. The animal's foot is composed of muscular fibres, and is 2½ inches long, when distended. On the lower side there is a groove lined by a secreting membrane, which is an exact mould for the formation of the byssus. When the animal desires to attach itself to the rock, its foot is protruded, and, after seeking out a suitable spot with the tip for some minutes, is again retracted into the shell. A strong fibre, of the form of the groove in the foot, is thus left, attached to the base of the foot at one end, and to the rock at the other. The process is again and again repeated until a strong cable is formed; and it was one of the most important results of the careful investigations of Dr. Kelaart in Ceylon, that the power of the animal to cast off its byssus at pleasure was ascertained. It leaves it behind to make another in a more convenient place, like a ship slipping her cable and going to sea. From this ability to shift its berth it follows that the pearl oyster might safely be taken from its native beds, and made to colonize other parts of the sea; and also that it would move of its own accord if the surrounding water should become impure or sandy, or when there is an influx of fresh water. The animal can reform the byssus at pleasure, if in good health and condition.

Pliny and Dioscorides believed that pearls were productions of dew, but that observant old Elizabethan navigator, Sir Richard Hawkins, shrewdly remarked that "this must be some old philosopher's conceit, for it cannot be made probable how the dew should come into the oyster." Modern investigation had suggested various causes for the intrusion of the nucleus round which the pearl is formed. The free border of mantle lining each valve of the shell dips downwards to meet a similar edge on the opposite side, thus forming a double-fringed veil. The tentacles of this fringe consist of long and short flat filaments, which are exceedingly sensitive, so that even the approach of a foreign substance makes them draw forwards and shut out the intruder. They doubtless prevent the pearls from dropping out o the shell, and preserve the fish from the host of carnivorous creatures which infest its place of abode; and if it be true that particles of sand form the nuclei of pearls, they must run the gauntlet of these ever-watchful sentinels before they can intrude themselves amongst the interstices of the mantle. The food of pearl oysters consists of foraminifera, minute algæ, and diatoms; and Dr. Kelaart has suggested that the siliceous internal skeletons of these microscopic diatoms may possibly permeate the coats of the mantle and become nuclei of pearls.

Lastly, the ova which escape through the distended coat of an overgrown ovarium may, perhaps, become embedded in the interstices of the mantle, and become the nuclei of pearls, especially as pearls are usually found embedded in the mantle near the hinge, where the ovarium is most liable to rupture. Large pearls often work their way out of the mantle, and lie loose between it and the shell, or become attached to the surface of the latter. They have even been found outside the shell altogether entangled amongst the strands of the byssus. The causes leading to the formation of pearls, are as yet imperfectly understood. The chief external difference between the pearl and edible oyster is, that the former secures itself to rocks and stones by means of a byssus, while the latter merely lies flat on the ground on its convex side; but there is no reason why the pearl oyster should not thrive on artificial banks as well as the edible oyster. In the Colne oyster fishery, the brood (oysters two years old) are dredged up out at sea, and placed on "layings" within the river Colne. These "layings" are about 100 or 150 yards by 80, according to the breadth of the channel, most of them dry at low water, and they are paved with stones, old shells, and any other hard substances, to a depth of a few inches, so as to form a bed for the oysters, which would be choked in soft mud. This material is called culch. In France, M. Coste adopted a system of placing fascines on the layings, instead of culch, as resting places for the oysters; but the natural advantages of the ground render any artificial method of this kind unnecessary in the Colne. It is very important that the culch should be kept perfectly clean and clear of mud, and above all, that every mussel-shell should be weeded out. The mussels have a remarkable tendency to collect mud round them in heaps, probably owing to their elongated shape, and if they are allowed to remain on the layings, there is danger of the oysters being choked with mud. The oysters remain on the layings for two years, when they are fit for eating, and during this time there are constant examinations, in order that all dead fish may be removed, and the culch kept clear of mud. In places where the layings are never laid bare by the tide, this is done by means of a dredge, all live fish and culch being carefully thrown back, while dead fish, soft mud, and mussels are removed. There can be little doubt that some such system might be adopted in rearing pearl oysters, and Dr. Kelaart reported that "he sees no reason why pearl oysters should not live and breed in artificial beds, like the edible oysters, and yield a large revenue?" He has ascertained, by his experiments in Ceylon, that the pearl oysters are more tenacious of life than any other bivalve with which he is acquainted, and that they can live in brackish water, and in places so shallow that they must be exposed for two or three hours daily to the sun and other atmospheric influences. Captain Phipps, the superintendent of the Tinnevelly pearl banks, came to the same conclusions; and, convinced that artificial nurseries for the young oysters are the only means by which remunerative fisheries can be ensured, he proposed the following plan, which has been adopted.

The harbour of Tuticorin is formed by two long islands, and between them and the mainland there is a bank about three miles long by a quarter of a mile broad, with a depth of from three to seven feet, entirely free both from surf, currents, and influxes of fresh water. Captain Phipps proposes that this bank should be walled round with loose coral until it is formed into a basin, the edges rising three feet above high watermark. Over the bed of the shallow basin thus enclosed, live coral will be regularly spread, so as in a few years to form a solid mass, serving the purpose of culch, and the basin will be divided into three parts, one for the old oysters, and the other two for the young ones that may be in process of rearing. After the division of the basin set apart for breeding has been stocked, it will be carefully watched, and when the spawning has taken place and the young oysters are well formed, they will be removed from the old oysters and rocks to which they are attached, and placed in one of the separate parts of the basin, and the same plan will be followed each succeeding year. On reaching a sufficient age, they will again be removed to one of the pearl banks in the open sea. The last operation is necessary, because it would be impossible to enclose an artificial space which would hold as many grown oysters as are required for a remunerative fishery, and because it is believed that the quality of the pearl depends on the depth and clearness of the sea in which it has been formed. A single oyster, five or six years old, often contains no less than 12,000,000 eggs, and in the fishery of 1861 the total number taken only amounted to 15,874,500; so that the number of young ones annually obtained from the nursery will be abundantly sufficient to stock banks for each year's fishery. Care will of course be taken that only such banks are selected for stocking as have the rocks which compose them raised well clear of the surrounding sand. By this system, adapted as it is from those of the English and French edible oyster fisheries, several advantages will be secured, and all the dangers to which the pearl oysters are now exposed will be avoided. The young growing molluscs, safe on their carefully watched laying at Tuticorin, will be secured from the choking sands of their natural banks, as well as from their alleged enemy, the soorum, the effects of which are probably the same as those caused by the mussels on the edible oyster layings in the Colne. It is during the period of their growth that the pearl oysters are so exposed to these dangers, and very frequently banks have been found well stocked with young oysters, and giving promise of a lucrative fishery, at a preliminary examination, which, when the time for the fishery arrives, are bare, all their inhabitants having died and been washed away. But if preserved during the period of growth in the artificial nursery, and only placed out when they have reached maturity, the oysters can then form their pearl in security until the season for the fishery arrives, and well-stocked pearl banks may be reckoned upon for each year. Thus it is hoped that, by adopting these carefully considered plans, and improving upon them as experience and watchful investigation dictate from year to year, a regular and unfailing source of revenue will be secured to the State, and the Tinnevelly pearl banks will, after laying dormant for thirty years, regain the immemorial renown which was conceded to them, alike in the days of Ptolemy, of Marco Polo, and of Hamilton. They form the most ancient fishery in the world, and, now that science and careful supervision have been supplied, they will no longer be the least remunerative.

Oysters are amazingly fruitful, one of them is said to contain 1,200,000 eggs; so that a single oyster might yield enough to fill 12,000 barrels. The eggs are expelled in the form of spawn, a white fluid resembling a drop of grease, in which the miscroscope reveals innumerable minute oysters. This substance is called "spats" by the fishermen, and the matter in which they swim doubtless serves to attach them to various submarine bodies, or to individuals of their own species. In this way are formed innumerable banks of oysters, which are kept up by collecting the spawn at sea, and in different places along the coasts of England and France, and depositing it in the sheltered and shallow waters selected for "oyster layings," which are usually kept untouched till they have arrived at some size, that is in the course of two or three years.

Pearl oysters are found in great number about Cape Comorin, the Island of Ceylon, in different parts of America, in the Islands of the Archipelago, on the Australian coast and the Persian Gulf. The inside of the oysters that produce the pearls bears a certain resemblance to the gems themselves; and hence it would appear that pearls are only the misappropriations of the matter which is secreted by the animal to form the shell. When a pearl is cut through, it appears to consist of several coatings of this matter laid one upon another, as if formed by successive depositions. If, therefore, the substance of which shells are composed, while floating in the body of the mollusc, meets with a particle of this kind, which has accidentally been removed from the proper passages, and become stationary, it may be imagined that it will adhere to this particle, form a layer about it, and, continuing the operation, one of those white pellucid balls we call pearls will be the result.

Of the finest pearls, one of the weight of one carat, or four grains, is worth eight shillings; but should a pearl weigh four carats, its value is estimated at £6, 4*s*. Some of these gems are, however, of extraordinary worth. A pearl brought, in 1574, to Philip II, though no bigger than a pigeon's egg, was valued at £14,000. Julius Cæsar presented Servilia, the mother of Brutus, with one that cost £48,457; the pearl earrings of Cleopatra were estimated at £161,458; Claudius possessed one of nearly equal worth; and a celebrated character in the reign of Tiberius wore two pearls of such immense value that the historian describes her as carrying in her ears the worth of a large estate.

At the pearl fishery of Tuticorin in favourable years, the pearl mussels sell at Rs. 25 to 100 per 1,000, and the revenue rises up to 1½ lac of rupees in the season.

Pearl oysters abound in eleven or twelve fathoms of water all along the coast of Sind. There was a fishing in the harbour of Kurrachee, which had been of some importance in the days of the native rulers, but was gradually declining. In the salt-water inlets along the entire sea coast of Sind, a thin shelled variety of the oyster exists, producing seed pearl. It is most frequently found on mud banks left dry at low tides. The pearl is of little value when compared with that produced by the Ceylon and Persian Gulf fisheries, the price of the latter ranging from Rs. 1,000 to Rs. 1,500, whilst the former seldom realizes more than Rs. 25, a tola. From the supposition that it possesses invigorating powers, it is used here chiefly as a medicine. The larger grains are occasionally made use of as personal ornaments; the smaller ones to intermix with the valuable Bahrein pearls, in which manner they are kept in bags by the Bombay merchants, as a means of preserving their lustre. After the latter end of the year 1836, the ameers of Sind first became aware of the existence of this description of pearl oyster on their coast, by a money tender having been made for the exclusive privilege of fishing them. The banks, called Kenjur, at the entrance to Gharra Creek, were consequently let out for one year for Kashanee Rs. 650. The farmer must have profited well, as in the year following they were let for Rs. 1,300 annually for a consecutive period of two years. Subsequently to operations being commenced, a higher offer was received by the ameers who, with that want of faith which characterized them when a prospect of gain presented itself, gave orders for the immediate ejectment of the original holder of the farm. Similar circumstances operating against the second occupant, he also was ejected; and this process continued, until the sum tendered amounted to Rs. 19,000 per annum. The party to whom the farm devolved at this large rent soon discovered that he had entirely over-estimated its value; and by ceaseless importunity got released from his contract. The ameers then ordered the fishery to be conducted on their own account, until, finding it unprofitable, it was discontinued. At the close of the year 1839, the Kurrachee Harbour (in the creeks adjoining which the pearl oyster is found) was again let for two years, for Rs. 1,100: six months afterwards other speculators offered Rs. 21,000; it was finally let for Rs. 35,000, the contractors relieving the former occupants, and taking possession of the pearls that had been collected by them. These parties, however, failed, but were made to pay Rs. 20,000. The ameers, as at Kenjur, took the management of the fishery, which in three months it is said, realized between seven and eight thousand rupees,— a doubtful circumstance, as after a short trial it was altogether relinquished by them. When the country became a British possession, the Kenjur fishery was let by the Collector of Land Revenue for Kashanee Rs. 2,500 for one year, commencing from 1st August 1843, but the contract was not fulfilled. The following year, the highest offer made was Rs. 2,400, but the fishermen objected to work, alleging that as their gains were regulated by the amount of produce which was insignificant, they could not earn enough for their support. The contractors appealed to the Government of Sind, who, deciding against them, their contracts ceased. The Harbour Fishery was let out at the same time for Rs. 3,700 per annum, but owing to a misunderstanding of the terms of the contract, it was resumed, and fished by the Collector on account of Government. In one month, the sum of Rs. 2,272 was realized, exclusive of expenses. The fishermen, however, declined to continue the fishery, on the score that they could find no more oysters. It was thought at the time that they had been bribed by the former contractors to make this statement, but, since then, experience proved that it was not altogether incorrect. In the month of May 1845, the Collector, who was placed in charge of this source of revenue, personally examined the situation of the banks, and found the entire line of coast from Kutch to Kurrachee giving evidence of the existence of the oyster. It appearing that several spots might be fished with advantage, boats and forty divers were engaged, but after a month's labour, at what appeared to be the most productive banks, the expenses incurred exceeded the value of the pearls produced. In 1849, the fishing was sold by public auction for upwards of six thousand rupees, and in the following year for Rs. 5,275. Apprehensive that the continuous fishing would exhaust the beds, an interval of four years was allowed to elapse, after which period it was again put up to public competition, realizing upwards of Rs. 5,000; and the following year (1856) somewhere about Rs. 6,000. From that time until 1862 the banks were not allowed to be fished in order that the young oysters might have time to come to maturity. In 1862 the fishing was again sold by auction, realizing Rs. 5,000. The purchaser was Mr. Coates of Ferozepoor—an enterprising and energetic European—who set to work earnestly, making use of dredges which had never been in operation before. It is evident that the fishing must have proved remunerative, Mr. Coates having subsequently offered Rs. 10,000 to have it continued to him for a further period of four years. Government accepted the offer. Mr. Coates is said to have derived but very little profit from the second lease; but this circumstance is ascribed by general consent to his having had some dishonest servants about him. From what we learn, the authorities in the province seem to have taken no action in farming the pearl fisheries after the expiration of Mr. Coates' lease; and it has been stated that it is a common practice amongst most of the fishermen to help themselves to the oysters and dispose of the pearls in the town.

Sir A. Burnes represents the mariner of Cutch in the present day as truly adventurous, putting to sea for a trifling reward, and stretching boldly across the ocean of Arabia, to the Red Sea, and the coasts of Zanzebar in Africa. The sea-vessels of Kurachee sail to Muscat, Bombay and the Malabar coast, and the fishing-boats at the mouths of the Indus he describes as good sea-boats, sailing very quickly, and numerous, because the fisheries there are extensive, and form a source of commerce on the south-eastern part of the Peninsula of India.

Dr. Cantor states that at the mouths of the Ganges, the fishermen have sea-going boats, which they build themselves, and that they are a superior description of Indian sailors, of much more industrious habits than the majority of the natives of India. Still further to the eastward, we see the Burmese and Siamese almost living in boats, and the Malays most formidable as pirates in the Indian sea.

Farsan, is an island off the coast of Yemen, about three miles from the sea port of Jezan. The sea-faring population there, are largely occupied in the pearl fishery. When not at feud with any of their neighbours the time of the inhabitants of the pirate coast of Arabia, is devoted to fishing, diving for pearls. The pearl fishery only lasts from June to September, for at other periods they complain that the cold is too severe. During the season every person who can procure a boat himself, or obtain a share in one, is thus employed, and their villages have no other occupants than children, females, and men who are too aged to follow this pursuit. The pearl bank extends from Sharja to Biddulph's group. The bottom is of shelly sand and broken coral, and the depths vary from five to fifteen fathoms. The right of fishing on the bank is common, but altercations between rival tribes are not unfrequent. Their boats are of various sizes, and of varied construction, averaging from ten to fifty tons. During one season it is computed that the island of Bahrein furnishes, of all sizes, three thousand five hundred; the Persian coast, one hundred; and the space between Bahrein and the entrance of the Gulf, including the Pirate coast, seven hundred. The value of the pearls obtained at these several ports is estimated at forty lacs of dollars, or eight hundred thousand pounds. Their boats carry a crew varying from eight to forty men, and the number of mariners thus employed at the height of the season is rather above thirty thousand. None receive any definite wages, but each has a share of the profits upon the whole. Where polypi abound they envelope themselves in a white garment;. but in general, with the exception of a cloth around their waist, they are perfectly naked. The latter having provided themselves with a small basket, jump overboard, and place their feet on a stone, to which a line is attached. Upon a given signal this is let go, and they sink with it to the bottom.. When the oysters are thickly clustered, eight or ten may be procured at each descent; the line is then jerked, and the person stationed in the boat hauls the diver up with as much rapidity as possible. The period during which they can remain under water has been much overrated; one minute is the average, but on one occasion, exceeded a minute and a half. Accidents do not very frequently occur from sharks, but the sawfish is much dreaded. Instances were related where the divers had been completely cut in two by these monsters. One man of some hundreds present, for a reward of a few dollars, remained one minute and fifty seconds. In Ceylon they rarely exceed fifty seconds. They estimate the unopened oysters at two dollars a hundred, from Bahrein the pearl coast and fishery begins and extends round the east of the island and the promontory of Katar down the great southern bar of the Persian Gulf to the frontiers of Sharjah in Oman. Pearl oysters are also to be found north of Bahrein, along the shores of Kateef and the adjacent islands, but the produce of the fishery is scanty, far inferior to that of the coast of Bahrein and of the easterly gulf. Around Bahrein itself, the fishery yields largely and furnishes occupation to at least half the inhabitants of the island, about 2,000 or 2,500 being employed in the diving season April to October. Negroes mostly are employed as divers.

In the Persian Gulf, the pearl oyster beds extend at intervals almost along the entire length of the Arabian coast of the Gulf from a little below the port of Koweit to the northward, down to the neighbourhood of Ras-ool-Khaimah, southward. There are also some beds near Karrack and at other points on the Persian coast line, but these latter are of comparatively little account as being far less extensive, less prolific and less lucrative. The beds along the Arabian coast are held to be the property of the Arabs in common; for instance, an Arab of Koweit may dive along the Bahrein or Rass-ool-Khaimah coast and vice versa. But no person other than the coast Arabs is considered to have any right of diving: and it is probable that any intrusion on the part of foreigners would create a general ferment along the coast line. The richest banks are those of the islands of Bahrein. They are found at all depths from a little high water mark down to 3, 7, 12, 17 and 18 fathoms. It is probable that there are beds at a much greater depth; for instance, if, as is supposed, it be the fact that there are beds in the inlets of the Mussendom promontory, these beds must have a depth of 22 or 25 fathoms. It is held as a rule that the lustre of the pearl depends on the depth of the water, the greater the depth, the finer the lustre. There does not seem to be any known law governing the more or less sphericity of the pearl. The best oyster beds are said to be level, and formed of the fine whitish sand, overlying the coral, in clear water. A mixture of mud or earthy substance with the sand is considered to be detrimental to the pearl; and the beds having this defect are liable to exhaustion. It is to this cause that the Arabs of Bahrein attributed the exhaustion of the pearl beds on the coast of Sind and Ceylon; while the beds of the Persian Gulf, although annually fished from the earliest historic periods, continue prolific as ever—one or two of the most recent past years having given a more than usually abundant return. The notion that the Arabs feed their oyster beds at particular seasons of the year, seems to be erroneous. No care whatever is taken of the beds. The oysters swell about over the sand or slightly attach themselves by the hinge to bits of seaweed or coral, and are discerned by the divers in groups below the clear water. The diving period is from the warm spring in April to the end of the hot summer months of August and September.

As regards profits, each boat is partnership, the profits being divided into ten shares.

Owner and Captain....	2	And the rest laid out for provisions.........	3
The Divers...............	3		
The Rope-holders......	2		

A few of these boat-men may reap independently the fruits of their own labours, but the great majority are in the hands of agents of pearl merchants, whether hindoo or other, who reside in the towns of the littoral. These agents make advances of money to the divers during the non-diving season, and when the spring comes on, the boats are supplied with so many days' dates, rice and other provisions, and start away for the banks, returning as provisions fail or weather compels.

Hundreds of boats may be seen anchored at a time on the banks. As a rule the diving may be in water of four to seven fathoms in depth. Fifteen fathoms diving is considered to be extremely prejudicial to longevity, and occasionally proves fatal. In any case the crew is told off into divers and rope-holders, the former diving while the latter keep the boat and stand by to haul the diver up. Each diver has his comrade for this purpose. The diver strips, closes his nostrils with pincers, has a rope attached to his girdle and a stone or other weight to his foot. He then drops overboard feet foremost, and on reaching the bottom collects his oysters until he can no longer remain when he pulls at the string, lets go the weight, and is hauled on board by his comrades. The stone weight is attached to a second rope, by which it is afterwards hauled. The oysters are collected into a bag or other receptacle attached to the diver's chest and waist.

Of course numerous disputes occur among so many boats jostling together in a comparatively small area. In former times these disputes were frequently serious and attended with bloodshed; but more recently the several Arab chiefs of the littoral have entered into a maritime truce, binding them to refer all their disputes at sea to the arbitrament of the British Resident in the Persian Gulf.

The annual outturn of the pearl fisheries is assumed to be £400,000 as follows:—

Outturn of the Bahrein Pearl Divers, 20 lacs of Rupees or..	..£200,000
Outturn of the Divers from the Arab littoral of the Persian Gulf other than Bahrein, 20 lacs of Rupees or..	£200,000

The revenue levied by the chiefs themselves on the pearl fisheries consists in a poll-tax of one dollar per annum on every diver and on every diver's attendant rope-holder. The revenue so derived by the Bahrein chief may be about 50,000 dollars, thus representing 25,000 divers and 25,000 rope-holders, and amounting to 5 per cent. upon the total outturn.

The great bulk of the best pearl is sent to the Bombay market, where, during the 1863-4 share mania, fancy prices were given for good pearls. A large number of pearls is sent towards Baghdad. As a rule the Bombay market prefers the pearl of yellowish hue and perfect sphericity, while the Baghdad market prefers the white pearl. The small seed pearls go principally to Baghdad also.

It might possibly be of use if a few hundreds of oysters from the Persian Gulf beds were to be sent to Ceylon, in view to ascertaining whether any defined locality in which they might be bedded, could be developed and remain exempt from exhaustion.

At the meeting of the Geographical Society, Mr. Gwyn Jeffreys said that in a conchological point of view the Persian Gulf is wholly unexplored.

The Panama and Bahrein pearl fisheries chiefly supply the market. The finest pearls that decorated the Persian kings, or were showered on them when ascending the throne, (according to a very ancient custom,) might have been obtained from the sea which forms the southern boundary of their dominions; and the pearls here found were most highly prized, according to Pliny, (Nat. Lib. ix, c. 35). Theophrastus mentions those pearls which some islands in the Erythrean sea produce; and Mr. Hill in his notes on that Greek Lithologist (p. 93, Lind. 1746), says "the finest in the world are those of the Persian Gulf. There are a great number found about Cape Comorin and the island of Ceylon, but they are greatly inferior to the Persian, and very large ones have been found about Borneo, Sumatra and the neighbouring islands, but not of the fine shape and water of the Persian." This confirms what Salmasius had before declared. "In sinu Persico Majores reperiuntur qua et ceteris omnibus candoris ac magnitudinis doti anteferunter. Indc. Romanis.

adferebantur." Plin Exercit, p. 824, (ed. 1689). The pearls of this gulf are celebrated by various eastern writers among them Hamdallah Cazvini. In describing the sea of Oman, or of Fars, he says,and from the island of Hormuz to the island of Bahrein, it is possible to procure pearls by means of divers ; but those which they find in diving about Bahrein, are of such magnitude as cannot be equalled elsewhere; and the chief pearl fishery is from Keis to Kharek; near Aden also, very good pearls may be obtained.

In addition, to its admitted character of an attribute of power, the hindoos looked upon the pearl as symbolical of maiden purity, and hence arose the custom of presenting a pearl at the marriage of a high-born hindoo girl, where, amid the performance of various ceremonies peculiar to the occasion, it is formally given to some honoured guest either by the father of the bride or the bridegroom.

In China, pearls were presented as tribute, and given in dowry two thousand years before the Christian era. In the url-ja, the most ancient Chinese book of words, a work composed 1000 B.C., pearls are spoken of as precious objects, which were used as charms or amulets to guard the wearer against fire. In those remote ages it seems probable that the Chinese derived their pearls from the fresh-water mussel only ; for it is stated, in the ancient record already referred to, that pearls were brought from the interior of the western part of the empire. About the commencement of the Christian era, native supplies had, however, already fallen short of the increasing demand for this precious commodity, and ships were sent forth to obtain the much-coveted beads from India. As it was then, so the pearl still continues to be regarded by the Chinese as an attribute of power, serving even now as the accredited badge of rank, to distinguish mandarins from smaller men. The Hebrews must, like their eastern contemporaries, have been very early acquainted with pearls, as they are mentioned in the Book of Job. According, moreover, to some commentators, the Hebrew word Penimin, which is constantly translated "rubies" in the Proverbs of Solomon; should be rendered "pearls." The Romans employed three names to designate the pearl, viz., Unio, "the one" par excellence, a term that Pliny tells us first came into use in the time of the wars of Jugurtha, when the fashion of the single ear pendant was in the ascendant, bacca, "the berry," in allusion to the ordinary form of the bead ; and margarita, which, although borrowed directly from the Greek, seems to be derived from the Sanscrit word mangara, signifying "decorative." The name Unio has been incorporated into science by its application to an extensive genus of pearl-yielding fresh-water mussels. According to some authorities, our name of pearl, which appears under very slight modifications in almost every European language, is derived from pirula, a little pear, or from pilula, a pill, while others give it a Teutonic origin, deriving it from the old German word berlin, a little berry. The term margarita, which has lingered in all the southern European dialects derived from the Latin, has not found its way into the Teutonic or Slavonic tongues. Pliny, in his Natural History not only describes the manner in which the bead was supposed to be produced within the shell, but expatiates with indignant warmth upon the dangers and difficulties that attend its capture, and the extravagance, folly, and wickedness, to which a desire for its possession has led men and women in all ages. We learn from him that, after the conquest of Alexandria, pearls came into common and almost universal use in Rome. Before that period they must, however, have been highly prized, as we are told by Suetonius, that Julius Cæsar, before he set out on his expedition to Gaul, expended six million sesterces (nearly 50,000*l.*) in the purchase of one fair pearl as a parting gift to Servilia, the mother of his traitor friend, Marcus Brutus. Cæsar's admiration of pearl is, however, worthy of more than a passing notice, if, as some historians assert, one of his principal inducements to visit Britain arose from a desire to ascertain the truth of the reports, which had reached him in Gaul, that pearls abounded in the neighbouring island of Britain. If such were, indeed, the motive that influenced Cæsar, Britain owes no trifling debt of gratitude to the pearl for having been the means of bringing its savage inhabitants thus early within the sphere of Roman civilization ; but, whatever was the incentive that drew the Romans to those shores, it is certain that they at once directed their attention to the discovery of the capabilities of their new conquest ; nor were they long in ascertaining that some of the British rivers yielded pearl-bearing mussels. Pliny informs us, however, that the pearls found in Britannia were small and of a bad colour, the reason, perhaps, why Cæsar, instead of presenting them to one or other of the fair Roman matrons whom he delighted to honour, merely devoted them to the decoration of a breast-plate or cuirass, which he caused to be suspended in the temple of Venus Genetrix.

Certain it is, in the time of Alexander I, pearls formed part of the exports from Scotland ; and a vestige of this trade has even lingered on to a comparatively recent period ; for we are assured that pearls, to the amount of 10,000*l*, were sent to London from the Tay and Isla between the year 1761, and the beginning of the 19th century. The rivers in the north of Ireland, the Tay in Scotland, and the Conway in Wales, have all, from time to time, yielded tolerably good pearls, although the produce has always been so uncertain as to make it not worth the cost of the labour.

Among the ornaments in vogue among the fair dames of Rome, the most characteristic, perhaps, were the pearl ear-pendants, known as elenchi and crotalia. The elenchus, in its original form, consisted of one long pear-shaped pearl, full and rounded at the bottom; after a time, however, when pearls became less uncommon in Rome, the solitary pendant was discarded by ladies of rank in favour of the compound crotalia, and the single drop came to be in some degree regarded as one of the attributes of an acknowledged courtezan. The compound elenchi consisted of two or three pear-shaped pearls, linked together in such a manner as to strike against each other at every movement of the wearer's head; whence they were called crotalia, from crotalium, a brass musical instrument resembling castanets. These tinkling ornaments were sometimes suspended from the fingers and sandals, as well as from the ears, and must, one would think, when thus worn, have produced a noisy clatter, the very reverse of agreeable. It is evident, however, that the Roman ladies considered the rattling noise which they made whenever they moved as something peculiarly distingue. "A fair pearl at a woman's ear", says Pliny, according to Holland's antiquated version, "is as good as an huisher to make way for her, for every one will give such the place. Nay, our gentlewomen are come now to weare pearl upon their feet, and not on their shoo-latch only, but also upon their startops and for buskins which they garnish all over with them. For it will not serve their turne to carrie pearles about them, but they must tread upon pearles, goe among pearles, and walke as it were on a pavement of pearles." The necklace most approved of by the ladies of Rome was that consisting of three rows, and known as the trilinum. This ornament consisted of one row of pearls fitting somewhat closely round the throat, a second longer string or chain composed of green or blue stones alternating with large pearls, and another similarly formed row long enough to fall far down over the bosom. Where the necklace consisted only of two instead of three rows, it was called a dilinum, whilst a necklace of one string of beads was known as a monile. When we picture to ourselves a Roman belle adorned with a costly trilinum, lustrous crotalia hanging from her ears, hands, and feet, with her hair enclosed in a pearl net, or braided with strings of the same precious beads, and chains of pearls linked to the rings on her fingers, we shall no longer wonder that "a mere bit of a woman" should have carried about on her own little person the accumulated treasures of her house.

Jean Baptiste Tavernier, Baron d'Aubonne, the son of Dutch parents, settled at Paris, was born there in 1605, and was a traveller from his boyhood, having visited most of the countries of Europe between the ages of fifteen and twenty-five. The last thirty years of his life were spent in making repeated voyages to and from Asia, and in visiting all the great cities of Asia Minor, Persia, India, and Thibet; of which he has given detailed accounts, more especially in reference to the courts of the various sovereigns which he visited in the prosecution of his business. According to his own statement, he made six journeys from Paris to Ispahan, and more than twice as many from Ispahan to Agra, and other parts of the dominions of the Great Mogul. He twice visited the diamond mines of Golconda, and never seems to have spared time or money when he wanted to effect a purchase or a sale of jewels. He found that, in regard to magnificence, the Oriental courts far exceeded those of the western world at that time, although he seems to have formed no very exalted opinion of the taste which regulated its display; and, among other peculiarities, he was much struck with the fact that the orientals gave the preference to pearls having a yellow tinge, for which they were always ready to give the highest prices, considering that the whiteness of a pure pearl was not sufficiently becoming to their own yellow skins. Tavernier gives his readers a full and detailed account of the famous "peacock throne" of the Grand Mogul Aurengzeb, the barbaric glory of which has long since departed, never to revive.

The most perfect pearl in respect to form, colour and size, seen by Tavernier during his sojourn in the East, was one that had been bought at the fishery of Catifa, in Arabia, by the king of Persia, for about 20,000*l*. of our money. This pearl was entirely free from any defect. The largest pearl then known was in the possession of the Great Mogul, who was so chary of it that he seldom wore it. Another marvellous pearl, seen by Tavernier, belonged to Imenhect, the prince of Muscat, who waged a successful war against the Portuguese, and contributed largely to the decline of their supremacy in the Indian seas. The pearl owned by this prince was perfectly round, of such excessive clearness as to be almost transparent. It is to be doubted, however, whether any pearl celebrated in ancient or modern times can be compared, in point of size, with a colossal beauty belonging to Mr. Hope, which is said to weigh 450 carats (or about three ounces), measuring two inches in length, and four-and-a-half inches in circumference. Truly this is a pellegrina, or paragon, the sight of which would have pleased Tavernier more than all the wonders of art and nature that he witnessed during his six voyages from Paris to Ispahan, and his twice six journeyings from Ispahan to the extremest boundary of the Eastern world. Yet, superlative as is the Hope pearl for size, the palm of excellence in respect to beauty of form and intensity of lustre is due, according to Fischer von Waldhein, a great authority on these points, to a small pearl, weighing only thirty carats. This paragon which formed part of the priceless treasures of the Zosima Museum at Moscow, when Fischer saw it in 1818, was perfectly round in form, and so lustrous that, when it was rolled along a piece of fine cambric, it looked like a ball of silver. The owners of this treasure, who had then no expectation of meeting with a purchaser capable of paying the price at which it was valued, kept it enclosed in a gold-mounted echinus shell, through whose convex crystal cover the Zosima pearl shone forth with almost diamond-like lustre.

Cleopatra's pearl.—The world-renowned tale of Cleopatra's pearl bears testimony to the luxury and prodigality that characterised the last of the Ptolemies. The story runs that, at a feast in the palace at Alexandria, Antony staked a heavy wager that his fair hostess would find it impossible to expend ten million sesterces—about £80,000, of our money—on one entertainment. The fair queen accepted the challenge, and at once proved her reckless prodigality and her determination to eclipse the lavish expenditure of her victor by removing from her ear one of the two incomparable pearls that had descended to her from her ancestors, and, dropping the pendant into a cup of vinegar, swallowing the costly draught. Not content with this marvellous display of extravagance, she was about to take the fellow of this lustrous bead from her other ear and immolate it in like manner, when Lucius Plaucus, who had been appointed umpire in this lover's contest, snatching it from her hand, prevented the double sacrifice by proclaiming aloud that the victory was again with the lovely queen of Egypt, and that Antony had been fairly vanquished. The rescued pearl was afterwards divided, and the severed halves employed to adorn the ears of the Venus of the Pantheon. We learn from Pliny that the palm of extravagance in this respect is not due to Cleopatra, as before her time a similar feat had been performed by Clodius, the son of the tragic actor Æsop. According to old Philemon Holland's version of the Historia Naturalis, "Clodius upon no wager at all, but only in a braverie, and to know what taste pearls had, mortified them in vinegar, and drunke them up, and, finding them to content his pallat wondrous well, he gave to everie guest at his table one pearle a-piece to drink in like manner." Dr. Mobius, in his History of pearls, denies the practicability of this much-renowned feat of gastronomy. The most, that the queen of Egypt could have done, he says, was to have swallowed a pill worth some £80,000, as no amount of vinegar could have dissolved the pearl within any period of time to which the most elaborate and prolonged supper could possibly be extended; for, even if the delicate outer layers had been dissolved, the organic portions of the pearl would still have remained undestroyed. Determined to prove the false pretences on which Cleopatra has claimed the wonder of succeeding generations for her unparalleled extravagance the German doctor, as if it were his mission to destroy a very harmless historical myth, instituted a series of experiments on the solution in various acids of small seed pearls. It is needless to say that these investigations were prosecuted with that pertinacity that only German experimentalists can employ and the result thoroughly satisfied him that Cleopatra's supposed feat was an impossibility. We are not sure, however, that Dr. Mobius will earn any great amount of gratitude for his pains.—*King*; *Williams' Middle Kingdom, p.* 272; *Hon'ble Mr. Morrison's Compendious Description*; *Journal of the Indian Archipelago, Vol.* iv, *p.* 490; *Ramusio, Vol.* i,; *Crawfurd's Dictionary, p.* 330; *Eng. Cyc.*; *T. Emmanuel*; *On the natural and artificial production of pearls in China, by F. Hague, H. H. M. Consul at Ningpo,* 17*th December* 1853; *Low's Sarawak, p.* 89; *Keppel's Ind. Arch., Vol.* i, *p.* 59; *Walton's State, p.* 38; *History of Japan, Vol.* 16, *pp.* 110–11; *American Expedition*; *Tomlinson*; *Journal of the Royal Asiatic Society of Great Britain and Ireland, Vol.* xvi, *Part* 11, *p.* 280; *Recollections of Ceylon, its Forests and its Pearl Fisheries, S. W.*; *Frazer's Magazine for Decr.* 1860; *Faulkner*; *Tennent's Sketches of the Natural History of Ceylon, p.* 375; *Cornhill Magazine, August* 1866; *Sindian*; *Macmillan's Mag. of July* 1861, *pp.* 231-37; *Tavernier's Travels, Ch.* xvii, *pp.* 145, 150; *Pennant's Hindustan, pp.* 4, 5.; *Palgrave*; *Lt.-Col. Lewis Pelly, Her Majesty's Political Resident, Persian Gulf to C. Gonne, Esq., Secy. to Govt. Bombay*; *Pliny Nat. Lib:* ix, c. 35; *Capts. Phipps and Richardson's Reports to Madras Government, on the Pearl Banks of Tuticorin and Tinnevelly.*

PEARLASH.

Kien-sha, Chin.

The term is applied to calcined potash. It has a spongy texture, and a whitish pearly lustre. Pearlash can be prepared from nitre and charcoal.

PEARL-BARLEY.

Pi'mi, Chin.

Husked barley.

PEARL, FALSE, are made of fish bones. False pearls are sent from China to India for ornaments, as well as employed by the Chinese.

PEARL FISHERY, see Jezan, Pearls.

PEARL, MOTHER OF.

Sudf,	Hind.	Gohur parvur,	Pers.
Indong mootiara,	Malay.	Seepie moothoo,	Tam.

Mother-of-pearl used to be sold by the Lubbi Stone Merchants, cut into beads and other ornaments which first they called Surat Munnie, owing to their being brought from Surat. The beautiful lining of shells, known as mother-of-pearl, is manufactured into articles of great beauty. The sea ear or Oreille de Mer, is a shell-fish abundantly found in Jersey island, and used in a variety of ways for food, while the shell is preserved, and exported to England, where its pearly iridescence causes it to be valued in ornamental papier mache works, vases and table-tops.

PEARL OYSTER, is a term applied to the Meleagrina margaritifera, which is not however an oyster proper but a genus of the Aviculidæ or wing-shell family of molluscs. The pearl-oysters are less oblique than the other aviculæ and their valves are flatter and nearly equal. They are found in about 12 fathoms water at Madagascar, Ceylon, the Persian Gulf, Swan river, Panama. There are three principal kinds worth from £2 to £4 per cent. 1, the silver-lipped, from the Society Islands, of which about 23 tons are annually imported into Liverpool. 2, the blade-lipped, from Manilla, of which 30 tons were imported in 1851. 3, a smaller sort from Panama, 200 tons are annually imported. In 1851, a single vessel brought 340 tons. These molluscs afford the oriental pearl and their shells the mother-of-pearl of commerce. Mr. Hope's pearl said to be the largest known, measures 2 inches long, 4 round, and weighs 1,800 grains. Sections of pearls show very fine concentric laminæ surrounding a grain of sand or other extraneous matter. The nacreous lustre has been attributed to the diffraction of light from the outcropping edges of the laminæ, but Dr. Carpenter says it may result from the minute plication of a single lamina.—*Woodward.*

PEARL RIVER or Chu-kiang, a river near Macao. The pearl river affords two or three kinds of fresh-water shell-fish, of the genus Mytilus, which are obtained by dredging. See Chu-kiang.

PEARL SAGO, granulated sago meal. See Sago.

PEAT, is composed chiefly of the decayed fibres of mosses, and is used as fuel. Dr. Falconer obtained very modern peat, out of the banks of the Hooghly, a few feet below the surface of the soil, in which were seeds of th Euryale ferox: this plant is not now know to be found nearer than Dacca (sixty mil North East, see p. 255), and indicates a ver different state of the surface at Calcutta the date of its deposition than that whic exists now, and also shows that the estu ary was then much fresher. This peat D Falconer also found to contain bones of bir and fish, seeds of Cucumis maderaspatana an another Cucurbitaceous plant, leaves of Sacch rum sara and Ficus cordifolia. Specks of son glistening substance were scattered through th mass, apparently incipient carbonisation of th peat. Peat was discovered on the Neilgherri It is generally distributed over the enti range of the hill tract, and is so abundant th it is sold at the bog-side at 1s. per cartload 1,000 lbs., and at about 2*s.* 6*d.* a ton, at th principal settlement, Ootacamund. It exists large quantity and may be purchased at reasonable rate; and if a proportion of th was used in houses with the wood, the expe diture of the latter would be much lessene and the total cost to the consumer cons derably reduced. Turf fuel is cut stacke in several places close to the station, an is to be had at the rate of Rs. 2 or 2½ p cartload. It burns well and makes a cheerf fire, especially when mixed with wood. Pe or turf fuel; is now used on the Neilgher hills more than formerly. The plants pr ducing it, are different from those of Europ Good peat has been found in the Mid Him layas at the Sach pass, resembling Irish turf its character, and in the genera of producin plants.—*Faulkner*; *Hooker's Him. Jour, V* ii, *p.* 341; *The Universal Review, p.* 56 *Cleghorn's Forests and Gardens of South Indi* *p.* 162; *Cleghorn, Punjab Report, p.* 19.

PEAUX, Fr. Hides; skins.

PEAUX D'AGNEAUX, Fr. Lamb skins

PEBBLES, the quartzose minerals of Camba are sold in Europe and America, as Scotc Irish, Chamounix, Niagara, and Isle of Wigh Pebbles according to the locality whenc brought.

PECH, Hind. A wire screw used in surger

PECH, Ger., It. Pitch.

PECH, a river near Sindwara in Nagpore.

PECHA, Hind. A scarf worn by Lahou women.

PECHAK, Hind. A reel for gold thread.

PE-CHE-LE, a province of China the prin cipal length of which extends from 38° 40½° north latitude, is bounded by Chine Tartary on the north, by Ho-nan on the south west, by the Imperial sea and Shantun on th east, and by Shan-se on the west. Pekin the capital of the empire, is situate in thi province, together with nine other cities the first class, forty of the second class; and one hundred and eighty of the third class. In the Gulf of Pe-che-le, the tide, being retarded by islands, rises only about ten feet, but the greater part of the land being only about three feet above high-water mark, and there being but few mountains, the rivers are navigable for a considerable distance, notwithstanding their comparatively small size, and in the rainy season they frequently overflow the country. The river Pei-ho experiences a tidal rise one hundred miles inland from the bay; it flows through a completely level country, the soil of which is composed of light sand and micaceous particles, blended together with portions of clay and vegetable mould, without a single rock, stone, pebble, or gravel of any kind. *Sirr's China and the Chinese, Vol.* i, *p.* 410.

PECHWAN, Hind. A hooka with a long twisted, peel, pipe.

PECTEN, a genus of molluscs.

PECTINES, Lat. Combs.

PECU, It. Cattle.

PECHIKA, Tel. Ambrosinia unilocularis, *R.* iii. 493.

PEDA also Gomayam, Tel. Cow-dung and Bratties, or cow-dung cakes.

PEDA-DOSKE, Tel. Cucumis momordica.

PEDA DULCHIRRAM, Tel. of Godavery, Dirasana of Circars. Acacia speciosa, a valuable timber tree.

PEDA-KAL-MESURA, Tel. Casearia, species.

PEDALI, or Pedayi, or Bedali. Griffithia fragrans, *W.* and *A.*

PEDALIACEÆ, *Lindl.* The oil seed tribe of plants, comprising 2 gen. 3 spec., viz. 1 Pedalium; 2 Sesamum.

PEDALIUM MUREX, *Linn.*, *Roxb.*, *Rh.*

Hyosciamus maritimus, *Burmann.*

Khussuke kabir,	Ar.	Ani-neringi,	Maleal.
Gokaru,	Duk.	Gheja-sudu-moostra,	Sans.
Barra gokeru,	Hind.	It nerenchi,	Singh.
Gokroo,	„	Eet-neringi,	„
Prickly fruited Pedalium,	Eng.	Kakamulu,	Tam.
Murex,	Lat.	Ani-neringi,	„
Kaka mooloo,	Maleal.	Yenuga-palleru,	Tel.

A succulent pretty large plant, with small yellow flowers which appear in the rains, the green leaves when agitated in water render it mucilaginous: this is prescribed by the natives in dysuria, the seeds are supposed to possess similar virtues. This succulent, ramous, annual, grows generally over the country, but chiefly on the Coromandel coast, in a moist sandy soil; flowers in the rainy and cold seasons. The fresh leaf of this plant, when agitated in water, renders it mucilaginous, in which state it is prescribed by the natives, in cases of dysuria and ischuria. The seeds which are contained in the prickly capsule are supposed to have similar virtues and are administered in decoction. The fresh plant renders water or milk very mucilaginous without altering the taste, colour or smell of the liquid. This thickening disappears in a few hours. A watery infusion of this kind sweetened with sugar is a favourite and excellent demulcent in acute gonorrhœa. Butter milk is often fraudulently thickened by the use of the leaf; the plant is a good mucilaginous demulcent, much used by the natives as a drink in gonorrhæa, and is useful as a diuretic, in urinary diseases. It is considered cool and tonic.—*Riddell*; *Hort. Mal.*; *Ains. Mat. Med.*, *p.* 69; *Roxb. Fl. Ind.*, *Vol.* iii, *p.* 114; *O'Shaughnessy*, *p.* 480; *Beng. Phar.*, *p.* 304; *Powell's Hand-book*, *Vol.* i, *p.* 364.

PEDDA, Tel. Great, large, hence,

Ped-amidum, Tel. Ricinus communis, large seeded variety of Ricinus communis. Ped-amidum nune, Tel. Oil of large seeded Ricinus communis.

Pedda anem or Anem, Briedelia crenulata, *R.* iii, 734.

Pedda ankudu chettu or Kodisa. Wrightia antidysenterica, *R. Br.*

Pedda antisa. Pupalia prostrata, *Mart.*—Achyranthes pr. *R.* i, 674—*Rheede* x, 79.

Pedda are. Bauhinia purpurea, *L.*—*R.* ii, 320—*W.* and *A.* 915—*Rheede* i, 33.

Pedda bachchali or Bachchali-kura. Basella cordifolia, *Lam.*

Pedda benda or Nugu benda. Abutilon indicum, *G. Don.*—A. Asiaticum, *G. Don.*

Pedda bira. Luffa, *sp.*

Pedda boda tarapu chettu. Tel.

Pedda botuku or Nakkeru. Cordia myxa, *L.*

Pedda-budamana-pundu, Tel. Xanthochymus.

Pedda-canru, Tel, Flacourtia sapida.

Pedda cheti anuga or Kasara-kaya. Luffa tuberosa, *R.*

Pedda chilaka daduga. Saccopetalum tomentosum, *Hook.* f. and *Th.* i, 152.—Uvaria tom, *R.* ii, 667; *Cor.* 35.

Pedda chollu. Eleusine stricta, *R.* i, 33.

Pedda dante or Danti-chettu. Celastrus montana, *R.*

Pedda dosa. Cucumis momordica, *R.* iii, 720.—*W.* and *A.* 1053.

Pedda dulagondi or Dulagondi. Mucuna prurita, *Hook.*—Carpopogon pruriens, *R.* This is called pedda, or large to distinguish it from Tragia the lesser Dulagondi.

Pedda gella. Andropogon cymbaria, *L.* Anthistiria cym. *R.* i, 251.

Pedda gili gichcha or Manne. Crotalaria laburnifolia, *L.*

Pedda-gillakara, Tel. Fennel seed. Fæniculum panmori, *DC.*

Pedda goranta, Tel. Gomphrena globosa, *Linn.*

Pedda gumudu teku or Gumudu teku. Gmelina arborea, *R.* Sans. syn. Bhadravati, *W*. .612.

Pedda illinda or Illinda. Diospyros chloroxylon, *R.*

Pedda ita or Ita. Phœnix sylvestris, *R.* The term pedda great may have reference to P. dactylifera.

Pedda ida chettu or Ida-chettu. Citrus aurantium, *L. var.*

Pedda-jani, Tel. Ficus t'siela, *Roxb.*

Pedda jila karra. Fœniculum vulgare, *Gærtn. W.* and *A.* 1145—F. Panmori, *R.* ii, 94.

Pedda-jovi, Tel. Ficus t'siela, *Roxb.*, *Rh.*

Pedda kala mesara or Gidugudu. Casearia, *sp.*

Pedda kalinga or Uvva. Dillenia speciosa, *Thunb.*

Pedda Uvva or Pedda kalinga. Dillenia speciosa, *Thunb.*—*W.* and *A.* 17. *W. Ic.* 28—*R.* ii, 650.—*Rheede* iii, 38-9.

Pedda-kalivi pundoo, Tel. Carissa carandas.

Pedda kana regu. Flacourtia sapida, *R.* iii, 835; *Cor.* 69—*W.* and *A.* 104.

Pedda karinga, Tel. Gardenia latifolia, *Ait.*

Pedda konda kandulu or Kandulu. Cytisus cajan, *L.*

Pedda manu or Peyyapa. Ailanthus excelsa *R.* ii, 450; *Cor.* 23—*W.* and *A.* 481—*W. Ill* i, 67.

Pedda mattu. Basella rubra and alba, *L.* It may be Mattu bachchali, Spinacia tetrandra.

Peddamavaru, see Hindoo.

Pedda mranga, Tel. Randia uliginosa, *DC. W. and Ic.*

Pedda moralli. Buchanania angustifolia, *R.* ii, 386; *Cor.* 262—*W.* and *A.* 526—*W. Ic.* 101.

Pedda mranga chettu or Devatamalle. Randia uliginosa, *DC.*

Pedda mukudu chettu. A medicinal tree.

Pedda mulu goranta. Barleria buxifolia, *L.*–*R.* iii, 37—*W. Ic.* 870—*Rheede* ii, 47.

Pedda-munga, Tel, Vangueria spinosa.

Pedda nelli kura or Nelli kura. Premna latifolia, *R.*

Pedda neredu or Jamboo neredu. Eugenia jambolana, *Lam.*

Pedda nidra kanti. Mimosa pudica, *L.*—*R.* ii, 564.

Pedda nili chettu or Karu nili. Indigofera cœrulea, *R.*

Pedda nimma chettu or Gajanimma. Citrus medica, *L.*

Pedda nowlee, Tel. Ulmus integrifolia, *Roxb.*

Pedda pala or Putajilledu. Wrightia tomentosa, *Rom.*

Pedda palleru or Enuga palleru. Pedalium murex, *L.* Sans. syn. Trikantaka W. 388, applies to Ruellia longifolia, R.

Pedda papara chettu. Cucumis, *sp.*

Pedda pavili kura or Goddu pavili. Portulaca quadrifida, *L.*

Pedda pilli pichara. Asparagus acerosus, *R.* ii, 150.

Pedda ponuku gaddi. Ophiurus corymbosus, *Gærtn.*—Rottbolla corymb. *R.* i, 355; *Cor.* 181.

Pedda puli, Tel. Felis tigris, *Linn.*

Pedda pulimera or Pala dantam. Ehretia lœvis, *R.* This sp. is found in shady spots at Simhachalam. The plant does not agree strictly with Nees' description, but appears to stand between S. diandra and confertum.

Pedda rantu. Stenosiphonium confertum, *Nees.*

Pedda-pel-kuru, Tel. Portulaca oleracea, *Linn.*

Pedda-relloo, Tel. Pens., Reeds.

Pedda sadapa chettu. Anethum sowa, *R.*? or Pimpinella anisum, *L.* Sans. syn. Sata pushpa, W. 877.

Pedda saka. Cyperus umbellatus, *Vahl.*—*R.* i, 205.

Pedda sodi, Tel. Eleusine stricta, *Roxb.*

Pedda sopara or Erra pachchari. Dalbergia frondosa, *R.*

Pedda-sulu, Tel. Eleusine stricta, *Roxb.*

Pedda tapasee.

Burree tapasee, Hind. | Pidda tapasee, Tel.

Pedda teku or Teku. Tectona grandis, *L.*

Pedda tummi or Tummi. Leucas cephalotes, *Spreng.*

Pedda uda. Panicum stagninum, *Retz.*—*R.* i, 1. 295.

Pedda ulimera or Ullinda. Diospyros chloroxylon, *R.* 11. 538; *Cor.* 49—*W. Ic.* 1224.

Peddi-ulinda, Tel. Diospyros chloroxylon; *Roxb.*

Pedda vara goki. Salvadora indica, *W.*—*R.* i, 389; *Cor.* 26—*W. Ic.* 161.

Pedda vaminta or Kukka vaminta. Polanisia icosandra, *W.* and *A.*

Pedda vemu. Andrographis, *sp.*

Pedda vodala. Panicum, *sp.*

Peda-warago-wenki, Tel. Salvadora persica. —*Linn, Elliot's, Flora Andhrica, Ainslie's Mat. Medica.*

PEDARI, a fierce Gramadevata.

PEDDAUKU KURRU, Tel. See Peddouk wood.

PEDDI, Singh. Silver.

PEDDO, Tel. Celastrus montana.

PEDICULATI, family, comprises,

3 Lophius, 2 Brachionichthys, 1 Saccarius, 29 Antennarius, 1 Chaunax, 2 Malthe, 1 Halieuseta, 1 Ceratias.

PEDILANTHUS TITHYMALOIDES, the Jew bush, of the West Indies, introduced into the Calcutta Garden, and now common everywhere about Calcutta in hedges. A shrub about 6 feet high, abounding in white bitter milk, known and used in America as ipecachuana:

in numerous trials no proof was obtained of its efficacy; this is probably the result of deterioration of properties through the influence of the climate of Bengal, as this American plant, is used in the West Indies as a substitute for the ipecacuanha. It is seen in cultivation occasionally, and in the neighbourhood of Calcutta it is abundant as a wild plant.—*O'Shaughnessy, p.* 566; *Mason.* See Euphorbiaceæ.

PEDIR POINT or Batoo pedir, in lat. 5° 31' 00" N., long, 95° 52' 30" E. bears distant 15 miles from Batoo Pootie S. 65° E. and is a table-land of moderate elevation.—*Hors.*

PADMA or Kamala, see Lakshmi, Vedas.

PEDMALAYA, see Lakshmi.

PEDONG, Burm. Pterocarpus marsupium.

PEDRA BRANCA or White Rock, in lat. 1° 20' 20" N., long. 104° 25½' E. lies in the middle of the entrance of the Straits of Singapore, 7½ miles west from the east peak of Pulo Aor, on which is erected the Horsburgh lighthouse. —*Hors.* See Singapore.

PEDRA BRANCA, or Tysing-Cham, a rock with a summit on the south coast of China, in lat. 22° 18½' N. and long. 115° 7¾' E., 49 miles eastward of Lema Island.—*Hors.*

PEDRAHUME, Port. Alum.

PEDRO DA COVILHAM and Alfonso de Payva, were sent as merchants in 1494, viâ Genoa, Alexandria, Cairo and the Red Sea, to Aden, where they separated to meet again at Cairo, in Abyssinia, Payva to search for Prester John, whom he heard of as reigning there over a highly cultivated people, but he died before reaching Abyssinia. Covilham went on to India where he made drawings of cities and harbours, especially Goa and Calicut. Thence he returned along the coast of Persia to Cape Gardafui, and continued south to Mozambique and Zofala where he ascertained that that land joined the Cape of Good Hope. From Zofala he returned to Abyssinia and sent his diary, charts and drawings to Genoa by some Portuguese merchants who were trading to Memphis. On receipt of these, king Emmanuel, in 1495, sent four ships under Vasco de Gama, who visited Natal and Mozambique: in 1498, he was at Calcutta, in 1499 back at Lisbon.

PEDRO POINT, see Tanjong bato.

PEDRO-TALLA-GALLA, the highest peak in the mountains of Ceylon, 8,280 feet above the sea.

PEDUM, a genus of molluscs.

PEDUMPA, or Puli dumpa, Tel. Dioscoria dœmona, *R.* iii, 805—*W. Ic.* 811—D. triphylla, *Willd.—Grah. cat.* 218. Roxb. distinguished between these two sp. which Graham has united.

PEEAZ, Hind., Pers. Onion.

PEECH, Pers. Tallow.

PEE-CAJENNEAM, Wedelia calendulacca.

PEECUM CHEDDY. Luffa acutangula.

PEE-DAUP, Burm. Mimosa, *species.* A wood of Tavoy.—*Dr. Wallich.*

PEEDOO MARUM. Tam., the Peemah wood. A small tree wood used for building in Wynaad where it grows plentifully.—*McIvor, M.E.*

PEEK DAN, or Oogal dan, Hind., a spitoon.

PEEKUN-KAI, Tam. Cucumis acutangulus.

PEELA-BHUNGARA, Beng., Hind. Wedelia calendulacea.

PEELA-BHUNGARA, Duk. Verbena triphylla.

PEELA MOM. Hind. Yellow bees' wax.

PEELAN, the largest of the Islands adjacent to Baseelan, is about 7 miles long.—*Hors.*

PEELA PULLUM, Tam. Artocarpus integrifolia, *Linn.*

PEELIA DOGHOO-KAIA, Tel. Mucuna prurita, Cowage.

PEELI SAYND, Duk. Euphorbia tortilis.

PEE-MAH, Burm. Lagerstræmia, *sp.*

PEEMAH WOOD, Anglo-Burm. See Peedoo marum.

PEE MA PEW, Burm. White Peema, a tree of maximum girth 6 cubits and maximum length 30 feet. Very abundant all over the Tenasserim and Martaban provinces near the red Peema. When seasoned it floats in water. It is a tough wood, lighter than, but does not last for so long a time as, red Peema, and rots in any position when shut out, as in the hulls of ships, in store, &c.—*Captain Dance.*

PEE MARUM, Tam. Sterculia guttata.

PEENARI MARUM, or Peenata Marum, Tam. Sterculia fætida.

PEENGADO and Bambwai, timber of Burmah possess the same property as Anan in resisting decay, but are less abundant, denser in grain, abound in knots and are smaller in size than that timber: they are, however, prized by the Burmese for their useful properties, and are with Thengan generally used in the whole tree as posts for monasteries, houses, &c. "In the construction of wharfs and embankments on the river face, both "Anan" and "Peengado" would be found valuable for posts, and if proper care be observed in the selection of the timber and in freeing it from all the sap portions of the tree, it would doubtless prove as lasting as brickwork.

PEENNAS, Hind., Tam., Tel. Beans.

PEEPOOLI-JHUN-JHUN, Beng. Crotolaria sericea.

PEEPUL, Hind. Ficus religiosa, *Linn*, the poplar-leaved fig tree, the celebrated tree of Buddha Gaya, of which a shoot has been cherished at Anurajapura for twenty centuries. Such trees are maintained in the courtyard of nearly every wihara or temple in Ceylon as objects of veneration.—*Tennent*, i, 343, ii, 614; *Hardy's Eastern Monachism, p.* 212; *Knox, p.* 18; *Yule Cathay, Vol.* ii, *p.* 367.

PEEPULEE. Copper mines occur at this place.

PEER, Hind., a spiritual guide or saint.

PEERALHI.—? Epicarpurus orientalis.

PEERAN-I-PEER, the saint of saints, *i. e.*, Dustageer.

PEE-RAPUTHEE.—? Bignonia scabrella.

PEERIA NUDDY, near Gaenie in Bareilly.

PEER-I-DUSTAGHEER SAHIB, a mahomedan walee or saint whose tomb is at Baghdad. He is considered the chief of their saints—*Herk.*

PEER JULAL.—? oblations are offered at his shrine.

PEER MUGGUN. A place of mahomedan pilgrimage, ten miles west of Kurrachee, famous for its hot springs and crocodile tank, from which it is erroneously supposed to derive its name, the crocodile here being the long-snouted garial, not the short-nosed muggur. About a hundred of these are kept in a marsh close by.—*Dr. Buist's Catalogue.*

PEERO or Piru, Sindi, name of fruits, Mitha Piru, is Salvadora persica, Kan-pirun, Solanum incertum, Phika-piru, is Phyllanthus multiflorus.

PEEROONJOLAY MARAM, Tam. Hymenodyction utile.—*W. Ic.*

PEER POINTEE. Father Pointee, or St. Pointee, a mussulman saint. His tomb, resembling that at Sicligully, though less picturesquely situated, stands on a little cliff above the river, with some fine bamboos hanging over it.—*Heber's Journal, Vol.* i, *p.* 199

PEER PUTTA, Hind. Chamærops ritchiana, *Griffiths.*

PEER PUTTAREE. Hind, an agate.

PEERZADAH, Pers., Hind. Son of a Peer, from Peer, a saint, and Zadah, the offspring. It means a religious devotee, and is considered a most sacred appellation.—*Pottinger's Travels in Beloochistan & Sind, p.* 139.

PEETA, also Haridra, Sans. Turmeric, Curcuma longa, *Roxb.*, *Rheede.*

PEETAKARA, Hind. Chrysophyllum acuminatum.

PEETALEE SHEERNEE, Hind. Cakes of raw sugar.

PEETAMVARA, Sans., from peeta, yellow, and umbara, cloth.

PEE-TANDALE COTTI, Tam. Crotalaria verrucosa.

PEETAPOOR. In Guzerat, occupied by the Bagela race.

PEETHA KALABUNTHA, Tel. Agave vivipara.

PEE THA KHA HSEN PREE, Burm. Ca sia *sp.*

PEE THA KHA HSEN BAU, Burm. Ca sia, *sp.*

PEET-SHAL, Beng. Peet shala, Hi Pterocarpus marsupium.

PEETUL, Guz., Hind. Brass.

PEETUMMA, Tel. Vachellia farnesiana *W. & A.*

PEEYAR CHEROONJIE, Hind. Buch anania latifolia.

PEGANUM HARMALA, *Linn.*

Harmala ruta.

Syrian rue,	Eng.	Harhar?	Hind.
Hurmaro,	Duk.	Islam lahori,	"
Harmal,	Hind.	Spelane,	Tr.-Indu
Isband,	"		

This plant occurs in many parts of Indi and is found in the Taj garden at Agra. Th seeds are used in native medicine, and calle Lahoree Hoormul. In the "Mukhzun-ul-U wiah," the seed is called Moolie; the same the Πήγανον of Dioscorides. Peganum harmal and Lactuca virosa, are both said to posse narcotic properties like opium. Many nort African or Arabian forms, such as Peganu Harmala, Fagonia cretica, Balanites Ægyptiac Acacia arabica, Alhaji, Grangea, Calotropi Salvadora persica, extend through the dri parts of India, and others, Cleome, Balsamode dron, Astragalus hamatus, Cucumis colocynthi Berthelotia, Anticharis arabica, &c., have less extensive range, and there is a striki resemblance between the vegetation of tropic Africa and tropical Asia. Used in dyei black. The seeds of this plant are attracti attention in Europe as a brown and black dy The plant grows everywhere on waste brok ground in the Punjab, and might be collect at a very cheap rate, except perhaps as regar carriage but the subject wants attention. Th Peganum harmala is abundant in ma parts of the Punjab plains from the Su lej westward, is more rare to the east. also occurs in the N. W. Himalaya up Kashmir (5,000 feet), and in Tibet at 8,30 feet (*Thomson*). Has a strong nauseous smel was remarked by Elphinstone (en route Kabul) near Peshawar, and compared to "Dev in the bush," so was supposed by Royle to b Nigella. The seeds of this plant were at one ti imported into England from the Crimea, &c., a red dye, and some years ago enquiries we made with a view to sending some for tri from the Punjab. But it was found that the would not have a chance, chiefly owing to th discovery of the cheap coal-tar dyes. It is an i digenous and abundant plant. Principall used as a fumigatory agent to avert evil influences especially when any person is presen suffering from wounds, ulcers or abscesses. Th plant is considered proper only for sweeper and not to be touched by Sikhs or Hindoos, but the seeds are burned on a fire if any person enter a room who may have any discharge which could render him unclean.—*Drs. Hooker and Thomson's Flora Indica, pp.* 83, 115; *Powell's Hand-book, Vol.* i, *pp.* 295, 335, 452; *Royle, p.* 155; *O'Shaughnessy, p.* 260.

PEGASUS, a genus of fishes of the section Syngnathidæ, one of the species is known as the flying horse: the flying fish and flying gurnard, are other flying fish.

Pegasus natans, L.—Three inches long, a small fish with two largish fins near the head.

Pegasus draconis, L.—Three inches long, dark-coloured, with two very large fins near the head.

PEGU lies between the parallels of 15° 44′ and 19° 27′ north latitude and the meridians of 94° 31′ and 96° 52′ east long. The area is estimated at 32,250 square miles, and is allotted for revenue purposes into the following divisions:—

Rangoon, Sq. M.	9,800	Henzada, Sq. M.	2,200
Bassein, „	8,900	Tharawaddi, „	1,950
Prome, „	5,500	Tounghoo, „	3,900

The inhabitants consist principally of Burmans and Peguers; the Karen; the Karen-nee or Red Karen; the Khyin whose women tattoo their faces; the Yeh-baing of the Yoma range and the Shan, who form separate communities. Under the Burmah rule, the revenue of Pegu is supposed to have been about Rupees 15,71,498, but the revenue, about the year 1857, amounted to Rupees 30,21,062, two-thirds of which amount is raised from taxes on the land, capitation, fisheries, excise and inland and sea customs. Major Phayre, in July 1856, set down the following as the area and population of the British Province of Pegu.

District.	Area in Sq. Miles.	Pop.
Rangoon	9,800	137,130
Bassein	8,900	128,189
Prome	5,500	70,000
Henzada	2,200	103,775
Tounghoo	3,950	34,957
Tharawaddi	1,950	66,129
Total	32,300	540,180

Pegu has four great mountain ranges: the range separating Arracan from Pegu is about 4,000 feet high; the range separating the valley of the Irrawaddy from that of the Sitang, about 2,000 feet high; the Martaban and Tenasserim ranges, about 5,000 feet, and the fourth or most eastern separates the Sitang and Salween rivers, and extends into the large and compact mountain group of Younzallen to the south-east of Tonghoo. The area of this lofty region is about 100 square miles, and several peaks rise to 7,000 and 8,000 feet. Pegu was annexed by proclamation on 20th Dec. 1852, contained, in 1867, 32,300 square miles and 900,000 people; Tenasserim and Martaban contains 37,000 square miles and 332,000 people; Arracan contains 10,700 square miles and 362,000 people; Assam contains 20,000 square miles; since 1819, 100,000 square miles of territory have been conquered from Burmah in the province of Assam, Arracan, Tenasserim and Pegu.

Pegu collections.

1853-54	Rs. 12,44,767	1856-57	Rs. 34,90,478
1854-55	„ 23,30,603	1857-58	„ 40,81,477
1855-56	„ 30,21,062	1858-59	„ 45,31,120

The geographical area of the province of Pegu according to the last official returns of 1871, amounts to 32,250 square miles, and the population to 10,41,346.

Until 1863, its several provinces were most anomalously placed with reference to an efficient administration. Arracan was under the authority of the Lieutenant-Governor of Bengal, Pegu was under the direct control of the Governor-General in Council. Tenasserim was partly under the orders of the Governor-General in Council, and partly under the Board of Revenue, and the Sudder Dewanny and Nizamut Adaulut. Though of one cognate race the Burmese were thus subjected to different forms of British administration. There was no intelligible system conducted and no uniformity in any of the provinces. It was therefore, as natural as it was politic, to amalgamate them into one separate and distinct Government. Accordingly, on the 31st of January 1863, three maritime provinces of India beyond the Ganges, which had been conquered from the Burmese Empire, were united under one local administration and called 'British Burmah,' comprising the ancient kingdoms of Pegu and Arracan, with the long line of sea coast known as Tenasserim. The two last of these were acquired by treaty after the war of 1825-26. Pegu was occupied and retained consequent on the war of 1852.

The Province of British Burmah lies along the eastern shore of the Bay of Bengal, extending from the mouth of the Naf Estuary, in about 20° 50′ north latitude to the Pak Chan river in about 10° 50′. It possesses a direct line of sea coast, of not less than nine hundred English miles, and a total area of ninety thousand square miles. Each division possesses one principal seaport that is to say; Tenasserim has Moulmein; Pegu, Rangoon; and Arracan, Akyab. The first and last mentioned ports, have risen entirely under British rule, Rangoon was founded by Alombra, the Burmese conqueror of Pegu, and was peopled by the inhabitants of the ancient capital, who were brought away for that purpose. Arracan, the most northern division of the province, is separated to the eastward from Pegu and Upper Burmah, by a range of mountains, which attains at its greatest elevation, about seven thousand feet. The range runs nearly parallel with the line of sea coast, and gradually lowers toward the south. The northern portion of the country has a large area of alluvial soil, in the lower course of the river Kuladan and its numerous affluents. The breadth of the land there, from the seashore, to the water shed mountains is from eighty to ninety miles. A large portion of the country is hilly, covered with forest and difficult of access. The water shed range, separating Arracan from Pegu extends southerly, and between that range and the seashore, for a length of nearly two hundred miles, as far as a point of land near Cape Negrais, the country is a mere narrow strip of land. For the last hundred and fifty miles, the hills seldom exceed five hundred feet elevation. That portion of Arracan was united with Pegu, when the latter was occupied by the British.

Pegu and Martaban lie in the valleys of the Irrawaddy and the Sitang rivers. These valleys, bounded east and west by mountain ranges, are narrow in the upper portions, but expand at the delta of the Irrawaddy, into a magnificent alluvial region, penetrated by a vast number of tidal creeks, and extending over ten thousand square miles.

Northern Tenasserim is bounded to the west by the last hundred miles of the course of the great river Salween. This river without a delta and with passless rapids one hundred miles from its mouth, which bar the ascent of boats to Central Asia, is joined at Moulmein by two streams which facilitate communication with the interior. The breadth of land from the seashore at the mouth of the Salween to the central mountain range which divides the province to the eastward from Siam is about eighty miles. The space is gradually narrowed to forty miles at the southern extremity in 10° 50′ of north latitude. There is no river of importance southward of the mouth of the Salween. The interior of the country is a wilderness of hills, thickly wooded, running in a general north and south direction, with long narrow valleys. Several salt springs are found in the Henzadah district, undoubtedly of some economic value, in the localities where they are found. Nearly mid-distance between the valley of the Irrawaddy on the east, and the coast line of the Bay of Bengal on the west, runs the Yomai or Arracan range of mountains. Spurs of this range are first seen after passing above Henzadah. On the eastern slopes of these hills, and in the valleys lying at their base, some thirteen distinct localities have been traced, where these brine springs are found. With only two or three exceptions, there are small streams running near the positions of these salt wells. The water of some of these springs, is exceedingly salt and briny. For years past, the people of neighbouring villages have worked them in manufacturing salt. It is obtained by the ordinary mode of evaporation from pans, by a slow process of boiling. The salt is considered good, and is sold at reasonable rates, to the surrounding villages. To these people, the existence of that repository of salt, is most advantageous. A supply of that wholesome and essential condiment is thus procurable not far from their own dwellings. The great bulk of the salt used by the population of the province, and even in the Burmese territory, is, however, manufactured at the villages which fringe the sea coast. The price is very reasonable and is cheap at the places where it is produced. The higher up the river it is taken, the more expensive it becomes, though it never attains to a price, which places its use beyond the reach, of even the poorest among our peasantry. All of the thirteen salt springs which lie generally near the base of the Arracan hills, have been worked by the people of the country. A few are still worked. One of unusual richness, is pronounced to be capable of yielding 920 pounds avoirdupois of salt daily. The wholesale price of salt in the villages where it is manufactured, is between five and six thousand Burmese viss, per hundred rupees. This would make it as low, as three farthings per pound. In the Rangoon market, it is sold at four, to four and a half rupees per hundred viss, or a few fractions over a penny a pound. When conveyed up the Irrawaddy, or inland, it fetches about double and treble this rate.

Dr. McClelland noticing 76 timbers, of the Pegu forests generally, says, eighty-five species of white woods are soft and useless, being only fit for fuel. Many of them however are valuable, either for their fruit, gums, oil-seeds or spices ; others, for their close and compact structure, are employed in the manufacture of small ware, as a species of Nauclea is used for making combs and two species of Erythrina yields the light charcoal employed in the manufacture of gunpowder. These light woods, useless as timber, belong to the families of Urticaceæ (including more than twenty species of Ficus,) and Sterculiaceæ, Laurineæ, Rubiaceæ, Myristicaceæ, Anonaceæ, Spondiaceæ and Bignoniaceæ, with odd species from other families.

The remaining white woods, twenty-five in number, are valuable for their strength and closeness of grain. Seventeen of these are fit for house-building, viz.

Hibiscus macrophylla.
Kydia calycina.
Eriolæna tiliifolia.
Amoora (Aglaia) rohituca.
Juglans tricocca.
Geloxium bifarium.

Connarus speciosa.
Grewia floribunda.
„ spectabilis.
„ Hookerii.
Sapindus rubiginosa.
Millingtonia simplicifolia.
Sandoricum indicum.
Excæcaria agallocha,
Walsura piscidia.
Canarium geniculatum.
Indigofera sp.
Terminalia belerica and T. violata.

And eight of them from the hardness and fineness of their grain, are valuable as fancy woods for cabinet making, viz.

Semecarpus anacardium.
Sibia sp. (glomerata.)
Casuaria pentandra.
Chaulmoogra odorata.
Strychnos nux-vomica.
Conocarpus robustus.
Bauhinia parviflora.
„ brachycarpa.
Elæodendron integrifolia.

The red-colored woods are twenty-five in number, seven from their strength and solidity, are adapted for the various purposes of house-building; viz.

Heritiera minor.
„ litoralis.
Eugenia pulchella.
„ myrtifolia.
„ vulgaris.
„ tenuifolia.
„ jambolana.
Sonneratia apetala.
Terminalia chebula.
Lagerstræmia pymmah.
Aglaia spectabilis.
Ulmus alternifolius.
„ integrifolius.

Seven woods from the elegance of their grain and colour, are suited to the various purposes of which mahogany is used, viz.

Cedrela toona.
Swietenia chikrassa.
Armosia dasycarpa.
Pterocarpus dalbergoides.
Careya arborea
Barringtonia acutangula.
„ speciosa.
Castanea indica.

And eleven are suited to the finer purposes of fancy cabinet work, viz.

Adenanthera pavonina.
Calophyllum longifolium.
Dolichampia pomifera.
Pygium acuminata.
Photinia serratifolia.
Acacia stipulata.
„ catechu.
„ serissa.
„ elata.
Ricinus dicocca.
Antidesma paniculata.

Yellow woods are four in number, hard and fine grained, and suited to fancy purposes.

Gmelina arborea.
Morinda bracteata.
Morinda exserta.
Garcinia cowa.

The dark-brown woods are twelve in number and are all valuable. Eleven are adapted for house-building, and probably for ship-building and one for special purposes requiring great strength and hardness.

Pterospermum aceroides.
„ subacerifolium
„ acerifolium.
Pentaptera arjuna.
„ glabra.
Melanorrhæa usitatatissima Theetsee or Lignum vitæ.
Dalichampia pomifera.
Butea frondosa.
Mangifera attenuata.
Anacardium occidentale.
Zizyphus jujuba.
Averrhoa carambola.
Pierardia sapota.
Ancestrolobus carnea.
„ mollis.
Rondeletia tinctoria.

The black woods consist of five different kinds, all of which are valuable for their strength and hardness.

Dalbergia, Species.
Cassia Sumatrana.
Inga xylocarpa.
„ bijemina.
Diospyros melanoxylon.

The light-brown woods are nine embracing all the timber of most value in the province, exclusive of teak.

Dipterocarpus alatus.
Dipterocarpus turbinatus.
Shorea robusta.
Melicocca trijuga.
Dillenia augusta, also D. scabra and D. speciosa.
Hopea odorata.
Azadarachta indica.

The above list embraces all the useful timber found in the forests of the Pegu province, except teak. The following trees may be had of any size and to any extent.

Sapindus acuminata.
Odina woodier.
Dillenia augusta.
Dillenia scabra.
Blackwellia spirals.
Blackwellia perpinqua.
Cluytia amœna.
Bombax pentandra.
Connarus, species.
Nauclea parviflora.
Nauclea cordifolia.
Nauclea undulata.
Nauclea cadamba.
Uvaria ventricosa.
Bignonia spathodea.
Bignonia coronaria.
Bignonia adenophylla.
Sterculia alata.
Sterculia ornata.
Sterculia ramosa.
Sterculia fœtida.
Sterculia balangas.
Sterculia guttata.
Ricinus dicocca.
Artocarpus incisa.
Artocarpus liquosa?
Sandoricum indicum.
Pentaptera glabra.
Pentaptera arjuna.
Diospyros melanoxylon.
Terminalia bellerica.
Terminalla scevola.
Hibiscus macrophylla.
Grewia floribunda.
Ficus macrophylla.
Ficus lanceolaria.
Ficus congesta.
Ficus glomerata.
Ficus cordifolia.
Ficus nitida.
Ficus usophyla?
Ficus pilifera.
Ficus bifasia.
Ficus mamilaria.
Ficus oppositifolia.
Kydia calycina.
Eliodendron, species.
Celtis tetranthera.
Grewia nudiflora.
Strychnos nux vomica.
Garcinia cowa.
Dipterocarpus turbinatus.
Dipterocarpus alatus.
Walsura piscidia.
Waltheria velutina.
Macroclœna spectabilis.
Dalbergia robusta.
Dalbergia frondosa.
Lagerstræmia pymmah.

The town of Pegu, was captured on the 3rd June 1852. The races occupying British Burmah are the Burmese, the Talieng or Mon the Karen, and numerous mountain tribes, and tribes dwelling near the rivers.—*Winter's Burmah, p.* 16; *Report by Col. Phayre, Rangoon Times*; *Dr. McClelland in India Selections, No.* ix. See Amherst, Burmah, India, Idrawadry, Karen, Mon, Moulmein, Rangoon, Talieng.

PEGOO, Tib. The yak Cow—small, like the cow of Bengal. Hair long. *Sauh*—cross between cow and yak. *Sauh Yak*—produce of cow by yak bull. *Ba Sauh*—produce of female yak by bull. These are great milkers, better than yak or cow; tail half-cow, half-yak. Females give young with bulls or yaks, best produce with yaks. Elevation of shoulder less than in the yak. Hair long, but less so than the yak.

PEH-FEN, Chin. White-lead.

PEHJABAH ISLANDS. Two small islets off the coast of Sumatra.

PEH-KIANG, Chin. Zingiber officinale, *Roscoe, Roxb.*

PEH-LAH, Chin. Insect-wax is a product of the province of Sz-chuen, where the tree on which it feeds, the Peh-lah shrub, flourishes, but though the insect thrives there, it is found necessary to keep up the supply of insects by the constant importation of eggs from beyond the western frontier of the province. The insect is about an inch in length, and of pale-grey colour and one insect exudes an ounce of wax in the season, of the summer months. The insect is not affected by rain but, when the leaves fall it dies. The wax is then collected and melted in a cloth over boiling water. It is pure white. On the largest cakes in Hankow is often observed written, "it mocks the frost and rivals the snow." The price was 40 dollars a picul or about 15*d.* a pound. The vegetable tallow of which candles are usually made melts with great facility; in order therefore, to prevent them from running, they are coated with a thin crust of finest insect wax, which is extremly hard, and slow to melt, so that it retains the vegetable tallow in a liquid state and is a clean and economical ingredient. —*Oliphant, p.* 405.

PEHLEVI, an ancient language used in the time of Ardeshir now called Huzvarish. It was the ancient language of the Persians prior to the mahomedan conquest by the Khalifs, in A. D. 636. See Arian, India, Iran, Pahlavi.

PEHLWAN or phailwan, PERS. In ancient writings applied to a hero of romance, such as an Amadis de Gaul, &c., who performs feats of wonderful or superhuman prowess. But of late it has been used to less heroic characters: wrestlers, prize fighters, and bullies, as well as persons of great strength and courage.—*Fraser's Journey into Khorasan, p.* 376.

PEHMER, see Kandeh rao.

PEHO. The two rivers Sha-ho and Peho, unite below Peking, and afterwards bear the latter name. The lake is that called Thai-i-tchi or Si-hai-tsu, to the east (west) of the imperial palace.—*Yule Cathay, Vol.* ii, *p.* 259. See Peiho.

PEHOA, or Prithudaka, near Thanesar.

PEE-T'UNG, CHIN. Zinc.

PEH-T'UNG-YU, CHIN. Wood.

PEH-YUEN, CHIN. Zinc.

PEH-YUEN-TAH, CHIN. Oxide of zinc.

PEI or Pey, also Pisacha, TAM. A demon. Though pey and pisacha are to a certain extent, interchangeable, yet people who are skilled in diabolical refinements draw a distinction between them. Pey, they say, means the ghost of a human being that has become powerful and malignant. It has a name and a place of residence, and is systematically worshipped. The pisacha, on the other hand, they say, has no home, or name, or worship. The bhuta, they add, is a demon of a higher order, an attendant on the brahmanical demon-gods. It is still more worthy of notice that pey has meanings which pisacha has not. In combination with names of plants pey means wild, uncultivated, useless for human food; in combination with names of animals it means insane. The use of a word in combination often throws light on its original meaning, it is possible that this application to plants and animals may be only a metaphorical transfer of the older meaning of "devil." Still, in either case, the direct derivation of pey from pisacha, a word which is never used in this way, may be regarded as improbable.

PEIARA, BENG. Psidium pyriferum, *Linn.*

PEIGNES, FR. Combs.

PEIHO, or white river, disembogues into the Gulf of Pe-Tche-Lee, has four mud forts with about 100 guns, at its southern entrance. See Pe-ho.

PEI-KHYEN, BURM. Chavica Roxburgii, *Miq.*

PEIL MUNDI, HIND. Tanacetum vulgare.

PEING, BURM. Colocasia antiquorum, *Scht.*

seet tung, BURM., Colocasia indica ?
peing ma haw ya, BURM., Colocasia odora, *Voigt*
koung yen peing, BURM., Colocasia, *sp.*
pan nai nat, BURM., Colocasia, *sp.*
peing kyan, BURM., Colocasia, *sp.*
peing ung, BURM., Colocasia, *sp.*
peing kyoung khyæ BURM.. Colocasia, *sp.*
peing shan, BURM., Colocasia, *sp.*
peing pan htwon, BURM., Colocasia, *sp.*
wet kyouk peing, BURM., Colocasia, *sp.*

PEIN-GO, BURM. A boat on the Burmese rivers. See Boat

PEING-NAI, BURM. Artocarpus integrifolia, *Linn.*

PEINI-MARM, MALEAL. Syn. of Vateria Indica. *Linn.*

PEISHWA, or Peshwa, a title of the chief minister of the Mahratta kingdom. Sevajee, the founder of the Mahratta power, began his career as a plundering bandit at the early age of seventeen, and at the time of his death in 1680, he had established his power over the greater part of the Concan. He had few pretensions beyond those of a successful rebel against the declining mahomedan power. Most of his possessions were wrested from his son and successor Sambajee, who was taken prisoner by Aurungzeeb and cruelly put to death, and whose son, Saho or Sahojee, was carried into captivity. But the efforts of the emperor to subdue the Mahrattas, in which he persevered till his death in 1707, were unavailing. For although he succeeded in taking most of their forts, the Mahrattas under different leaders revenged and enriched themselves by incursions into the imperial dominions, and overran the whole country south of the Nerbudda. The ill-judged bigotry of Aurungzeeb, in provoking by religious persecution the Rajpoot princes of Malwa, favoured the cause of the Mahratta invaders. But it was chiefly during the weak reign of Mahomed Shah that the Mahratta supremacy was extended. Sahojee was released from captivity on the death of Aurungzeeb, but on his return to the Deccan, he found himself opposed by his cousin, Sevajee, and his aunt, Tara Bai. By the ability of his minister Balajee Biswanath, Sahojee succeeded in recovering his rights. Being addicted to ease and pleasure, Sahojee, nominally the head of the Mahratta power, established himself at Sattara of which place his successors became titular rajahs ; while the real authority and actual supremacy in the Mahratta confederacy devolved on Ballajee, in whose family the office of Peishwa became, as offices under the Mahratta rule usually did become, hereditary. Ballajee Biswanath died in April 1720, and was succeeded by his son, Bajee Rao, who held office for twenty years. The armies of Bajee Rao ravaged Guzerat, and completely reduced Malwa, of which province Bajee Rao was created soubadar by the emperor of Delhi, being aided in this by the policy of the Nizam, who wished to interpose the Mahrattas as a barrier between the court of Delhi and his own possessions. After overrunning Bundelcund and Hindoostan, and exacting a promise of chout or a fourth of the revenue of the Delhi empire, Bajee Rao returned to his southern possessions. He died in 1740, on the banks of the Nerbudda, when marching to renew his depredations in Hindoostan. A year before his death, the British Government concluded a treaty with him, principally of a commercial nature. Bajee Rao left three sons, Ballajee Bajee Rao, Ragoba, and Shumsher Bahadoor, an illegitimate son by a mahomedan woman. The last succeeded to thePeishwa's possessions in Bundelcund, and his descendants became the titular nawabs of Banda. Ballajee Bajee Rao, commonly called Nana Sahib, succeeded his father in the office of Peishwa, after some opposition from Ragojee Bhonsla and the Guikwar and on his accession he went through the mock ceremony of receiving investiture from the hands of the nominal rajah Saho. He was of an inactive disposition, and entrusted his internal government to his cousin, Sedasheo Rao Bhow, and the command of his armies to his brother, Ragonath Rao or Ragoba. During this administration, Angriah of Colabah was reduced, in 1756, by a joint expedition of Mahrattas and English. In the time of Bajee Rao, the chiefs Scindia and Holkar had risen from a low position to be the principal leaders of the Mahratta armies under Ragoba. The whole of Malwa was divided between them and a few jaghiredars, of whom Anund Rao Puar of Dhar was the principal. The Mahratta influence was now supreme at Delhi, where the dissensions of the court had invited their interference. In 1758 the Mahratta conquests were extended as far as Lahore and Mooltan by Ragoba. But these aggressions provoked the fifth invasion of Ahmed Shah, Abdalli, at whose hands the Mahrattas sustained a disastrous defeat at Panipat, which for a time destroyed their power in northern India. This defeat was to some extent occasioned by a temporary exchange of functions between Ragoba and Sedasheo Rao Bhow. The Peishwa survived this disaster only a few months.

Balajee Bajee Rao, commonly called Nana Sahib, was succeeded by his second son, Madho Rao Bullal, then 17 years of age, under the regency of his uncle Ragoba. Shortly after his accession, his territories being threatened by the Nizam, the Peishwa became desirous to settle some existing disputes with the British which had arisen in consequence of attacks made on the Sidee of Jinjeera, an ally of the British government. The disputes were adjusted by treaty. Negociations were also entered into by the Mahrattas with a view to obtain military assistance from the British, but they were suddenly broken off, the Mahrattas having in the meantime come to terms with the Nizam. Ragoba long endeavoured to keep Madho Rao in a state of dependence, but the talents and address of the latter enabled him to assume the administration which he held for eleven years. He died in 1772 without issue. The year before his death the influence of the Mahrattas was re-established in Upper India by Scindia, who overran Rohilcund, detached the emperor Shah Alim from alliance with the English, and replaced him on the throne of Delhi where he held him in a state of tutelage. The death of Madho Rao was followed by the murder of his brother and successor, Narrain Rao, and the usurpation of Ragoba. A revolutionary party was formed by the chief ministers of the State in favor of Gunga Bai, widow of Narrain Rao, who after her husband's murder, gave birth to a son, Madho Rao Narain. Ragoba, on the other hand, strengthened his position by negociations with Scindia, Holkar, and the British. Being deserted by Scindia and Holkar, Ragoba was fain to purchase the assistance of the British by ceding Bassein, the island of Salsette, and other islands on the Bombay coast, which the British had long but unsuccessfully endeavoured to obtain, and of which they had recently taken possession in anticipation of their being occupied by the Portuguese. The arrangements made were reduced to the form of a treaty on the 6th March 1775. Out of this treaty arose the first Mahratta war. The force which was sent to assist Ragoba gained some unimportant successes, which so pleased Ragoba that he presented to the British the districts of Humot and Amod, then estimated to yield Rs. 2,77,000 a year. But the successes of Ragoba were short lived. The Supreme government in Bengal disapproved of the Treaty and declared it invalid, and deputed an agent of their own, Colonel Upton, to negociate with the ruling ministerial party at Poona. In the meantime the ministerial party split into two factions, one headed by Nana Furnaves and

Scindia, in support of the young Peishwa, and the other by Moraba, the cousin of Nana Furnaves, who was supported by Holkar and the adherents of Ragoba at Poona. By the vacillation of Holkar the party of Nana Furnaves gained the complete ascendancy.

Hyder Ali died in December 1782, but his son Tippoo although professing acquiescence in the terms of the Treaty of Salbye, continued the war with the British; and a new treaty was concluded in October 1783 between Scindia and the British on the one part and the Peishwa on the other, to enforce his submission in accordance with the 9th Article of the Treaty of Salbye. Before the provisions of this treaty could be carried out, the Madras government had made peace with Tippoo by the Treaty of Mangalore. This treaty, which was concluded without the concurrence of the Peishwa, the Mahrattas affected to consider a violation of the Treaty of Salbye, but the ambitious designs which the leaders of the Mahratta parties now began separately to entertain reconciled them to the arrangements which had been made. On the first appearance of a rupture with Tippoo in 1790, Lord Cornwallis directed his attention to an alliance with the Peishwa. A treaty of offensive and defensive alliance was concluded, to which the Nizam was admitted. The chief Mahratta leaders had now become allies rather than dependants of the Peishwa. Separate treaties had been concluded by the British government with the rajah of Berar, the Gaikwar and Scindia, and it is only as confederacies of equals acting against a common enemy that the Mahratta chiefs again appear united. The independence of Scindia was virtually recognised by the Treaty of Salbye, and his separate conquests in Northern India and Malwa, although nominally held by him as deputy of the Peishwa, gave him full control over the court at Poona. The young Peishwa, Madho Rao, died on the 27th October 1795, and this event was followed by dissensions which threatened the dissolution of the Mahratta confederacy.

In the war which broke out between Scindia and Holkar in 1801, the united forces of Scindia and the Peishwa received a severe defeat on the 25th October 1802. The crisis was opportune for the re-establishment of British influence at Poona, and overtures for a subsidiary force made by Bajee Rao, who had fled from Poona, on Holkar's approach, were favorably received. On 31st December 1802, the celebrated Treaty of Bassein was signed. By this treaty the Peishwa was to receive a subsidiary force of six battalions with guns, and was to cede for their payment territory of the value of Rs. 26,00,000. Bajee Rao was re-seated on the musnud at Poona on 13th May 1802. Holkar fled on the approach of the British force, and Scindia after hesitatingly expressing his acquiescence in the arrangements to be made under the Treaty of Bassein, in which he saw the destruction of his scheme for obtaining control over the Poona government, changed his plans, and formed a league with the rajah of Berar to defeat the treaty. The campaigns against these Mahratta chiefs in 1803, and Holkar in 1805, completely broke up the Mahratta confederacy, and established once for all the supremacy of the British power in India. The territories then conquered from Scindia and the Rajah of Berar were distributed between the British government, the Peishwa, and the Nizam, by the Partition Treaty of Poona in 1804. The Peishwa's share was the city and province of Ahmednuggur. The system of non-interference which the government had followed in Central India and Malwa greatly stregthened the Pindaree hordes, and in 1815 their inroads into British territory made necessary a change in the policy of government. The Pindarees looked much to the support of the Mahratta chiefs. But Scindia was detached from their cause by the Treaty of 1817, Ameer Khan was gained over by being guaranteed in his territories, the force of Holkar was broken in the battle of Mehidpore, and after a harassing war the Pindarees were completely broken up and their chiefs forced unconditionally to surrender. In the meantime Bajee Rao, smarting under humiliation to which he was subjected by the recent treaty, took advantage of the Pindaree war to break off his connection with the British government. On 5th September 1817, after having secretly made extensive preparations for war, he suddenly attacked and plundered the Residency at Poona. After a desultory campaign, in which Bajee Rao continued cleverly to evade the British troops, he was reduced to the utmost distress, and in May 1818 offered to throw himself on the generosity of the British government. He was offered, and he accepted, terms by which he resigned his sovereign power, and agreed to reside at some spot on the Ganges, receiving an allowance at Rs. 8,00,000 a year. Bithoor, near Cawnpore, was selected as the place of his future residence. The residents within the jaghire which was assigned to him at Bithoor were exempted from subjection to the ordinary civil and criminal courts of the country by Regulation I of 1832. Bajee Rao died on 28th January 1851. He bequeathed all his property to an adopted son, Dhoondoo Punt Nana, who was recognised by the British government as his heir. No portion of the pension granted to Bajee Rao was continued to his family. The jaghire at Bithoor, however was continued for the life of Dhoondoo Punt, but the residents were made subject to the ordinary civil and criminal courts. Dhoondoo Punt is the notorious Nana Sahib who presided at the massacre of Cawnpore and took a leading part in the rebellion of 1857. His fate is uncertain.

It is a common impression among the Europeans in British India, that the newspaper press is a novelty in India, and its influence upon the proceedings of public men a thing only yet beginning, and not fully established.

Mahedeo Rao, Peishwa, the first of that name, reigned at Poona from 1761 to 1771. He was one of the greatest and best men of his time; an able warrior, a bold and fearless administrator and a most conscientious protector and father of his people; to whose misfortune he was carried off by sickness at the age of twenty eight. But his name is still held in veneration and had he lived, he might have made a great figure in history. He was one day seated on the Goolteree hill, near Poona, watching an elephant with his brother Narryen Rao, somewhat younger than himself, by his side, and all the chieftains of the court around. One of the elephants becoming angry, rushed towards the spot where they were standing, and all the officers, forgetting the respect due to the Peishwa, took themselves off with surprising rapidity. The young Narryen Rao rose to fly with the rest—but the Peishwa took him by the arm. “Brother,” he said, ‘what will the akhbars say of you?’ The youth recollected himself, composed his countenance as none but a native can, and sat down again; for a Peishwa's brother may be squashed, but must not run. The danger (as Grant Duff describes) soon became imminent, but was averted by the extraordinary courage of a Mahratta sillidar named Appajee Rao, Pahtunkur, who, drawing his dagger, sprang in front of the Peishwa, and turned the animal aside by wounding him in the trunk. The Peishwa declared that this incident gave him high hopes of his brother's future career, and that the brave lad would distinguish himself if he lived, but these two young men were cut off in early life before they were able to render the services to their country of which their virtues gave promise. The great pre-eminence in India which this extraordinary family acquired makes it absolutely necessary to conclude that there must have been some real heroism in their character and disposition to call it out; something at any rate beyond the mere cunning and audacity to which we are perhaps too much inclined to limit their claim to respect. And in truth when we turn to their history no doubt remains that they were very extraordinary men, possessing not merely ability but magnanimity and real patriotism. The first of them was Ballajee Vishanath, who obtained the office of Peishwa and possession of Poona in the year 1714, was an able minister, among several able men whom India then possessed, and died in 1720. He was succeeded by his son Bajee Rao, a man who may fairly be compared with Sivajee, as the second great consolidator of the Mahratta empire and whose career is one of the most romantic and extraordinary in history. He conquered Malwa and Bundelcund, and appeared, to the terror of the Mogul Emperor before the gates of Delhi; obtained a claim to a share in all the revenues of the Deccan; and compelled the veteran warrior Nizam ool Mulk in a most ably conducted campaign to surrender almost at discretion. Under his rule Scindia and Holkar rose to eminence; the former though of good family, was not very rich, and served originally as a simple sillidar, and was even entrusted, as tradition has it, with the care of the Peishwa's slippers. Bajee Rao died April the 28th, 1740. The extraordinary eminence of his talents, in contrast with the indolence of his master the raja Shao, caused the whole power of the state to be centred almost naturally in his hands; and a few years later the revolution in the reigning family which took place on Shao's death made the power of the Peishwas easily paramount.

Ballajee Bajee Rao his successor, was almost his father's equal; and it was under his reign, which lasted twenty years, that the fruits of his able administration were reaped, and the Mahratta empire extended to its widest limits. Nagpore had been conquered long before: Orissa and Bengal, Rajpootana, Rohilcund and Lahore were now successively laid under tribute. Under the “Nana Sahib,” as Balajee was then and is still generally called, the revenue of the Mahrattas rose to ten crores of rupees in one year; including exactions from foreign powers, he realised thirty-six. But it is his distinguishing glory that under his rule the country first obtained that tranquillity which is necessary to secure anything like prosperity, and the peasantry of the Deccan even yet regard his memory with gratitude, as the first ruler who obtained for them the blessing of peace after many ages of anarchy and trouble.

At last, however, these great successes ended in a reverse still more memorable. There was no power in India that could withstand the Mahrattas; but one such entered from the north-west, and contested with them the supremacy over Delhi. Only a few months before, a great Mahratta army, having amongst its officers the Peishwa's cousin Sudasew Rao for its commander, and the Mulhar Rao Holkar, several of the Sindia's, the Guicowar, Powar of Dhar, the Vinchoorkur, the Poorundhuree, and all the noted Mahratta chiefs, had taken Delhi; one of the chiefs had even proposed, perhaps in jest, to place Viswas Rao, the Peishwa's eldest son, who was also with them, on the throne of Aurungzeeb. But the formidable army appeared of Ahmed Shah, king of Cabul. The two armies met at Panniput on the 7th of January 1761, and on that fatal field the supremacy of the Mahrattas was lost for ever. Such of the survivors as returned to the Deccan left two hundred thousand of their dead behind them. The Peishwa's son and cousin, and the Dhar chief were among the slain. Ballajee Rao was crossing the Nerbudda northwards (for some reports of the impending danger had reached him, and he was bringing an army to the assistance of his friends) when a soucar's kassid was encountered with a note for some one in Aurungabad. The Peishwa opened it and read:—"Two pearls have been dissolved; twenty seven gold mohurs have been lost; of the silver and copper, there is no counting up the sum!" and the arrival of fugitives from the army soon placed the matter beyond a doubt, and all Maharashtra was in mourning. The old Peishwa never recovered the shock. He retraced his steps to Poona, and died at the temple of Parvati, which he had built, in June of the same year.

He had three sons, Viswas Rao, killed at Paniput; Mahadeo Rao, and Narrayen Roo the two brothers already mentioned and who successively held the office of Peishwa. Mahadeo Rao was distinguished in the field, but he was more distinguished by his not less intrepid and determined warfare against the corruptions which had crept into the administration. He had one quality which is a sure mark of greatness—the perception of great qualities in others, so that when himself almost a boy he was able to make the best possible selection of ministers. One of these was the celebrated Ram Shastree, who held the judicial administration—a man perfectly incorruptible, and on whose virtues there was no stain ever known to rest. He revived the punchayet system, and originated and consolidated that excellent code of caste law which has since been translated and explained by the learned labours of Professor Buhler, Mahadeo Rao died in 1771, and Narrayen Rao succeeded, only to fall a victim to the ambition of an unscrupulous woman. This was Anundee Bhai, wife of his uncle Rugonath Rao, or Rugoba. Rugoba was not a wicked, but he was a very weak man. He allowed his wife to persuade him to arm her with a written order empowering some one or other to seize the person of the young Peishwa; but having obtained it, she altered the word "dharrawe" into "marawe." The paper is still, it is said, in the Poona dufter, with the fatal correction plainly visible; and there is no Mahratta who does not believe that it was the hand of Anundee Bhai that made it. The consequence was that the young prince was slaughtered almost in his uncle's presence whither he had fled for refuge, in the now dismantled palace in the city of Poona, in the eighteenth year of his age. Rugoba did not reap the reward of his guilt; he was indeed proclaimed Peishwa, but public indignation was too strong to allow him to retain the sceptre. He was met too by a difficulty which it was strange he did not foresee; Narrayen left a widow pregnant, who easily obtained the support of a party among the ministers, and was conveyed to the fort of Poorundhur, where in 1773 she was safely delivered of a son—Mahadeo Rao the second. A year later Anundee Bhai also, whilst at Dhar, produced a son who became in his turn the second Bajee Rao. During the minority of these youths the government was administered by Nana Furnavees. The tragical end of Mahadeo Rao while still a youth, and the excitement among the people which followed, and which enabled Bajee Rao to assume the administration of the government, his disastrous reign, his fall, and the peaceful but inglorious end of his career,—are well-known. Of all the Peishwas he was—the last and the worst; a most unworthy termination to a succession of great men. After the murder of Narayen Rao, Rugonath, his uncle, appointed the incorruptible Ram Shastree to investigate it. The judge came to make his report. "Well," said the Peishwa, "who did it?" "you yourself," said the Shastree; "here is the order in your own hand-writing?" Rugonath admitted his partial complicity; he had given the order for the Peishwa's apprehension; and asked what atonement he could make. "Your own life!" said the indignant Shastree; "for you can be of no further service to your country, and you will never prosper as long as you live!" Nor did he. The Shastree added that he himself would neither enter Poona nor accept any employment while Rugonath bore rule. He kept his word, and retired to a sequestered village near Waee. The private life of Ballajee was stained with gross sensuality.—*Aitcheson's Treaties, &c.*, *pp.* 1-10.

PEITEIRA MANJO, also Peitiea manjo, MALEAL. Anacardium occidentale, *Linn.*

PEK, HIND. Plectranthus rugosus.

PEKA BANS, HIND. Dendrocalamus tulda, *Nees.*

PEKARA, TAM. Terminalia paniculata; *W. and A.*

PEKEA, a genus of plants inhabiting Guiana, and furnishing the Saouari or Sawarra nuts of the shops, a very different fruit from that to which the name of Saouari is given in Guiana. Pekea comprehends two species, the P. butyrosa and P. tuberculosa: the latter, which yields the fruit in question, is a very large tree inhabiting the woods of Guyana, were it is called Tatayouba by the Garipou Indians. The fruit consists of greenish compressed drupes, which adhere around a common centre, and contain a single seed of large size, covered with a brownish rugged woody shell, and enclosing a kernel of a soft consistence, and of the most delicate buttery quality. It is much superior to English walnuts, almonds and filberts. Pekea buttyrosa, is a large tree with a trunk 80 feet high, and 3 feet in diameter. The berries are covered by a rind two or three lines thick, and consisting internally of a buttery yellowish substance, which melts between the fingers, and which is sometimes used in cooking instead of animal butter. Under the rind lies a stone covered all over with slender stings, which easily separate, and become very troublesome to those who open the stones; within is a kidney-shaped kernel covered with a brownish membrane, and very good to eat; it is commonly served at table. It is called Pekea by the blacks in the neighbourhood of Oyapoco in French Guyana, where it is much cultivated. The species that furnishes the Butter-nuts of the London markets is much like this, but is called Tata-youba by the natives of Guyana, and differs in having no stings upon the surface of the stone of its fruits: this is the Pekea tuberculosa of Aublet; the Caryocar tomentosum of modern botanists. Another species, Caryocar nuciferum, bears what are called the Suwarrow, or more properly Saouari, nuts of commerce. It has only three leaflets to each leaf, each with a toothed margin and a taper-pointed extremity; the flowers are very large, deep brown externally and rich crimson in the inside; the fruit is in form like an egg, covered with a thick rough brown rind, beneath which is a soft greenish buttery substance. The nut has a stinging surface, and contains a very excellent kernel, from which may be extracted an oil like that from sweet almonds. These plants might with advantage be introduced into India.—*Eng. Cyc.*, *p.* 790.

PEKI (Alnus), *sp.*

PEKING or Pekin in lat. 39° 54′ N., long. 116° 32′ E., lies N. W. from the entrance of the Peiho river, about 114 or 120 miles inward. Pekin means court of the north, and Nankin that of the south, both of them large towns.

Europeans are in the habit of associating with this capital the idea of a city distinguished among all others, by the beauty of its buldings, the width of its streets, and by the animated life within its walls. Peking resembles every other Chinese city, and is still more like an immense village. The city is situated in a large plain, but from the peculiar formation of the land, it is not to be seen from a distance; and there is nothing to indicate the approach to a capital, excepting perhaps the funeral processions that one continually meets. The first objects which strike the eye of the traveller are the battlemented walls, and the gates crowned with lofty towers. The wall is of a considerable height, thirty-five to forty feet, and surrounded by a canal which communicates with the Peiho, so that a portion of the supplies intended for the capital can reach Peking in very light boats. Peking consists of two cities, separated by a wall;—the Mantchou city, Zein-tchau, and the Chinese city, Wai-lo-tchau. In the centre of the former, surrounded by a wall, is the Imperial quarter, Nouan-chau, composed exclusively of buildings set apart for the emperor and his suite, whose roofs, covered with yellow tiles, glitter in the sun's rays like burnished gold. All these edifices, kiosques, and temples, are surrounded by gardens, ornamented with lakes and artificial rockwork. Among these is the famous Lake of Water-lilies, a marshy pool, covered with the water plants from which it derives its name. The aspect of the imperial city was doubtless magnificent a few centuries ago, but now everything is in a state of decay owing to the impoverished condition of the treasury. In the Mantchou city, not far from the imperial quarter, are the different departments of government. There reside all the Mantchou employees, and there also are the two establishments with the two churches of the Russian Mission. To the east of the Mantchou city is the Hall of Examination, similar to the one at Canton, but more spacious; there are, besides, shops and restaurants neither remarkable for elegance or cleanliness. The principal streets of Peking are wider than those of other Chinese cities; but the numerous stalls erected in these thoroughfares leave little vacant space. The streets are unpaved and the alleys narrow. During the autumn, winter, and spring the dust is a source of great annoyance, and in the rainy season, the streets are almost impassable: all refuse matter is thrown into the public ways, impregnating the air with miasma.

The Chinese city, consisting mostly of shops, has still less attractions. There, however, is to be found the only street that has been paved with granite blocks, leading from the Imperial palace to the temples of Heaven and Agriculture, at the south of the city. These temples are large establishments, (also surrounded by walls,) comprising several buildings in themselves. The traveller to Peking, who has visited the ports open to foreigners, is particularly struck with the absence of life, and bustle in the streets. It is believed that Peking cannot now boast of more than a million inhabitants, so many having been driven from the capital by the increased dearness of living. Beggars, for the most part without clothes of any description, and stricken with hideous diseases, eke out a miserable existence in the filth and garbage of the streets. These beggars are under the authority of a chief, and are forbidden to sleep within the city.

The most remarkable spot about Peking is the Hai Dian, the residence of the Bagdochan, His Majesty the emperor, situated about seven miles west of the city. The emperor only appears in the capital on occasions of great festivals, or sacrifices. There are two roads leading to this residence, one of which is in tolerable repair, and in the morning presents an animated scene. High officials, with their followers, going to or returning from the palace; a multitude of well-dressed retainers, and handsome equipages, indicating the presence of the court. The grounds around the palace are laid out in vast gardens, which, although better cared for than other parts of the capital still show signs of neglect, and high walls surrounded the whole. Still further to the west lie a range of mountains, whose summits are crowned with temples more or less picturesque; and here, as well as in another range extending northwards, the Russian missionaries generally pass a part of the summer and autumn. Seven miles to the south of the city is a large deer-park belonging to the emperor, of twenty-six miles in circumference, also surrounded by a high wall. Within are palaces and villages, whose inhabitants are charged with the care of the animals. Eighteen miles north of the city is a mineral spring with a large garden and an imperial palace, formerly the resort of the emperor Kansi, but now all in ruins. In the country around, the inhabitants are peaceful, good-natured and industrious. The ministers and great functionaries of state govern without control, and nothing comes before the emperor save through their hands.

The existing Tartar city at Pekin, officially Nei-chhing or "Inner-town," encloses a second called Hoang-chhing or "Imperial (yellow,) town," which, no doubt, represents the outer palace of Odoric's day and that includes a third called Fseu-kin-chhing, or "Red City," which is the actual residence. The Green Mount, to which Kublai caused remarkable trees of every bulk to be transferred still stands conspicuous within the palace walls of Pekin. "The eye rests with pleasure upon this round, wood covered, hill, rising picturesquely from the middle of the glittering roofs and umbrageous trees within the palace walls." It is called by the Chinese King-shan, "Court Mountain," Wan-su-shan, "Ten thousand years Mount," or Mei-shan, "Coal Hill," the last from the material of which it is traditionally said to be composed, as a reserve store in case of siege. It rises 160 feet above the natural soil, and on it the last Ming emperor met a miserable end. The lake also (called Thai-i-chi) still exists as a swampy hollow, and the "beautiful bridge" is there in decay. In the Pekin, or court, pronounciation, the sheng differ materially from those in the Canton and Fuchien dlalects. In the court pronunciation, only four sheng are heard: in the Nankin, five; and in the Canton and Fuchien seven or eight. The sheng are produced solely by the sinking, rising, or non-alternation of the sound. The Pekin dialeet is, in reality, the standard spoken language of the country, holding the same place in China that the London English, as spoken by the educated classes does in Britain.—*R. in North China Herald, June* 30; *Swinhoe, North China Campaign, p.* 353; *Polo*, i, 10; *Exped de Chine par, P. Varin*, 1862; *Davis*, ii, 75; *Timkowski*, ii, 154; *Panthier, Chine, Moderne, p.* 19, quoted in *Yule Cathay, Vol.* i, *p.* 129; *Meadow's Desultory Notes, p.* 41, 59-60.

PEKKAR, Hind. Adhatoda vasica.

PE-KOIL, Tam. A demon temple. See Hindoo, Pe, Peisachi.

PEKUL equal to 133⅓ lbs., avoirdupois.

10 Cash = 1 Candarin
10 Candarin = 1 Mace.
10 Mace = 1 Tail.
16 Tail = 1 Catty.
100 Catty = 1 Pekul.

PE-KUMATI, Maleal, Tam. Citrullus colocynthis, *Shrœd.*

PELA, Maleal. Psidium pyriferum.

PELA CHAMBELI, Hind. Jasminum chrysanthemum.

PELAMIS BICOLOR, *Schneider.* An innocuous snake of the Nicobar islands.

PELAN. A very hard, fine, close-grained, heavy, Ceylon wood.

PELARGONIUM, a genus of plants usually called geraniums. Many species of this genus, thrive well in India and are easily raised from seed, the Horse-shoe and Oak-leaf bear flowers abundantly, but it is generally remarked that plants grown from English seed do not blossom. Many of the species thrive well when put out in the garden, but are better for being grown in large pots, and if so placed, as only to receive the morning and evening sun, will blossom most abundantly. The tubers of Pelargonium triste, are eaten at the Cape of Good Hope.—*Riddell.*

PELASGI. Ancient Greek races, whose language and civilization were the prototypes of Hellenism and Ionianism. Pococke derives this name from Pelasa, the ancient name of the province of Bahar. Pelasgus, the ancestor of the Pelasgi, is said by Asius the Greek poet to have sprung from the black earth, B.C. 700.

PELAU, also Pe-lau-pe-nangwa, Burm. Bambusa nana, *Roxb.*

PELEEBHEET, in Kumaon.

PELEG. The Partition, is a scriptural term, according to Chevalier Bunsen, alludes to the branching off of the race of Arphaxad, (the Joktamidæ) which passed into South Arabia. —*Bunsen.*

PELICAN, a genus of birds of the family Pelecanidæ. The Pelican is said to breed on palmyra trees on the Godavery, in the midst of populous villages, within reach of the hand. The Pelicanidæ are as under:

Pelicanus crispus of E. Europe.
" inflatifrons, *Blyth.*
" javanicus, *Horsf.* Lesser white pelican.
" mitratus *Licht.* Crested pelican.
" onocrotalus, *Linn.*, European pelican.
" philippensis, *Gmel.*, *Grey.* "
" sinensis———China.

PELICANUS INFLATIFRONS, *Blyth.* A remarkable species of Pelican, was seen by Mr. Blyth in the menagerie of the maharaja of Burdwan, in company with specimens of P. javanicus and P. crispus. It is generally similar to P. javanicus, but has the frontal skin curiously inflated, so as to present somewhat the appearance of a largely developed frontal knob of Anser cygnoides only feathered; and a further difference consists in the naked skin of the cheeks and pouch being yellowish white, whereas in P. javanicus that of the cheeks is deep purplish or livid carneous and of the pouch intense yellow. —*Jour. B. As. Soc.*, *Nov.* 1856.

PELICANUS JAVANICUS, *Horsf.* A visitor to India. Adams saw them in pairs and in flocks, daily on the river, sailing leisurely down some narrow channel, their great bills resting on their crooked necks, or, scared at his approach, sought a safer retreat among the shallows and sandbanks far ahead. Their flight is in general heavy and laborious. In many the bill is bright orange—in some of a leaden-gray colour varying with age. The two species are not easily recognised until observed closely; the roseate hue, however, of the white pelican distinguishes it from the Dalmatian, which is perhaps the more common.—*Adams.*

PELICANUS PHILIPPENSIS, *Gmelin.* The grey pelican inhabits all British India and is the most abundant of all the pelicans.

PELICANUS SINENSIS, or fishing cormorant of China, white throat; the body whitish beneath, and spotted with brown; the tail rounded: the irides blue; the bill yellow.—*Baron*; *Macartney's Embassy*, *Vol.* i, *p.* 27.

PELIJUREE, HIND. Root of Thalictrum foliolosum. A native of the Himalayas, is used as a febrifuge and a tonic aperient.—*Ben. Phar*; *Simmond's Dict.*

PELLA CAMUDI, MAL. Cacalia sonchifolia.

PELLA CHIKUR-KAI, TEL. Lablab cultratus, *DC.*

PELLA-GOMOODOO, SINGH. Antidesma diandrum.

PELLEJOS, Pieles, SP. Hides.

PELLES, PORT. Hides, skins.

PELLES, LAT. Hair.

PELLEW, Peeloo or Palaos islands, form a chain of islands on the N. W. coast of New Guinea, and extend nearly 87 miles. Most of them are rather low, but they are cultivated and inhabited.

PELLI, IT. Skins.

PELLITORY.

Akurkurra,	AR.
Sesin,	CHIN.
Pyrethrum,	ENG.
Pyrethre,	FR.
Zahn-Wurtzel,	GER.
Akulkurra or Akkurkurha,	GUZ., HIND.
Pietro: parietaria,	IT.
Anthemis pyrethrum,	LAT.
Anacyclus "	"
Akkaraputta,	SINGH.
Akkarakarum,	TAM.

A plant of North Africa, of the Levant, Barbary, Persia, and the south of Europe, cultivated for its root, which is used in medicine as a masticatory and a stimulant. The root is without smell, and when dry, it is some inches long, tough, fibrous, of the thickness of a quill externally gray, internally white. Pellitory is to be found in most Indian bazaars, it being an export from Mocha to Bombay. The Tamil, Arabic and Dukhani appellations are nearly the same. The Vytians prescribe an infusion of Akkaracarum in conjunction with the Lesser Galangal and Ginger as a cordial and stimulant in the lethargic stage of typhus fever and in paralytic affections. They also use it as a masticatory for the tooth ache."—*Ben. Phar.*; *Faulkner*; *Ains. Mat. Med.*, *p.* 34.

PELLEVANDRUM, (a blister) in Ganjam.

PELO, IT., SP. Hair.

PELOA, MALEAL. Careya arborea, *Roxb.*

PELO DI CAMELLO, IT., or Lana de Camelo, SP. Camel's hair.

PELON, MALEAL. Caryota urens.

PELOPÆUS, or Dirt dauber, a genus of neuropterous insects, constructs earthen cells side by side, and sticks them on walls and rafters.

PELOPAEUS SPINOLEA. Wasp-Mason.

PELTINI, IT. Combs.

PELTOPHORUS GRANULARIS, *Beauv.* Manisurus granularis, *Linn.*

PELUSIUM, an ancient port on the Red Sea.

PEMAYRUTI, TAM. Anisomeles malabarica.

PEMBA, called Keddri or Ul kuthera. A low well wooded and fertile island on the coast of Africa, extends from lat. 4° 52′ S. to 5° 29′ S., and is in long. 39° 44′ to 39° 42′ E.

PEMBERTON. Author of a Mission to Bootan, As. Jl. 1840, vol. xxxi, part 1, 81. Of a report on the eastern frontier of British India. Lond. Geo. Trans. 1838, vol. viii, page 3, 391.

PEMBANOO, a root of Arakan from which an arrowroot is prepared and sold at four rupees the maund. The root is obtainable in large quantities.

PEMMICAN. Preserved meat.

PEMPHERIS MOLUCCA, *Cuv.* Length 3$\frac{1}{8}$ inch. Inhabits sea of Penang, Moluccas, Batavia and Japan. Its air-vessel is large and thick.

PEMU, TEL. Calamus·rotang, *Linn.*, *Roxb.*

PEN.

Plumes a ecrire,	FR.	Penne da scrivere,	IT.
Schreibfedrren,	GER.	Pera stwoli,	RUS.
Kulm,	GUZ., HIND., PERS.		

Pens for writing formed of the quills of the goose, swan, fowl, or other bird. Metallic, now extensively used, are manufactured in vast quantities at Birmingham, London and Sheffield, the materials used being steel, copper, brass, gold, zinc. Pens for writing in the Arabic and Persian and Deva-nagari characters are made of reeds and the pens or styles for writing on palm leaves are points of steel.

The reed pens for writing Persian are called

Beroo,	DUK.	Perin nanil,	TAM.
Burro, Kulm,	HIND., PERS.	Pedda relloo,	TEL.

The reed pens used by all mahomedans in writing the Arabic or Persian character, are the product of the Saccharum sara, a thin hollow jointed reed. Persian reeds or pens are most esteemed, being tougher and capable of being used much longer than the Indian reed. The Arundo karka, *Linn.*, is also similarly used in Sind. Jeremiah, xvii, 1, says: 'The sin of Judah is written with a pen of iron.' In many parts of British India and in Burmah, iron pens are alone used, forming the letters, by making incisions into the palm leaf. Books thus written are very durable. This pen is broad at the top, and at one side is sharp like a knife, to prepare the palm leaves.—*Ains. Mat. Med.*, *p.* 194.

PENÆA SARCOCOLLA.

Anzarut,	PERS.	Gosht khora,	PERS.

—*Powell's Hand-book*, *Vol.* i, *p.* 378.

PENÆUS, a genus, of the crustacea, viz.:—

Penæus canaliculatus, *Edws.* Celebes, Mauritius,
„ monoceros, *Edws.* India.
„ indicus, *Edws.* Coromandel.
„ monodon, *Edws.* Indian coasts.
„ affinis, *Edws.* Malabar.
„ brevicornis, *Edws.* Indian coasts.
„ crassicornis, *Edws.* Indian coasts.
„ styliferus, *Edws.* Bombay.

PENANCE, called Tapas, practised by gods, Rishis, Rakshasas and men, to obtain boons.

PENANG, MALAY. Betel-nut, Areca nut, Penang nut.

PENANG, also called Pulo-Penang and Prince of Wales' Island, an island in lat. 5·25 N., long. 100·19 E., is about 15 miles in length, and from 7 to 12 miles in breadth. It contains a population of about 40,000, and until the year 1870, was a dependency of the Bengal presidency, under the Governor of Singapore. George Town, the capital of Penang, or Prince of Wales' Island, a portion of the province of Wellesley, on the west coast of the Malay Peninsula. In 1870 it was changed to a crown colony. The flagstaff of the fort is in lat. 5° 24½′ N,, long. 100° 21′ E. The harbour is nearly 2 miles broad. The island was presented to Captain F. Light, by the king of Queda, and taken possession of, by him, in 1786, for the E. I. Company. High water at springs occurs at 2¼ hours, and with a rise of 7 or 8 feet. Penang is nearly 15 miles long and 7 or 8 miles broad. It has two islands, Pulo Jerajah and Pulo Ramio near the south-west point. Bell Retiro or Government Hill, 4½ miles west of the fort, is 2,550 feet above the level of the sea, and West Hill, lying a mile further west, is 2,713 feet. Horsburgh states Flagstaff Hill to be 2,170 feet. The rainfall on the hill of Penang was in one year 116·6 inches, and on the plain at its base only 65·5 inches, while in Province Wellesley, on the opposite coast, the amount was 79·15 inches. At Singapore the fall is 98 inches, and at Malacca the same. On the south coast of Sumatra, and on the north-eastern face of the Peninsula, the fall is probably much greater. The mean temperature of Singapore is 79·7°, and the temperature of the different months differs very little from the mean of the year. The atmosphere is always surcharged with moisture. The island, has a small bird, not larger than a linnet, that sings most sweetly, perched among the branches of the teak. Nothing can exceed the beautiful luxuriant vegetation of this island, which when ceded to the British in 1786, by the rajah of Queda was an uninhabited forest. On Penang hill 2,700 feet above the sea, the climate is very fine, and the scenery beautiful, the ascent is easy and the road good. Superb specimens of arborescent ferns (the varieties of this plant exceed 300 on the island) noble cypress, a species of fir resembling the larch, wild fruits and flowers line the ascent—the traveller looks down from the summit of Penang Hill on province Wellesley opposite the Strait. Malacca is 250 miles from Penang and Singapore half as much farther. Province Wellesley is twenty-four miles long by eight in breadth. Until lately Penang supplied the London market with nutmegs, but cocoanut trees have taken their place. Tapioca, for the American market, has been grown to a great extent in the province, realizing fortunes to the planters. Water is brought by pipes into the town from the base of the hill six miles off, and there is a plentiful supply throughout the year. Penang like the other settlements in the Straits, is a free port; In addition to the rapidly increasing produce from Province Wellesley of tapioca, sugar, &c., tin and spices are brought from the surrounding islands for final shipment to Europe. One rather singular export from the port of Penang is eggs. They are preserved when freshly laid by being covered with mud or ashes an inch thick, made into a paste with water. They keep for years in this state, their salt-casing being removed only when they are about to be used. The great sources of revenue in the Straits' Settlements are the opium and excise farms. Land is sold outright for six rupees an acre, subject only to a tax of one-tenth of the profits for municipal purposes. The Chinese and Malays are confirmed gamblers, and hitherto it has been found quite impossible to put a stop to it. 18 furniture woods, grown in Penang, were sent to the Exhibition of 1851.

Angsena, or Senna Baymah.
Baloh Bungah.
Kulim.
Betel-nuttreeroot
Clove tree.
Cocoa-nut tree root.
Durian (wild.)
Eboch-tree root.
Ebony.
Guava wood.
Ibool wood.
Kamuning.
Baloh.
Mirlimoh.
Penang wood.
Ranggas.
Siam wood.
Timbusi.

Colonel Frith of the Madras Artillery obtained the following woods.

Brantey.
Bunho.
Bintagor.
Curupas.
Cooran.
Chinjeritt.
Cumpas.
Cawa-Arang.
Canis.
Chiuracy.
Cocoa-nut.
China red wood.
Ceylon ebony.
Damarlout.
Drum.
Dunorhung
Hama Raja.
Maddang Kamenhir.
Miraban.
Maddang Tahdack.
Maskaw.
Mankadu.
Maliler.
Maribot.
Mandara.
Nebong.
Pasa Linija.
Pala.
Pinang Bach.
Pala Utan.
Papisrang.
Penang Teak.
Penang Jack.
Rangha.
Rokam.
Red wood.
Sankuang.
Satin wood.
Siam ebony.
Teak.
Tampinnis.
Tija.

About the year 1850 cocoanut planting commenced in earnest to supersede spice cultivation in Penang and it has been an excellent substitute for spice planting and land has been planted with cocoanuts which formerly was used for grazing and other purposes. There is very little more available land in the plains to plant; nor is the value of property less than it was in the best days of spice planting.—*Woods of Penang by Colonel Frith*; *Rambles in Java.*; *Wathen's Voyages*, *p.* 144.

PENANG JACK. Wood of a yellow colour. Used only for ornamental furniture.—*Col. Frith.*

PENANG LAWYER. The walking stick, so well known by this name, is a young plant of the Licuala acutifida, the Plass tikoos, of the Malays. It is a miniature palm, inhabiting Penang, and attaining generally only three or five feet, but in exceptional cases from fifteen to twenty feet in height. The "Penang lawyers" are prepared by scraping the young trunk with glass, so as to wholly remove the epidermis, and nothing more, the inside being the substance of rattan. It is on this account that the smaller thin sticks are so much more sought after than the larger thicker ones, and are so rare. The sticks are ultimately straightened by fire, and then polished. The sticks are imported into England as walking sticks, and are much valued there. About 400 reached Liverpool annually, from 1851 to 1855.—*Seeman.*

PE-NANG-WA, BURM. Bambusa nana, *Roxb.*

PENARU PALAM MARAM, MALAYALA. A tree, used at times by the natives of Malabar, but is of little value.—*Edye*, *Forests of Malabar and Canara.*

PENASTER, see Pinus pinaster.

PENAR-VALLI, TAM. Zanonia indica.

PENATES. Amongst the Romans the gods were arranged into Dii majorum gentium, and Dii minorum gentium. The Dii majorum gentium were the great Celestial deities and those called Dii Selecti. The great Celestial deities were twelve in number: Jupiter, Juno, Minerva, Vesta, Ceres, Neptune, Venus, Vulcanus, Mars, Mercurius, Apollo and Diana.

The Dii Selecti were eight, Saturnus, Janus, Rhea, Pluto, Bacchus, Sol, Luna and Genius, the dæmon or tutelary god, who was supposed to take care of every one from his birth, during the whole of life.

Nearly allied to the genii were the Lares and Penates, household gods, who presided over families.

The Lares of the Romans appear to have been the manes of their ancestors, and there were Lares domestici et familiares, campitales et viales, militares et marini; small waxen images of them were made, and covered with dog's skin, and at festivals brought to the hearth and sacrifices offered to them.

The Penates were of two kinds, Patrii penates, familiares que. Those of the ancestors were worshipped in the innermost part of the house, which was called penetralia, also impluvium or compluvium. The city and temples were under the protection of the Publici penates, and these were worshipped in the Capitol.

The Dii minorum gentium were Dii indegetes or heroes, of whom were Hercules, Castor and Pollux, Æneas and Romulus, as also the Roman emperors.

The gods called Semones, were Pan, Faunus, Sylvanus, Vertumnus, Pomona, Flora, Terminus, Pales, Hymen, Laverna, Vacuna, Averruncus, Fascinus, Robigus, Mephitis, Cloacina also Nymphs, in the earth, Oreades in mountains, Dryades in woods, Hamadryades, Napææ, Naiades, Nereides and Oceanides, and each river had a particular deity. The Semones also included the infernal Judges, Minos, Æacus and Rhadamanthus, Charon and Cerberus also the virtues and affections such has Piety, Faith, Hope, Concord, Fortune, also foreign deities, the winds and the tempests, Eurus, Auster or Notus, Zephyrus, Boreas, Africus, Corus, Æolus and Auræ.

The Romans worshipped some gods that they might do them good, and others that they might not hurt them, as Averruncus and Robigus. There was both a good Jupiter and a bad, the former was called Dijovis or Diespiter and the latter Vejovis or Vedius, but Ovid makes Vejovis the same with Jupiter parvus or non magnus.—*Adam's Roman Antiquities, 8th Ed., pp.* 228 *to* 234. See Hindu.

PEN-BWA, Burm. Arrowroot.

PENCIL.

Pinsilen,	Dut.	Pennelli,	It.
Pinceaux,	Fr.	Kalam,	Malay.
Pinsel,	Ger.	Pinceles,	Sp.
Surme ka kalm,	Hind.		

A leaden-pencil in the Russian language is Karan-dash, supposed of Turkish origin. Kara meaning black, and dash a stone, but more probably the Persian Kalm-trash.—*Baron C. A. DeBode's Travels in Luristan and Arabistan, p.* 84 ; *McCulloch* ; *Faulkner*.

PENCILLED HORSESHOE BAT. See Cheiroptera.

PENDA LA, Tel. Dioscorea. A generic term Sans syn. Pindaluh, *W.* 334, *Heyne* 55.

PENDALU, Duk. Convolvulus batatas.

PENDIENG, Jav. A girdle of small silver plates.

PENDLI PEDDA KOORA, Tel. Celosia nodiflora.

PENDOPPO, Jav. An awning formed of leafy branches.

PENDULOUS ABOR VITÆ or Weeping abor vitæ, Thuja pendula, has opposite decussating spreading-lanceolate, mucronate keeled, somewhat distant leaves ; globose cones ; convex, smooth scales ; filiform pendulous branches. It is a native of Tartary, and is an elegant shrub.—*Eng. Cyc.*

PENEA MUCRONATA.

Anzerut,	Ar.	Sarcocolla,	Lat.

A gum resin obtained from the bark of the Penea mucronata, obtained chiefly from Kabul. —*Cat. Ex.* 62.

PENEBARROO, Singh. A wood of the eastern province of Ceylon. A cubic foot weighs lbs. 61 and it is said to last 50 to 90 years. It is used for rafters, &c. Fences made of the sticks of this tree are the most durable of all.—*Mr. Mendis.*

PENERAPAH WOOD or Red wood.

Muha nambo, Tel.

PENERU, Tel. Physalis somnifera, var. P. flexuosa, *Nees.*

PENGHOOLOO, or Pangaloo, Jav. A village priest.

PENGIRI MANA, Singh. Andropogon schænanthus, *Linn.*

PENG-LAY-BYUN, Burm. A small-sized tough wood of Tavoy.—*Mr. Blundell.*

PENG-LAY-KA-BOAY, Burm. In Tavoy a heavy small-sized wood ; suitable for handspikes, handles, &c.—*Mr. Blundell.*

PENG-LAY-OUN, Burm. In Amherst, a timber used for spear handles ; a most valuable wood, compact, homogeneous, very heavy, of a deep brown colour and fine grain, having no tendency to split, and exempt from attacks of insects. In Tavoy, is a wood of this name described as a strong, rough, red-wood, like Acacia serissa.—*Cat. Ex.* 1851 ; *Mr. Blundell.*

PENGOLIN, Malay. One of the Edentata in Ceylon, the scaly ant-eater, is called Caballaya, its Malay name of Pengolin is indicative of its faculty, when alarmed, of " rolling itself up" into a compact ball by bending its head towards its stomach, arching its back into a circle, and securing all by a powerful fold of its mail-covered tail. The Singhalese regard it with aversion, one name given to it being the " Negombo devil."—*Tennent's Sketches of Nat. Hist., p.* 46.

PENI, Hind. Abelia triflora.

PENIA, see Kama.

PENICILLARIA SPICATA, *Swartz, Willde.*

Panicum spicatum,	*Roxb*	Holcus spicatus,	*Linn.*
Kouz-kouz,	Africa.	Muttari,	Maleal.
Bajra,	Duk.	Jungeroo,	Panjab.
Douranelle,	Egypt.	Cunghoo,	Sans.
Spiked millet,	Eng.	Cumbu,	Tam.
Bajra,	Hind.	Gantelu sajjalu,	Tel.

This is grown over all British India and u the Sutlej valley between Rampur and Sungnam to an elevation of 5,000 feet. Its grai is reckoned more delicate and of a less heatin nature than sorghum : like it, it is made int cakes and porridge. Park, in his Travels i Africa, informs us that the natives of some par of that country prepare from this grain a kind o malt, which they use for making beer.— *Cleghorn's Punjab Report, p.* 66; *Ainslie, Vo* ii, *p.* 218 ; *M. C. C.*; *O'Shaughnessy, p.* 637; *Elphinstone's History of India, p.* 12.

PENINSULA. In the south and east o Asia; there are several peninsulas, that of Arabia, the peninsula of Guzerat, the peninsula o India, and that of Malacca, India, south the Vindhya range and of the Nerbudda, i termed the peninsula by the British, but th northern hindoos and mahomedans call it th Dakshana, or Dekhan, or south. At its broade part, in the twenty-second degree of north latitude, it is twelve hundred miles across, bu it tapers away towards the south and i latitude 7° 40′ north, ends in the Promontor of Cape Comorin, the Indian Ocean washin its western and the Bay of Bengal its easter shores. A range of mountains runs alon each side of this peninsula, parallel with the coast, leaving between them and the sea in their whole length from north to south, a belt of low level land from twenty to fifty miles in breadth. These two mountain ranges are termed the Eastern ghauts, and the Syhadri mountains or Western ghauts, and have an average elevation of 1,200 to 3,000 feet respectively. but solitary mountains and spurs from the western range attain an elevation of 6,000 and 8,000 feet above the level of the sea. The western ghauts, on the side next the sea, are scarped and at places sink precipitously 2,000 feet to the level belt below. The Eastern ghauts do not fall so abruptly, but both ranges are covered with thick impenetrable forests through which a few passes lead from the coast into the interior of the country which is upraised by the mountains into table lands from 1,200 to 3,000 feet above the sea, the general declivity of the land being from west to east. This portion of India is governed by the two presidencies of Bombay and Madras, their armies being distributed over the whole of the Dekhan, and branching out into some of the adjoining or recently conquered provinces: thus, the Bombay presidency has its troops in Guzerat, Cutch and Sind on the north-west of the peninsula, and the Madras troops hold British Burmah, Penang, Malacca, Singapore, Hong-Kong and sometimes Aden.

Gold is found on the Neilgherry Hills in the numerous streams of the Malabar Collectorate, in the Dharwar, Bellary, Cuddapah and Madura Collectorates, in Mysore in the Northern Circars and is everywhere washed for valuable gems; diamond, corundum, spinel ruby, garnet, topaz, tourmaline, beryl and quartz are often found along with gold, but are often thrown aside by the gold-washers from an unacquaintance with their appearance in a natural state.

India, south of the Vindhya range and of the Nerbudda river is termed the peninsula, by the British, but the hindoos and mahomedans call it the Dekhan or South. At its broadest part, in the twenty-second degree of north latitude, it is twelve hundred miles across, but it tapers away towards the south and in latitude 7° 40′ north, ends in the Promontory of Cape Comorin the Indian ocean washing its western and the Bay of Bengal its eastern shores. A range of mountains runs along each side of this peninsula, parallel with the coast, leaving between them and the sea in their whole length from north to south, a belt of low level land from twenty to fifty miles in breadth. These two mountain ranges are termed the eastern ghauts, and the Syhadri mountains or western ghauts and have an average elevation of 1,200 to 3,000 feet respectively, but solitary mountains and spurs from the western range attain an elevation of 6,000 and 8,000 feet above the level of sea. The western ghauts, on the side next the sea, are scarped and at places sink precipitously 2,000 feet to the level belt below. The eastern ghauts do not fall so abruptly, but both ranges are covered with thick impenetrable forests through which a few passes lead from the coast into the interior of the country which is upraised by the ghauts, into table-lands from 1,200 to 3,000 feet above the sea, the general declivity of the land being from west to east. This portion of India is divided into the two presidencies of Bombay and Madras, their armies being distributed over the whole of the Dekhan, and branching out into some of the adjoining or recently conquered provinces; thus the Bombay presidency has its troops in Guzerat, Cutch and Sind on the north-west of the peninsula, and the Madras troops hold British Burmah. The central outburst of granite rocks in the peninsula is traced from north of the Godavery, through Hyderabad, the Ceded Districts and Mysore to Ceylon. This rock and greenstone form the prominent features of the Dekhan, clay-slate, mica, chlorite and hornblende schists, sandstones and limestones with fossils of a post oolite age being the stratified rocks through which they burst. The greenstone is supposed by some observers to decompose into a deep black earth, light when dry, and cracked and rent by the sun in the hot season, but forming a tough, deep, tenacious soil in the rains, rendering marching almost, if not wholly impracticable. It is called "regur" in the Dekhan, and is the "cotton soil" of Europeans, by many of whom it is regarded as indicating an unhealthy locality. The granite rocks, on the other hand, decompose into a red sandy soil, which is generally hard, and as it allows a rapid percolation of water and quickly dries, it is less fertile, but is considered more favourable to health. It may be doubted, however, if there be any facts to prove that the one soil is more favourable to health than the other.

The Tamil-speaking inhabitants of the Coromandel coast can make themselves intelligible when they get into the districts on the western coast of the peninsula, where Malayalim is vernacular.

In the extreme south, in which the Tamil language prevails, there were the following ancient kingdoms.

The Chola, was an ancient dynasty of the south of the peninsula of India, regarding whom little has come down to the present day. The several capitals of the Chola were at Conjeveram, Woriur, Combaconum, Gangondaram, Tanjore. But the whole history of this, the most important power in the peninsula, is involved in great obscurity. We have no authentic information that can be trusted, anterior to the 9th century.

Canarese.—The people who speak Canarese are about five millions in number, chiefly in the centre of the peninsula; they are a tall and singularly graceful race with whom, as amongst the Kandians in Ceylon, a community something akin to polyandry is very prevalent. In this they somewhat resemble the Coorg race and the Nair of Travancore.

The Malayalim language is spoken in the south-west of the peninsula by about 2½ millions, and the Tulu, on the sea-board somewhat to the north, by about 100,000 or 150,000.

Sir Erskine Perry and the Reverend Dr. Caldwell remark that the brahmins made a simple classification of the languages of India depending mainly on geographical considerations, by which five northern languages are grouped in one class and five southern ones in another, under the denominations of panch Gaur and panch Dravid, the term Gaur or Bengal applying to all northern India, while Dravida, the name of that part of the Coromandel coast lying between the twelfth and thirteenth parallels of north latitude, is applied to the whole peninsula. Their classification was as under:

The five Gaur.	The five Dravid.
1. Saraswati (extinct)	1. Tamil
2. Kanoji	2. Marathi
3. Gaur or Bengali	3. Carnatika
4. Mathala or Tirhuti	4. Telinga or Telugu.
5. Orissa or Urya.	5. Gujerati.

In the Peninsular are the following wild tribes—

Khond in Orissa.
Saura between the Khond boundaries and Purla Kimedy.
Chenchuar between the rivers Kistnah and Pennar.
Yenedi on the Pulicat lake.
Baidera in Bellary and Zorapore.
Pulliar in Tanjore.
Marawar at Ramnad and Tinnevelly.
Kollari in Poodicotta.
Chemnuar? in Cochin.
Neadi? in Travancore.
Holier in Canara.
Toda, Badagha, Kohtar, Erular, Kurumbar on the Neilgherries.

According to Mr. Logan, the oldest races of India, Ultra India and Asianesia, were of a variable African type, the two principal forms being Australo-Tamulian or quasi Semitic and Negrito, followed in Asianesia by the Malagasi. He is of opinion, that the present prevalent Ultra Indian races entered the region from the north-east and at a very remote period spread on the one side over Ultra India and the basins of the Brahmaputra and Ganges, and partly into southern India; and on the other were diffused by a long succession of movements all over Asianesia. Throughout these regions, they came in contact with more ancient races, and have in some places variously blended with them and in some dislodged or exterminated them, while in others, the old tribes have been able to maintain a certain degree of independence and purity. In southern India, the ancient element was preserved in some degree, owing apparently to a civilization early received from partially allied Semitico-African and Semitic nations, in the Andamans, the interior of the great Nicobar, the jungles of the Malay Peninsula, and in the basins of the Salwin, Irawadi and Kolandan all which appertain also to the eastern region.—*Newbold's British Settlements, Vol.* i, *p.* 424.

PENINSULAR and Oriental steam navigation company, a great company of carriers, plying with steam-ships ranging up to 2,653 tons between Great Britain and the entire east. In 1868 they had 48 ocean steamers with an aggregate tonnage of 85,632 and 18,620 horse power. In the year 1859, this mammoth company had possessed, 57 steamers and 9 hulks, manned by 18,000 seamen, in their various lines as under:—

Line.	No. of Ships.	Tonnage.	Horse power.
Southampton and Alexandria. ...	8	1165 to 2622	350 to 45
Peninsular ...	3	782 „ 1650	200 „ 35
Marseilles & Alexandria	4	700 „ 1000	200 „ 40
Malta and Corfu ...	1	720	140
Suez & Calcutta ...	8	1961 „ 2440	450 „ 6
„ „ Sydney ...	7	1600 „ 2306	300 „ 5
„ „ Bombay ...	5	816 „ 1787	200 „ 4
Mauritius & Bourbon.	1	340	60
Hong Kong&Shanghai	7	713 „ 1190	180 „ 47
„ & Manilla.	6	537 „ 699	60 „ 1
China	1	348	150

The officers are highly educated and trained mariners. They have salaries ranging up to £1,200 per annum. Those serving in the tropics being paid nearly double the salaries given to such as are in the ships in the European lines.

PENKNIVES.

Canifs,	Fr.	Pisan rawut,	Malay.
Federmesser,	Ger.	Kulm-trash,	Pers.
Chaku, Churri, Guz, Hind.		Corta-plumas,	Sp.
Temperini,	It.		

Small knives used in making and mending pens.

PEN LAY BOKE, Burm. Diospyros, sp.

PEN-LAY-HSEE, Burm. Ximenia americana, *Roxb.*, *W*, *& A.*, Zizyphus œnoplia, *Mill.* *W. & A.*

PEN-LAY-KA-THEET, Burm. Erythrina indica, *Lam.*, *Roxb.*, *W. & A.*

PEN-LAY-OONG, Burm. Xylocarpus granatum, *Kœn.*

PENLAY-PEEN, Burm. A Tavoy wood, used in building, *Dr. Wallich.*

PENMA, Hind. Potentilla inglisii.

PENNA MATTA DI STROZZO, It. Estrich, Estridge.

PENNAR, (N.) Rises in the Nundidroog

table-land, lat 13° 23′, long. 77° 43′ runs N. W. 30 m. N., 95 m.; E. 230 m. into Bay of Bengal. Length 355 m. It receives the Chittravutti, 107; Paupugnee, 130; Chittair, 75 m. The Pennar is comparatively a small stream, but of much geological interest, the greater part of its waters being derived from the districts in which the diamond sandstones and the argillaceous limestones, on which they rest, are exhibited in their most characteristic forms, and where they are most easily investigated. Like all the rivers of southern India, granite is frequently seen in the bed of the Pennar, more especially in its southern branches, where the passes of Ryachottee lead to the granitic table-land of Mysore, having an elevation of 3,000 feet above the sea, or 2,500 above Cuddapah, the principal town of the Pennar basin. The Nulla Mulla hills, extending from the Mysore frontier to the basins of the Kistnah and Godavery, and the minor ranges dependent on them, and having the same composition and direction, are crossed at right angles by the Pennar, which makes its way through them, like the Kistnah, by traversing narrow gorges with perpendicular sides. The plains at the base of the table-land of Banganapilly consist of a rich black alluvium, containing fragments of basalt, jasper, and the various minerals fonnd in the hills. It rests on a fine, compact, dark blue or nearly black limestone, which contains much argillaceous and siliceous matter. This limestone abounds with springs, and is in some places so cavernous as to afford passage to subterranean streams. Basalt protrudes in a few places near Bangnapilly. On ascending the hill, the limestone becomes more schistose, and is of a paler colour, gradually approaching in its structure and composition to clay slate, but it is far more friable. On the schist a more or less compact sandstone rests, varying very much in colour, composition, and appearance in different places. Above Bangnapilly it contains the diamond breccia described by Voysey. The breccia is not an interstratified rock, but an intermixture of the common sandstone, in different parts of the same stratum, with larger fragments of older rocks, generally rounded but sometimes angular. On emerging from the gorge in the Nalla Mulla range the Pennar enters the plains of the Carnatic, and near its mouth flows through low hills of laterite. This deposit rests on the ordinary granite of the Carnatic, with its associated syenites, hornblende schist, quartz rock, and mica slate. It is in a rock composed of a mixture of the last two minerals that the copper ores of the Nellore district are situated. The ores are of various kinds, but the richest is a silicate, containing, according to Mr. Prinsep, 90 per cent. of the pure metal, copper also occurs. If this belongs to the "argillaceous limestone" formation, the fact will be of use in determining the relations of that rock to the gneiss, talc slate, and mica schist; a subject on which no observations of any value have yet been made. The primary rocks of this district contain magnetic iron ore and corundum, both of which occur in the diamond sandstone.—*Carter's Geological Papers on Western India, p.* 8.

PENNAR, (S.) Rises in the N. Nundidroog table-land, lat. 13° 32′, long. 77° 45′ runs S. to Mootanhalli, 55 m., S. E., 190 m., into Bay of Bengal, a mile N. of Fort St. David. Length 245 m. Gold is found in its sands, in its passage through the Carnatic.

PENNE DA SCRIVERE, IT. Quills : Pens.

PENNELLI, IT. Pencils.

PENNERU or Aswagandhi, TEL. Physalis somnifera, *Nees. Var.* Flexuosa, *L.*—*R.* i, 561.

PENNISETUM CENCHROIDES, *Rich.*

Taura,	TRANS-INDUS.	Taman.	HIND.
Dhaman.	HIND.	Kurkan.	„

Common in many parts of the Panjab plains, and reckoned one of the best of all the wild grasses for forage, both for cows and horses. Near Multan its seeds are swept up from the ground to be used as human food.—*Dr. J. Stewart's Punjab Plants*, 259; *Powell.*

PENNISETUM ITALICUM, *R. Br.*

German millet,	ENG.	Kangni,	HIND.
Italian „	„		

Seeds small, delicate and wholesome, used as food.—*Powell's Hand-book, Vol.* i, *p.* 383.

PENNYCUICK, a general officer and his son who both fell at Chillianwalla. A nobler picture of filial and heroic devotion is not enrolled in history than the death of the younger Pennycuick, who, on seeing his brave old father fall while leading on the brigade, rushed forward to save him from the Sikh tulwar, and fell himself, fighting pro patre patriaque. There lie the brave men who fell on the field of Chillianwalla.

PENNYROYAL, Mentha pulegium. A mint used in cookery as seasoning and in distillation, propagated by division of the plant, like spearmint, requires a rich free soil, plenty of water and shade.—*Jaffrey.*

PEN-REED GRASS, a name for the Saccharum sara, which is also beaten into a rude fibre, and twisted into rope, esteemed as a tom-line, for its strength and durability, by the boatmen on the Upper Ganges.—*Simmond's Dict.*

PENTSTEMON DIGITALIS, a herbaceous plant cultivated as the Chelone, the species are of every variety of colour.—*Riddell.*

PENTADESMIS BUTYRACEA, a tree found in Sierra Leone, from which a fatty substance is obtained, which has given rise to its name of the Butter-tree and Tallow-tree. It has an ovate fleshy fruit, about as large as a citron, and its stamens are collected into five parcels, whence its botanical name.—*Eng. Cyc.* See Clusiaceæ.

PENTAPETES PHŒNICEA.

Dopahrya bandhuk, Hind.

Flowers yield a mucilaginous cooling juice, used in special diseases and in disorders of rheum and bile considered to be astringent. It is an erect growing plant; flowers axillary, large, of a beautiful bright red colour, appear during the rains.—*Powell's Hand-book, Vol.* i, *p.* 333; *Riddell*; *Voigt*, *p.* 523.

PENTAPTERA ANGUSTIFOLIA, *Roxb.* Syn. of Terminalia berryi, *W. & A.*

PENTAPTERA ARJUNA, *Roxb.*

Terminalia arjuna, *W. & A.*

Urjoona,	Duk.	Touk-kyau,	Burm.
Urjoonsadra,	„		

Is a common jungle tree, the bark is used internally by the natives as a tonic and is also applied externally as a vulnerary. Pentaptera arjuna and P. glabra grow in all the teak forests of Burmah. Their dark brown timber is as strong as teak and usually attains a girth of from seven to nine feet, with height in still more lofty proportion. This timber has never been fairly tried for ship-building.—*Riddell*; *McClelland*; *Roxb.* ii, 438; *Voigt*, 37.

PENTAPTERA TOMENTOSA, *Roxb.*

Terminalia tomentosa, *W. & A.*

Asun,	Beng. Duk., Panj.	Kumbuk,	Singh.
Maddi,	Can.	Maratha maram,	Tam.
Peea-sal,	Duk.	Karoo maratha,	„
Nalla muthee wood,	Eng.	Nulla maddi,	Tel.
Sain, Asun,	Panjab.		

This tree grows in the Peninsula of India and in the north-west of British India. The vernacular term Asun seems a modification of arjun; and the peea sal seems to mean wild sal. It has thick leathery leaves; fruit smooth, five-winged; the fibre of the wood is very tough, and used for making shafts to gigs, &c. It grows to be a large timber tree of much utility, flowering time April and May; the seed ripens in the cool season, the timber is in use in the Rajahmundry circar, it is very hard and heavy and not so stiff as teak. In the Panjab it furnishes an excellent, hard and compact timber, well suited for building and railway purposes. It is found in Kangra in Sub-Himalayan forests, and is not uncommon as far west as the Ravi, but not of a large size. It is well suited for avenues and plantations in the east of Punjab.—*Rohde's MSS.*; *Powell*; *Roxb.* ii, 440; *Voigt*, 38.

PENTATROPIS SPIRALIS, *Don.*

P. microphylla, *Roxb.*, *W. & A.*, *W. Ic.*
Oxystelma caudata, *Ham.*, *Rheede.*
Asclepias microphylla, *Roxb.*
„ tenuiflora, *Roxb.*

Van-veri,	Beas.	Pula-pala.	Tel.
Perpadagum,	Maleal.	Amhar-vel,	Tr.-Indus

Flowers.

Ark,	Panj.	Pushpi,	Panj.

Grows throughout British India, flowers used medicinally.—*Dr. J. L. Stewart*; *Roxb.*, *F. Ind.*

PENTES, Port. Combs.

PENTI TATI CHETTU, Tel. Borassus flabelliformis, *L.*—*R.* iii, 790.

PENTI VEDURU, Tel. Bambusa arundinacea, *Willd.*, *Br.* 969. The female bamboo.

PENU MANU, Tel. Ailanthus excelsa is commonly called Pedda manu. The San syn. Aralah *W.* 66 and Khatwangah *W.* 182 are both rendered Calosanthes indica.

PENU VEMPALI, Tel. Indigofera hirsuta, *L.*—*R.* iii, 376—*W. & A.* 640.

PEON, Hind. A foot-man, a foot soldier, amongst the British in India, an office servant. The chess term of pawn is derived from it.

PEON-WOOD, Anglo-Tam. See Poon-wood.

PEOR, the Greek phallus, the Roman priapus, the hindoo lingam.

PEOR. The Dead Sea, otherwise called the Lake Asphaltites, is a vast expanse of still water. To its east, lies a chain of mountains, whose rugged outline, distinctly marked out by the moon rising in their rear, reveals the summits of Nebo, Peor, and Pisgah. At their dark bases, flows a considerable stream.—*Robinson's Travels in Palestine and Syria, Vol.* i, *p.* 61.

PEORI, or Hardwari, Hind. Indian yellow, a pigment used in lumps, a precipitate, collected and dried from the urine of cows which have been fed on mango leaves. "Wilayiti peori" is chrome yellow (chromate of lead.)—*Powell's Hand-book, Vol.* i, *p.* 454. See Hardwari.

PEPA or Pemu, Tel. Calamus rotang, *L.*

PEPEELEE, Guz., Hind. Long pepper.

PEPEELEE-MOOL, or Peepli-mor, Guz., Hind. Pepper root.

PEPE LUNGO, It. Long pepper, Pepper.

PEPE-NERO, It. Black pepper.

PEPER, Dut. Black pepper.

PEPERONE COMMUNE, It. Cayenne pepper.

PEPONUM PULPA EXSICCATA, *Lon. Disp.* Colocynth.

PEPPER.

Filfil,	Ar., Pers.	Lada-chabai.	Malay.
Peper,	Duk.	Chabai,	„
Poivre,	Fr.	Pimienta,	Sp.
Pfeffer,	Ger.	Perez,	Rus.
Pepe,	It.	Piper,	Lat.

In common speech, there are several peppers, black pepper; white pepper; long pepper; melegueta pepper; cayenne pepper or chili pepper; guinea pepper; jamaica pepper and cubeb pepper, the last used as a medicine, the others in food as condiments. The black pepper of commerce is obtained from the dried unripe fruit (drupes) of Piper nigrum, a climbing plant common in the East Indies, and of the simplest culture, being multiplied with facility by cuttings or suckers. The ripe fruit, when deprived of its outer fleshy covering by washing, forms the white pepper of the shops. The dried fruiting spikes of P. longum, a perennial shrub, native of Malabar and Bengal, constitute long pepper. According to Dr. Roxburgh, P. trioicum is cultivated in the East, and yields an excellent pepper. Pepper is a regular crop on the Western Coast of India in Coorg, Mysore, Canara and Travancore. White pepper is less pungent than the black. The quantity of black pepper exported is immense, that of Malabar is the best.

Piper nigrum or black pepper and Piper longum more recently named Chavica Roxburghii or long pepper, are chiefly used for dietetic and culinary purposes, Piper cubeba and Artanthe elongata or the matico plum are principally employed in medicine. The plant which yields cayenne, Capsicum annuum, often improperly termed cayenne pepper, does not belong to the family of Piperaceæ at all but to that of Solenaceæ. The pepper of commerce is furnished by Piper nigrum, the black pepper plant which grows both in the East and West Indies, in Sumatra, Java and other islands, it is a shrubby, climbing plant, which attains the height of from eight to twenty feet. The berries, or peppercorns, grow on terminal flowers-stalks or spadices. They are at first green, but change subsequently to red and then to black. When any of the berries on a spadix have begun to turn red, the whole are gathered, dried in the sun, and the stalks separated by the hand. In drying, the succulent part of each berry becomes contracted and wrinkled, forming a hardened wrinkled cortex, the corrugations being much raised, and describing a kind of elevated. network. It climbs to the height of twenty feet but is said to bear best when restrained to the height of twelve feet. It begins to produce at about the third year, and is in perfection at the seventh; continues in this state for three or four years, and declines for about as many more, until it ceases to be worth keeping. The fruit grows abundantly from all its branches, in long, small clusters of from twenty to fifty grains. When ripe it is of a bright red colour. After being gathered it is spread on mats in the sun, when it loses its red colour and becomes black and shrivelled as we see it. The grains are separated from the stalks by hand-rubbing. That which has been gathered at the proper period shrivels the best but if plucked too soon, it will become broken and dusty in its removal from place to place. The vine produces two crops in the year but the seasons are subject to great irregularities. Those berries are the best which are not too small nor too much corrugated, which are heavy and sink readily in water. In a section of the black berry, two parts are to be distinguished an outer and an inner, the first is black or reddish black; and the second more or less white, hard and brittle, except in the centre of the seed where it is frequently soft and pulverulent. The active properties of black pepper depend upon an acrid resin, a volatile oil, and a crystallisable substance called piperine, which exists also in long pepper, and in cubebs. The resin is situated chiefly in the outer part of the cortex, the volatile oil in the inner part or fourth layer, and the piperine in the yellow cells of the seed itself. Pepper is liable to adulteration, linseed, mustard-seed, wheat-flour, pea-flour and ground rice.

The pepper vine rises about two feet in the first year of its growth, and attains to nearly six feet in the second, at which time, if vigorous and healthy, the petals begin to form the corolla or blossom. All suckers and side shoots should be carefully removed, and the vines should be thinned or pruned, if they become bushy at the top. Rank coarse weeds and parasitical plants should be uprooted. After being gathered, the fruit is spread on mats in the sun to dry, when it becomes black and shrivelled. The grains are separated from the stalks by hand rubbing. The roots and thickest parts of the stems when cut into small pieces and dried, form a considerable article of commerce all over India, under the name of Pippula-moola.

In a very good soil, a pepper vine will yield about one-eighth of a pound of dry produce at the end of the first year; at the end of the second, about a quarter of a pound; and at the expiration of the third, probably one pound; at the end of the fourth, from three to three-and-half pounds; ditto fifth, from eight to ten pounds. After the fifth year up to the fifteenth, or even the twentieth year, about ten pounds of dry merchantable produce may be obtained from each vine, under favourable circumstances. A pepper plantation never survives the thirtieth year, unless in extremely rich soil, and then it is unproductive; nor will the young vine thrive on an old worn out pepper land, a peculiarity which is applicable to the coffee tree. The chief crop lasts from August to February. Four pounds of dry produce, for ten of green, is considered a fair estimate. Great care is requisite in the management of the vine, and especially in training and tying it up on the props. It is subject to be injured by the attacks of a small insect. The green pepper dries in two or three days, and if it is intended that it shall be black, it is pulled before it is quite ripe. To make white pepper, the berry is allowed to remain somewhat longer on the vine; when plucked, it is immersed in boiling water, by means of which process and subsequent friction, before drying, the husk is separated. Three kinds of black pepper are distinguished by wholesale dealers. "Malabar pepper, the most valuable, is brownish-black, free from stalks and nearly free from dust is Penang pepper, brownish-black larger, smoother, free from stalks, but very dusty. It is sometimes used in England to manufacture white pepper. Sumatra pepper, the cheapest sort, is black mixed with stalks and contains much dust. Under the name of Sumatra pepper, some dealers include the Penang or brownish-black sort, and the black Sumatra sort. Three kinds of varieties of white pepper have also been distinguished. Tellicherry pepper, which is of two kinds: large fine Tellicherry pepper is larger and whiter than any other description of white pepper, and fetches a higher price; small or coriander-like pepper is shrivelled. Common white pepper comes from Penang by Singapore, it is round, and not shrivelled, its value depends on its size and whiteness. English bleached or white pepper, when the two preceding sorts are scarce, brown, Penang pepper is bleached. The yellowest and largest are chosen for this purpose for neither an expensive nor small sort would pay. Almost all the plants of the family Piperaceæ, have a strong aromatic smell and a sharp burning taste. This small group of plants is confined to the hottest regions of the globe; being most abundant in tropical America and in the East Indian Archipelago, but more so in the equinoctial regions of Africa. The common black pepper, P. nigrum, represents the usual property of the order, which is not confined to the fruit, but pervades, more or less, the whole plant. It is peculiar to the torrid zone of Asia, and appears to be indigenous to the coast of Malabar, where it has been found in a wild state. From this it extends between the meridians of longitude 96 degs. and 116 degs S., and the parallels of latitude 5 degs. S. and 12 degs. N., beyond which no pepper is found. Within these limits are the islands of Sumatra and Borneo, with the Malay peninsula and part of Siam. Sumatra produces by far the greatest quantity of pepper. In 1842, the annual produce of this island was reckoned at 30,000,000 lbs., being more than the amount furnished by all the other pepper districts in the world. A little pepper is grown in the Mauritius and the West India islands, and its cultivation is making some progress on the western coast of Africa, as England imported from thence 2,909 bags and casks in 1846, and about 110,000 lbs. in 1847. Mr. J. Crawfurd, F. R. S., recently estimated the produce of pepper at lbs. 50,000,000, as follows :—

Sumatra (West Coast).	lbs. 20,000,000
„ (East Coast)	8,000,000
Islands in the Straits of Malacca..	3,600,000
Malay Peninsula..	3,733,333
Borneo	2,666,667
Siam	8,000,000
Malabar	4,060,000

If we add to this,

Western Coast of Africa & B. W. Indies	53,000
Java..	4,000,000
Mauritius and Ceylon	80,000

It gives 54,133,000 as the total produce of the world.

Black pepper constitutes a great and valuable article of export from the Archipelago. In the first intercourse of the Dutch and English with India, it constituted the most considerable and important staple of their commerce. The production of pepper is confined in a great measure to the western countries of the Eastern Archipelago, and among these to the islands in the centre and to the northern quarter, including the Malay Peninsula. It is obtained in the ports on both sides of the coast of the latter, but particularly the north-eastern coast. The principal quarters, according to Mr. Crawfurd, are Patani, Tringanu and Kalantin. In the Straits, a large quantity is produced in the island of Singapore, and above all in Pinang, where the capital of Europeans and the skill and industry of the Chinese have been successfully applied to its culture. The western extremity of Sumatra, and the north-west coast of that island, are the most remarkable situations in it for the production of pepper, and here we have Acheen, Tikao, Bencoolen, Padang, and the country of the Lampungs. The production of the eastern extremity of Sumatra or Palembang is considerable, but held of inferior quality. In the fertile island of Java, the quantity of pepper grown is inconsiderable, nor is it remarkable for the goodness of its quality. The province of Bantam has always furnished, and still continues to produce, the most pepper; but the culture of this creeper is fast giving place in Java to staples affording higher profits and requiring less care. The exports were in the following years—

1830 ..	piculs 6,061	1843 ..	lbs. 3,737,732
1835 ..	.. 11,868	1848 ..	.. 461,680
1839 ..	.. 11,044	1851 ..	.. 95,637
1841 ..	.. 13,477	1852 ..	.. 135,690

The number of pepper vines in the district of Bencoolen, in the close of the year 1852, was as follows :—1,571,894 young vines; 2,437,052 bearing ditto; total, 4,068,946. Up to the end of September there had been delivered to the government 1,145 piculs white pepper, and 1,128 piculs black pepper, while of the harvest of 1852 there were still probably to be received 330 piculs white, and 4,967 piculs black pepper. The south, the west, and the north coasts of the great island of Borneo produce a large quantity of pepper; as early as 1721 it was a staple commodity of this island. Banjarmassin is the most productive place on the south coast, and the State of Borneo proper on the north coast. The best pepper certainly does not grow in the richest soils, for the peppers of Java and Palembang are the worst of the Archipelago, and that of Pinang and the west coast of Sumatra are the best. Care in culture and curing improves the quality, as with other articles, and for this reason chiefly it is that the pepper of Pinang is more in esteem than that of any other portion of the Archipelago. From the ports and districts of Siam 3,500 to 4,000 tons are exported annually. The duty in 1851 levied on pepper in England was 6*d.* per lb., while the wholesale price for that of Pinang, Malabar, and Sumatra is about 4d. per lb. White pepper ranges from 9*d.* to 1*s.* 6*d.* per lb. The prime coast in Singapore is not more than 1½*d.* per lb. About 70,000 or 80,000 piculs of pepper are annually exported from Singapore. More than one-half of the pepper exported from Singapore is grown in the island by Chinese settlers. A reduction in the duty on pepper has always been followed by a very large increase in the consumption of the article, as will appear from the following table, showing the importation and consumption in Great Britain during some of the first and last years of the different rates of duty:—

			Duty		Singapore		price.		
Year.	Quantity consumed.		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*
1811	...lbs. 1,457,383	...	1	10½	0	7½	to	0	7¾
1814	... 941,569	...	1	10½	0	11	„	1	1
1820	... 1,404,021	...	2	6	0	6½	„	0	6¾
1824	... 1,447,030	...	2	6	0	4¾	„	0	5¼
1826	... 2,539,027	...	1	0	0	4	„	0	4½
1836	... 2,749,491	...	1	0	0	0	„	0	0
1837	... 2,625,075	...	0	6	0	0	„	0	0
1845	... 3,210,415	...	0	6	0	2¼	„	0	4¾

An acre of pepper vines will yield 1,161 lbs. of clean pepper. In Sumatra a full-grown plant has been known to produce seven pounds; in Pinang the yield is much more. The average produce of one thousand vines is said, however, to be only about 450 lbs.

Pliny states that the price of pepper in the market of Rome in his time was, in English money, 9*s.* 4*d.* a pound. The pepper alluded to must have been the produce of Malabar, the nearest part of India to Europe that produced the article, and its prime cost could not have exceeded the present one, or about 2*d.* a pound. After the great discovery of Vasco de Gama, the price of pepper fell to about 1*s.* 3*d.* a pound, a fall of 8*s.* 1*d.* from that of the time of Pliny, and of 4*s.* 9*d.* from that of the mahommedan Arabs, Turks and Venetians.

The imports into Great Britain were:

	Imports.	Home consumption.
1826......	lbs. 14,000,000	7,500,000
1841......	15,000,000	9,500,000
1845......	9,852,984	3,209,718
1846......	5,906,586	3,299,955
1847......	4,669,930	2,966,022
1848......	8,125,545	3,185,337
1849......	4,796,042	3,257,911
1850......	8,028,319	3,170,883
1851......	3,996,496	3,303,403
1852......	6,641,699	3,524,501

The following return shows the number of bags of pepper imported into the United Kingdom, with the quantity retained for home consumption:—

	Imports.		Retained for home consumption.	
	Black. bags.	White. bags.	Black. bags.	White. bags.
1843	37,840	3,861	21,163	2,257
1844	60,705	2,123	23,525	2,122
1845	80,600	3,208	30,294	2,861
1847	37,194	1,236	28,768	2,654
1848	65,518	3,042	31,665	2,950
1849	43,651	2,616	32,246	3,859

Ethiopian pepper. The fruit of Xylopia aromatica is commonly called Ethiopian pepper, from being used as pepper in Africa. The seeds of some species of fennel-flowers (Nigella sativa and arvensis), natives of the south of Europe, were formerly used instead of pepper, and are said to be still extensively employed in adulterating it. In Japan, the capsules of Xanthoxylum piperitum, or Fagara piperita, are used as a substitute for pepper, and so is the fruit of Tasmania aromatica in Van Diemen's Land.

Black Pepper.

Hu-tsian,	CHIN.	Lada, Lada-itam,	MALAY.
Kala-mirch,	HIND.	Maricha,	„

White Pepper.

Safed mirch,	HIND.	Lada putih,	MALAY.

Black pepper and white pepper are the fruit of the Piper nigrum the former being the dried fruit, while the white pepper is the ripe berry deprived of its skin by soaking it in water, rubbing it off and drying it in the sun. This has less of the peculiar virtues of the spice than black pepper, and is not so generally used. Pepper is a warm carminative stimulant; it is used largely in Europe but in the south and east of Asia, the capsicum, Chili or Cayenne spice is preferred. It strengthens the stomach, gives tone to the system, and assists digestion. In the Northern Circars, of the Madras Presidency, the Piper trioecum, an excessively pungent pepper, is largely used as a substitute for black pepper, and in America, the plants Peltobryon longifolium, Serronia jaborandi, are similarly used, also, at the Cape, Cocobryon capense, and Chavica Roxburghii, the long pepper of commerce, is used similarly all over the world.

There are two modes of cultivating pepper, on the Western coast of India. In Calicut, it is in gardens; but in other parts of

Malabar, it is grown in large fields. The jack, mango, cashewnut or other trees with a rough bark, are planted in rows, and when they have attained the height of 15 or 20 feet, the pepper is planted at their bases and sown thickly, it covers the stem and festoons over the branches. The pepper cuttings or suckers are put down by the commencement of the rains in June and in 5 years the vine begins to bear. Each vine bears 500 to 700 bunches, which yield about 8 or 10 seers when dried. During its growth, it is necessary to remove all suckers and the vine is pruned, thinned and kept clean of weeds. The vine bears for 30 years, but every 10 years the old stem is cut down and layers are trained.

Pepper is grown largely both at Singapore and Pinang and propagated chiefly by slips. When the slips have been some months planted and have attained three or four feet in height, their tendrils are detached from the props, and the whole plant bent down and buried a few inches below the surface of the ground. In a short time, the buried vine sends up a number of shoots and the strongest of these are selected and carefully trained up the props; small pickings are obtainable for the first three years, but in its fourth year it attains maturity, and yields its full return, probably 3 or 4 lbs. weight. The berries which are about the size of a pea grow in clusters like currants. For the black pepper, the berries are gathered while green, about a month before they would ripen. They are first exposed to the sun which causes the soft outer skin to dry up round the little seeds inside, giving the rough shrivelled appearance which the marketable article possesses. They are next conveyed to a shed, and placed in a series of sieves over a slow wood fire.

To prepare white pepper, the berries are allowed to ripen and become of a beautiful bright red colour; the outer or fruity skin becomes tender and soft and is of a sweetish taste. When plucked the berries are collected in loosely woven bags and steeped for a day or two in water, either hot or cold. This serves to loosen and detach the red pulpy seed covering, and when taken out and dried in the sun, a little hand-friction is all that is required to clear the seeds. They are then winnowed and thus made ready for the market.

The black pepper vine is indigenous to the forests of Malabar and Travancore, and for centuries has been an article of exportation to European countries from that coast. Although growing in other countries of the east, Malabar pepper is considered to be the best. Its cultivation is very simple, and is effected by cuttings or suckers put down before the commencement of the rains in June. The soil should be rich, but if too much moisture be allowed to accumulate near the roots, the young plants are apt to rot. In three years the vine begins to bear. They are planted chiefly in hilly districts, but thrive well enough in the low country in the moist climate of Malabar. They are usually planted at the base of trees which have rough or prickly bark, such as the jack, the erythrina, cashewnut, mango tree and others of similar description. They will climb about 20 or 30 feet, but are purposely kept lower than that. During their growth it is requisite to remove all suckers, and the vine should be pruned, thinned and kept clear of weeds. After the berries have been gathered they are dried on mats in the sun, turning from red to black. They must be plucked before quite ripe, and if too early they will spoil. White pepper is the same fruit freed from its outer skin, the ripe berries being macerated in water for the purpose. In this latter state they are smaller, of a greyish white colour, and have a less aromatic or pungent taste. The pepper vine is very common in the hilly districts of Travancore, especially in Cottayam, Meenachel and Chenganacherry districts, where, at an average calculation, about 5,000 candies are produced annually.

Long pepper the Chavica roxburghii, is another cultivated species. It is readily propagated by cuttings. The stems are annual, and the roots live for several years, and when cultivated, usually yield three or four crops, after which they seem to become exhausted, and require to be renewed by fresh planting. The berries of this kind of pepper are lodged in a pulpy matter like those of P. nigrum. They are first green, becoming red when ripe. Being hotter when unripe, they are then gathered and dried in the sun, when they change to a dark-grey colour. The spikes are imported entire. The taste of the berries is pungent though rather faint. For further information on the vegetable products of Malabar, see Drury's useful plants of India.—*Cameron; Simmonds; Markham, pp.* 452–53.

Cayenne Pepper.

Capsicum,	Eng.	Lal-mirch,	Hind.
Chili pepper,	„	Lada-merah,	Malay.
Cayenne,	„	Chabai,	„
Red pepper,	„	Chabai lombok,	„

Capsicum is the powdered pods of the Capsicum annuum, has a bitter acrid, pungent taste. In British India and in China, it takes the place of the black pepper in the estimation of the people. The several species of capsicum are natives of South America, whence they have been introduced into the Old World, and become universally diffused, from the fondness of Asiatics for warm condiments. Chili, either simply or in composition, is the Mexican name for all the varieties and species of this genus, but many varieties have no doubt been raised to the rank of species. The fruit varies much in form, being round, oblong, cordate, or horned, and either scarlet or yellow, and more or less pungent in taste. The horn-shaped variety is most common, from 2 to 3 inches in length, and from ½ to 1 inch diameter at the base, and usually called Capsicums, and the plant C. annuum. One variety, called Cockspur pepper, has the fruit long and slender. Sometimes the fruit is globose or lobed; the variety is then called C. baccatum. When the fruit is small, elongated and pointed, the variety is called Bird-pepper, and botanically C. minimum. When the plants are allowed to grow beyond the year, they become shrubby, and form the variety called C. frutescens. The berry or fruit of the capsicum, in its dried state, when powdered, forms Cayenne pepper, but are often preserved in vinegar as a pickle, and the fluid likewise employed under the name of Chili vinegar. The fresh capsicums used in Europe are principally obtained from the Capsicum annuum, a weedy plant found wild in South America and the West Indies, but grown largely in Southern Asia. It grows from one to two feet high, forming a dark-green bush, with ovate or ovate-lanceolate leaves; its flowers are small and white; its fruit is extremely variable in size, colour, position and even in quality.

The large red bullock's heart and yellow tomato capsicums are mild enough to be sliced with salad. A much hotter species is the C. fruticosum, or frutescens, or goat-pepper, of the East Indies, which differs from the C. annuum in being a shrub and in its fruit being very small. There is also a kind cultivated by the Chinese, with black fruit.

Jamaica pepper, or All-spice, or Pimento is the fruit of Eugenia pimento, a native of the Caribbee islands, but now cultivated in the East Indies. The berries are gathered before ripening, and are dried for seven days, by exposure to the sun, during which they lose their green colour and become of a reddish brown. Their taste is warm, aromatic, pungent, and slightly astringent, and with the oil which they yield, called Pimento oil, they are used in domestic economy.

Long pepper, Chavica Roxburghii, *Miq.*

Filfil-ut-tool,	Ar.	Chavica Roxburghii,	Lat.
Dar-filfil,	„	Piper longum,	„
Pipel,	Duk.	Lada panjang,	Malay
Poivre long,	Fr.	Chabai jawa,	„
Lange Pfeffer,	Ger.	Tabi,	Maleal.
Peperi,	Gr.	Filfil-i-daraz,	Pers.
Pepili.	Guz.	Pippula,	Sans.
Pipulas, Pepili,	Hind.	Tipili,	Singh., Tam.
Pepe lungo,	It.	Pimenta larga,	Sp.
Chabi jawa,	Jav.	Pippulloo,	Tel.

This pepper is the produce of a perennial plant a native of Bengal, Siam, &c. The fruit is hottest in its immature state and is therefore gathered whilst green, and dried in the sun. It is met with in entire spikes about an inch long, possessing a darkish brown, or grey colour. It has a weak aromatic odour, an intensely fiery, and pungent taste, and its properties correspond closely with those of black pepper.

Melegueta Pepper.

Guinea grains.	Grains of Paradise.

This pepper is the seed of Amomum grana-paradisi, a native of the coast of Guinea, but cultivated in the West Indies.

White pepper.

Safed Mirch,	Hind.	Lada-putih,	Malay.

This is the peeled or decorticated berry of the piper nigrum.—*Hogg's Vegetable Kingdom; Faulkner; R. Brown; Nees von E.* 190; *St. and Ch.* 44 *in Eng. Cyc., p.* 774: *Drury's Letters from Malabar; Drury's Useful Plants; Faulkner's Commercial Dictionary; McCulloch's Dictionary; Simmond's Commercial Products; Smith's Chinese Materia Medica.*

PEPPER COAST, the line of coast in Sumatra from Ayer Bangie to the North point.

PEPPERMINT, Mentha piperita, an aromatic herb, raised from seed. This plant might be grown for distillation on the hills, and become a valuable article of commerce: grows freely on the plains.—*Jaffrey.*

PEPPERMINT TREE, sp. of Eucalyptus.

PEPPER ROOT.

Filfel-mooeh,	Arab.	Pippali-mula,	Sans.
Pepeelee-mool,	Guz., Hind.	Tipili moolum,	Tam.
Granthika,	Sans.		

The root of the long-pepper is a favourite medicine of the hindoos; it possess the virtues of the berry, but in a weaker degree, and is prescribed by them in cases of palsy, tetanus, and apoplexy. The long pepper is produced in abundance in many parts of Upper, as well as Lower Hindoostan. Pepper root is procurable in most Indian bazaars.—*Ainslie.*

PEPPER, WILD. Filfil burree, the fruits of several species of Vitex.—*Ben. Ph., p.* 30.

PEPPFR-WORT, Eng. Xanthoxylon alatum, *Roxb.*

PEPUDEL, Tam. Tricosanthes cucumerina, *Linn.*

PEPUL or Aswath, Hind. The Indian aspen leaf, Ficus religiosa; its tremulous motion is owing to its long leaf stalk, which is twisted by the weight of the leaf when acted on by the wind. It is sacred to the god Vishnu, who was born under its branches, hence the cutting of it is accounted an unpardonable sin, not to be atoned for even by sacrifice; fortunately the wood is useless, so there is little temptation. The buddhists regard it as their holiest tree, and say that the egg-shaped leaves, suddenly tapering to a point, always tremble out of respect to Gotama, who sat under its branches. On the fleshy part of the leaf being removed, and the skeleton varnished, most beautiful drawings of insects, birds and flowers, are made by the Chinese. In Kandy, the form of its leaves was allowed to be painted only on furniture employed exclusively for the king's use. Bird-lime is made from the juice of the stem; the leaves of this, as well as of the castor oil plant, are given for feeding silk-producing worms. The lac insect delights on its twigs. The fruit comes out on the branches. Its Sanscrit names are chaladala, quivering branches—peppala, the preserver—kungarasan, elephant's food—ashvatter, not durable. The trunk, when old, has many ridges and hollows, as if many trunks were united: the bark is deemed a good tonic.

PERA, Hind. A kind of sweetmeat, made in round cakes.

PERA, see India.

PERA AMUDAM, or Amudapu-chettu, Tel. Ricinus communis, *L.*

PERA KAIA, Mal. Psidium pyriferum.

PERADENIA, a Ceylon district.

PERAGU, Maleal. Clerodendron viscosum, *Vent.*

PERAH, see India.

PERAH or Perach river, on the Malay coast 8 miles east of the Sambilangs, is said to extend 150 miles inland.

PERAK, Hind. A head ornament, worn by married women in Spiti, Ladakh.

PERAK, Malay. Silver.

PERAK. Lieut. Newbold, from the several opportunities he had of seeing the Binua race observed that their general physical appearance, their lineaments, their nomadic habits and a few similarities in customs, point to a Tartar extraction. Sir S. Raffles, says that Java was originally peopled by emigrants coming in vessels from the Red Sea; from whence it is inferred that these ancient Egyptians might have been the ancestors of the people at present called Binua. The Jakun occupy the south part of the Malay peninsula. Under that name are comprised all the various tribes, known under the terms of Orang utan, Orang bukit, Orang sungie, Orang laut, Rayat, Sakkye, Halas, Balandas, Besisik, Akkye, etc., different names which denote not several kinds of men, but only point out the places where they are found, or their way of living. Sir S. Raffles' opinion was that the people of the Archipelago and peninsula were of a Tartar stock but there is a remarkable difference in the physical appearance of the several classes of Jakun. Those of Malacca are generally as tall as the common run of Europeans; they are more dark than any other of the wild tribes.

The Jakun of Johore are a fine race of men; many of them are taller than those of Malacca; the face also expressive and well characterized, and the expression of the eyes in many of them is a little severe. The Jakun of the Menangkabau States, are very short, their physiognomy is low, and seems to announce great simplicity; many of them are ugly and badly made indicating a degenerated race. The constitution of the Jakun is generally strong, the hair is black, ordinarily frizzled, but very different from the crisp hair of the Caffree. Some of them leave the whole to grow, and turn it round the head, as the Cochin Chinese, others, as many of those of Malacca, cut their's entirely; others, chiefly of the Menangkabau states and of Johore, shave the head, leaving it only at the crown above three inches in diameter where they never cut it, the same as the Chinese; and to prevent this head of hair from being hooked by the branches of trees in their sylvan habitations, they tie it up in the form of a top knot. They have scarcely any beard, and many of them have none at all. The women leave their hair to grow, and then tie it up in the same way as the Malay women; but as they have but little occasion to care much for appearance, it will be easily imagined that they are not very particular in this respect. It has been said that in the forests of Pahang are found numerous tribes of Jakuns, who are nearly as white as Europeans, small, but very good looking; and the Malays catch and take them to Pahang or to Siam, where on account of their whiteness and comeliness they sell them very dear. The Jakuns of Malacca, are the least in number, and cannot be more than three hundred, about one-half of whom are near Reim and Ayet panas, at Ayerb aru, Gassim, Kommender, Bukit singhi, the river of Muar near Pankalangkota, at Poghalay, Sagil, Segamoa, Lemon, Jawee, the small river of Pago, and that of Ring. The remainder are to be found, at Bukitmore, Ayer trass, Bukit gadong, Tanka, and it is reported there are a good number at Segamet. The Jakuns of Johore inhabit that part of the peninsula which is under the sway of the sultan of Johore, cannot amount to more than one thousand, scattered over that large extent of country. The author omits the Binua of those portions of the Simrong and other branches of the Indian which are in Johore. The southern part of Pahang is inhabited by the same tribe of Binua who are found in Johore. The Jakuns of Johore build houses in the Malay way, some of which are fine buildings, more comfortable than any Malay house in the interior of Johore: all raised about six feet from the ground, and entered by a ladder like the Malay houses, others are as described by Lieutenant Newbold rude edifices on the top of four high wooden poles: thus elevated for fear of tigers, and entered by means of a long ladder. The roofs are often thatched with Chucho leaves. There is but one room, in which the whole family is huddled together with dogs and the bodies of the animals they catch. The huts are so made as to be moveable at a moment's warning; they are ordinarily situated on the steep side of some forest-clad hill, or in some sequestered dale, remote from any frequented road or foot-path, and with little plantations of yams, plantains and maize; some have also fields of rice about them. The bones and hair of the animals upon, whose flesh the inmates of these scattered dwellings feed, strew the ground near them, while numbers of dogs generally of a light brown colour give timely notice of the approach of strangers. The Jakuns of Malacca characterised as the most ignorant, are also the poorest and most miserable, their best houses are about the same as the worst of those of the Menangkabaus, and families live without any house. Five or six families, choose a place in the thickest of the forest, and clear a circle of about thirty feet in diameter; which they surround with the branches of the trees they have just cut; to this they join other thorny branches collected from other parts, and so make a sort of bulwark against tigers, bears and panthers, which are there in good number. Having done this they proceed to establish their dwelling in this enclosure, in the following way, each family works to construct what will serve for a bed during the night, a seat in the day time, a table for the repast, and a dwelling or shelter in bad weather. It consists of about fifteen or twenty sticks of six feet long, laid one beside the other, supported at the two extremities by two other transverse sticks which are set upon four wooden posts; the whole being about two feet in height, four feet broad and six feet long. One dozen Chucho leaves gathered by their ends, tied at the head of the bed, extend themselves and cover it until the other extremity; these beds are placed around the enclosure, in such a way that when all the persons are sleeping every one has his feet towards the centre of the habitation which is left vacant, to be used as a cook room, or for any other purpose.

The clothing of the Jakuns (when they use any) is ordinarily the same as those used by the Malays, but poor, miserable, and above all very unclean; many of them use cloths without washing, from the day they receive or buy them, until they become rotten by use and dirt; and they are obliged to throw them away. If some vermin are found, which is often the case, principally upon the women who are more dressed, they are immediately eaten with delight as in Cochin-China. If many of them are badly dressed, and some nearly naked, it is more from a want of clothes than in accordance to their own wishes for the most agreeable presents which can be offered to them are some trowsers, sarongs, bajus, or some handkerchiefs to put round their head; as is the Malay fashion, those of them who go habitually nearly naked, do not appear so before strangers excepting they have no clothes. The Jakuns of Johore, who are superior to the others in many respects, are also the best dressed, their women are much the same as Malay women as to dress, and the order of their appearance; having also great numbers of rings on their fingers, some of which are crystal some of copper, and some of tin; but also a good many of silver; they take a peculiar pleasure in these ornaments, as well as in silver bracelets. The men have at least trowsers, small baju and a handkerchief for the head. The Jakuns of the Menangkabau states, have the same dress as that used by the Jakuns of Johore, and the women the same ornaments, but are not so well clothed; many of them go nearly naked, at least near their houses; and those who use clothes, show often an embarassment which proves that they are not accustomed to their use. The Jakuns of Malacca are badly dressed, many of the women have only a sarong, and, if they are married, a ring, the necessary present of the husband before he marries them. The greater part of the men have nothing but a strip of the fibrous bark of the Terap tree, beaten into a sort of cloth of a reddish-brown colour, called a sabaring, round their loins; part of this comes down in front, is drawn between the legs and fastened behind. The Jakuns are not so lazy as either the Malays or hindoos. Their first and principal occupation is the chase; by which they feed themselves and their families. When there is no more food at home, the husband leaves home, beats the forest, and sometimes return with large pieces of venison, but sometimes with nothing; and on such days they go to sleep without supper. In the day time they remain at home where they prepare arrows and the weapons, the matter with which they poison their arrows, they cook and eat the animals caught the day before. They traverse the jungle all the day seeking after rattan, dammer, garu-wood, and several other articles of commerce; the next morning, sometimes with fowls they cook flesh before they eat it: but at other times they eat it raw: some merely put the animal upon the fire till the hair are singed, when they consider it as cooked. Some large monkeys after having been thus raw cooked, were dished up upon a mat as a meal to some seven or eight persons, who speedily devoured the whole in a few minutes, leaving only the skeleton. Some Jakuns refuse to eat the flesh of elephants, under the pretext that it would occasion sickness: but many others are not so scrupulous.—*Hist. of Java, Vol.* i, *p.* 62, 63, *2nd Edition* ; *Journal of the Indian Archipelago, No.* v, *May* 1848, *Vol.* ii, *pp.* 242 255–59, 260–61. See India, Jakun, Quedah, Semang.

PERALU—? Ficus indica.

PERAMBU, Maleal. Calamus fasciculatus, *Roxb.*

PERAMBU, Tam. Calamus rotang, *Linn.* The common ratan tree.

PERAMBUGAL, Tam. Canes.

PERAMELES NASUTA *St. Hilaire*, a marsupial animal of Australia, is the Bandicoot of the Australians, appears to occupy in Australia, the situation which the shrews, tenrecs, and other Insectivora fill in the old world.—*Eng. Cyc.*, *p.* 381.

PERAMUTI PU, Tam. Pavonia odorata.

PERA MUTTI, Tel. Hibiscus zeylanicus, *L.*

PERAPUM PALLAM, Tam. Calamus viminalis. The fruit.

PERANCHEH, see Kaffir.

PERA STWOLI, Rus. Pens.

PERATH or Phrath, the Euphrates river. See Rivers.

PERCA, the perch, a genus of fishes of the family Percidæ, as under:

Fam. 3.—Percidæ.

First Group.—Percinæ.

3 Perca, 5 Percicthys, 2 Paralabrax, 8 Labrax, 2 Lates, 1 Cnidon, 2 Psammoperca, 1 Percalabrax, 3 Acerina, 1 Percarina, 6 Lucioperca, 2 Pileoma, 3 Boleosoma, 2 Aspro, 1 Etelis, 1 Centropomus, 1 Niphon, 1 Enoplosus.

Second Group.—Serranina.

1 Aprion, 1 Apsilus, 15 Centropristis, 1 Callanthis, 13 Anthia, 1 Anyperodon, 1 Prionodes, 135 Serranus, 27 Plectropoma, 1 Trachypoma, 1 Polyprion, 1 Pogonoperca, 1 Grammistes, 3 Rhypticus, 1 Aulacocephalus, 1 Diploprion, 1 Myriodon, 19 Genyoroge, 45 Mesoprion, 1 Glaucosoma.

Third Group.—Pentaceratina.

3 Pentaceros, 1 Oreosoma.

Fourth Group.—Priacanthina.

15 Priacanthus.

Fifth Group.—Apogonina.

19 Ambassis, 1 Microichthys, 58 Apogon, 9 Apogonichthis, 5 Chilodipterus, 1 Scombrops, 1 Pomatomus, 1 Acropoma.

Sixth Group.—Grystina.

2 Oligorus, 1 Grystes, 3 Arripis, 1 Huro, 1 Percilia, 1 Lembus, 12 Ccntrarchus, 8 Bryttus, 1 Pomotis, 1 Anoplus, 1 Odontonectes, 11 Dules.

PERCA SCANDENS, *Daldorf.* Syn. of Anabas scandens.

PERCHERS, a sub-division of birds, comprising 2 gen., 15 sp.

PERCIVAL, Caussin De, Author of an Essay on the History of the Arabs before mahomedanism, during the time of Mahomed, and until all the tribes became mahomedans. Paris 1847.

PERCOPSIDÆ, a family of fishes.

PERCY ILES, near Morton Bay, has a rasorial bird, the size of a fowl, which constructs great mounds of earth, leaves, sticks, stones, and coral in which the eggs are deposited at a depth of several feet from the surface, and left there to be hatched by the heat of the fermenting mass of vegetable matter. In addition to these, are numbers of the pheasant-tailed pigeon, and the brush-turkey (Talegalla lathami), the latter much esteemed for the goodness of its flesh.—*Macgillivray, Voyage, Vol.* i, *p.* 62.

PERDICINÆ, the partridge sub-family of birds, of the family of Phasianidæ as under:—

Fam.—Phasianidæ.

Sub-fam.—Pavoninæ, 2 gen., 4 sp. viz., Pavo cristatus japanicus, muticus, 1 Meleagris gallopavo.

Sub-fam.—Polyplectoninæ, 5 gen., 10 sp. viz., 3 Ceriornis, 1 Ithaginis, 3 Galloperdix, 2 Polyplectron, 1 Argus.

Sub-fam.—Phasianinæ, 3 gen., 2 sub-gen., 16 sp., viz. 3 Gallus, 7 Euplocomus, 1 Pucrasia, 3 Phasianus, 1 Thamalea, 1 Lophophorus.

Sub-fam.—Tetraoninæ, 2 gen., 2 sp. viz., 1 Tetragallus himalyensis, 1 Lerva nivicola.

Sub-fam.—Pteroclinæ, 1 gen., 4 sp., viz., 4 Pterocles arenarius, fasciatus, alchata, exustus.

Sub-fam.—Perdicinæ, 8 gen., 22 sp.. viz., 1 Numida, 4 Francolinus, 1 Caccabis, 2 Perdix, 1 Rhizothera, 4 Arboricola, 3 Rollulus, 2 Perdicula, 4 Coturnix.

The Chukor and the Monal (Perdix chukor and Lophophorus impeyanus) occur in the Himalaya. Mr. Blyth created the genus Sacfa, from the Tibetan Sak-pha, the T. hodgsoniæ *Blyth*. The essential characters of this genus or sub-genus are as follow: Bill, strong with a heavy overlying upper mandible, scarped along the cutting edges. Nares subvertical and opening towards the head. Wings and tail longer, and less bowed and gradated, and stronger than in Perdix; but not so long or acuminate as in Lerva, and about equal to Francolinus. Wings with 3-4-5 quills longest and nearly equal, 1-2 not much gradated: 1st, only ½ inch less than the longest. Tail 16, rounded, firm. Tarsi moderate, equal to the longest toe and nail, nude, bi-scaled in front, no spur ? Lateral toes subequal and furnished with the usual basal membrane. Nails blunt, scooped inferiorly and having a salient margin all round: orbits subnude as in Arboricola. This fine species is obtained in the western part of the province of Tsang.—*Royle's, Ill. Him. Bot. p.* 36.

PERE-ARETEI. Tam. Alpinia galanga.

PEREI PASTAWANE, Trans-Indus. Fluggea virosa, *Roxb.*

PERENA TEREGRAM, Mal. Ficus glomerata, *Roxb.*, *Willde.*

PERE-MARAM, Tam. Ailanthus excelsus.

PERFUMERY, the exports from India, are nearly all from Bombay to China, Great Britain, France, Arabia and Persia.

1857-58....	£2,896	1859-60....	£10,406
1858-59....	„ 5,989	1860-61....	£ 8,458

PERGAMOS, a kingdom bequeathed to the Romans by the last Attalus; and its library, transported by Cleopatra, to enrich the Alexandrian collection, is said to have been destroyed by the barbarous zeal of the caliphs. The provinces of Asia, contributed to erect in Pergamos a magnificent temple of Augustus, the pagoda of which, having eight columns, is represented on many of its medals. All the Peregamenean coins, according to Spanheim, bore the figure of a serpent; and we may perhaps discover the cause of this device, in the devotion of the people to the worship of Æsculapius. They looked back to the period in the regions of fable, when their city was favoured with his presence; and the annual games in his honour and the erection of a temple for the celebration of his rites, testified their respect and reverence for the legend. In the Æsculapian worship the serpent invariably entered; a live animal of the dracontic species was always preserved in the sanctuaries of the god; and, hence, as a "genius loci," and an emblem of the tutelar divinity, the serpent figures upon the coins of Pergamos. It is remarkable, that the city exhibiting the device upon its coins, should be stigmatised as the place "where Satan dwelleth"—the old serpent, the dragon of the apocalypse. It is evident from the representation of the apocalyptic writer, that the Pergameneans were deeply sunk in superstition and vice, and familiar with the most obscene and degrading rites of heathen worship. The picture drawn by the sacred writers of the condition of the gentile world, is gloomy and revolting; but the evidence of contemporary profane annalists, affords an ample confirmation of its fidelity. In describing the licentious manners of the Cretians, the Apostle Paul cites a prophet of their own, to corroborate his statement.

Modern free-thinkers have attempted to find something deeply philosophical in the religious rites of the ancients; but in tracking the labyrinth of their sacred ceremonies, the most vicious scenes present themselves in bald and undisguised deformity; and even supposing the inculcation of moral truth to have been intended in some of the mysteries, it is difficult to conceive, that any feature of its original character remained, after the nauseous and disgusting medium through which it passed.—*Milner's seven Churches of Asia, p.* 240.

PERGULARIA GLABRA, *L.* Syn. of Vallaris pergulanus, Burm.

PERGULARIA ODORATISSIMA, *Smith, W. Ic., W. Conr.*

Asclepias odoratissima, *Roxb.*
Cynanchum odoratissimum, *Lour.*

Cowslip creeper,	Eng.
Fragrant pergularia,	„
Sita manoharam,	Tel.

A creeper with a climbing woody stem, cracked bark, flowers yellow, and very fragrant, well adapted for covering trellis work: furnishes a perfume. In the gardens in Moulmein, often cultivated. Pergularia pallida, is given by Wight.—*Jaffrey*; *Mason.*

PERGULARIA TINCTORIA, *Spr.* Syn. of Marsdenia tinctoria, *R. Brown.*

PERGUNNAH. In the mahomedan law revenue system, a pergunnah is a sub-division of a soobah. The N. W. Provinces of India excluding the Saugor and Nerbudda territories comprise no complete soobah, but only portions of the four soobahs of Agra, Allahabad, Delhi, and Oudh. Each soobah was divided into a certain number of circars, and each circar into pergunnahs or mehals, (which are used as equivalent expressions,) and the pergunnahs again are aggregated into dustoor or districts, and as the pergunnahs of the dustoor are of course always contiguous, the dustoor statement in old registers, if copied with any regard to correctness, frequently forms a very important means of the verification of doubtful names. Soobah is an Arabic word, signifying a head of money, or a granary. Circar is literally a chief, a supervisor: dustoor, besides signifying a rule, is also a minister, a moonshee. Pergunnah means tax-paying land, as well as a perfume composed of various ingredients. The title of Soobahdar, or lord of the soobah, is long subsequent to Akbar's time. Sipahsalar was then the only designation of the emperor's viceroy in each soobah.—*Elliot.*

PERIA-TAMBIRAN, Tam. *lit.*, the great god, the name of an image in the temples of the gramadevata.

PERICLYTE. The mahomedan doctors so read the word paraclete. Periclyte means illustrious, and they quote it from the forged gospel of St. Barnabas, of which the Moriscoes in Africa have a Spanish translation.—*Sale's Koran, P. D., p.* 9; *Chatfield's Hindoostan, p.* 271.

PERICROCOTIDA, a family of birds embracing 1 gen. 8 sp. of Pericrocotus, of the subfamily Campephaginæ, the minivet birds.

P. speciosus, *Lath.*, of British India and Malayana.
P. roseus— ? China.
P. flammeus, *Forster*, of S. W. India.
P. brevirostris, *Vigors.*, Himalaya, Assam.
P. igneus, *Blyth.*, Malacca.
P. xanthogaster, *Raffles.*, Sumatra.
P. miniata, *L.*, Java.
P. elegans, *McClelland.*, Assam, Burmah.

Adams describes the Pericrocotus peregrinus or crimson flycatcher pursuing their gambols around the tall walnut-trees of a Cashmere hamlet. He says the flammeous flycatcher (Pericrocotus flammeus) represents a genus of beautiful birds, There are besides various other species, such as the rose-coloured, (P. roseus), found in Continental India; the short-billed flycatcher, (P. brevirostris), a native of the eastern Himalaya; and the black and scarlet thrush (P. speciosus) of Latham, skins of which he had seen from the western Himalaya, but never had the good fortune to meet with the beautiful bird. The flammeous flycatcher frequents woods and forests. He had seen flocks at elevations of from 8,000 to 9,000 feet, flitting among the pine-tops and frolicking with each other, or sporting about in quest of insects, the deep red of the males contrasting with the brilliant yellow of the females. Their call is loud. The gaudy lesser crimson-breasted flycatcher (Pericrocotus peregrinus) he says is a tenant of the woods and hedges. Sometimes flocks of males, at other times females only, are observed, the rich and beautiful plumage of the former is very striking; insects and larvæ constitute its favourite food. —*Adams*; *Jerdon*.

PERIDOT, is difficult to polish from its softness, its colour evaporates from exposure to light. The peridot of the deepest green are the most esteemed but they vary greatly in colour.—*King*, *p*. 37.

PERIM. An island in the Straits of Bab-el-Mandeb, several miles and a half from the Arabian, and eleven miles from the African coast. It is termed by the author of the Periplus of the Erythræan Sea, the island of Diodorus, and is known amongst the Arabs, as Mayoon. Perim is attached to the Government of Aden. Its formation is purely volcanic, and consists of long, low, and gradually sloping ranges of hills, surrounding an excellent and capacious harbour, about a mile and a half in length, half a mile in breadth, and with a varying depth of from four to six fathoms in the best anchorages. The hills have formerly been intersected with bays and indentures, which in the course of time have been filled up with coral and sand, and are now low plains, scantily covered with salsola, sea lavender, wild mignonette, and other plants which delight in a salt, sandy soil. These plains occupy about one-fourth of the island, and occur principally on the north side. The rocks which are all igneous, are no-where exposed, save where they dip perpendicularly into the sea; they are covered with a layer of volcanic mud, of from two to six feet in depth, above which is another layer of loose boulders, or masses of black vesicular lava, in some places so thickly set as to resemble a rude pavement. The highest point of the island is 245 feet above the level of the sea. All endeavours to procure watef upon it have failed, and but a scanty supply is procurable from the adjacent coasts. Water-tanks have been constructed, which are chiefly supplied from Aden, and it is proposed to erect reservoirs to collect the rain, as well as a condensing apparatus. Perim has never been permanently occupied by any nation save the British. Albuquerque landed upon it in 1513 on his return from the Red Sea, and, having erected a high cross on an eminence, called the island Vera Cruz. (The Portuguese in Asia, Vol. i, p. 193.) It was again occupied for a short time by the pirates who frequented the mouth of the Red Sea, and who amassed considerable booty by plundering the native vessels engaged in the Indian trade. They formed a project of settling here, and erecting strong fortifications: but having with much labour, dug through the solid rock to a depth of fifteen fathoms, in a fruitless search for water, they abandoned their design, and removed to Mary's island, on the east side of Madagascar. (Hamilton, Vol. i, p. 43.) In 1799 it was taken possession of by the East India Company, and a force under Lieut.-Col. Murray was sent from Bombay to garrison it, with the view of preventing the French troops, then engaged in the occupation of Egypt, from proceeding to India, to effect a junction with Tippoo Sultan; but it was found untenable as a military position, and as the Straits were too broad to be commanded by any batteries on the shore,—the troops were accordingly withdrawn. Of late years, however, in consequence of increasing steam navigation in the Red Sea, the attention of the Indian Government has frequently been directed to the necessity of a Light-house, to facilitate the navigation of the Straits: Perim was consequently re-occupied in the beginning of 1857, and a number of labourers sent to commence the work. The island is trachytic; the culminating points reach an elevation of 228 feet, and prove that the island itself is the result of a volcanic eruption under the sea. The lava had first raised up the large bank of madrepore, which covered the bottom, and had then forced its way through the interstices, and become, visible over the water, the vast crater of this volcano has embraced the bay of Perim, and in course of time covered the new island with mud, ashes, trachytic blocks, &c., and then became extinguished. The pirate fleets of Perim and Bulsar used to attack the fleets of the neighbouring states. Bab-el-Mandeb is 20 miles broad, Perim and other small islands are on its northern shores.—*Playfair's Aden*; *Maury's Physical Geography*, *pp*. 123, 247. See Bab-el-Mandeb, India.

PERMATAEJU, Mal. Emerald.

PERIMGAIUM, Tam. Assafetida.

PERIN-TUTTE, Tam. Abutilon indicum, *Don*.

PERINA TEREGRAM, Maleal. Ficus cunia, *Buch*.

PERIN CLAKA PULLUM, Tam. Carissa carandas.

PERINGA, see Korambar.

PERINGI-GUL, Tam., Tel. Cannon.

PERIN NANIL, Tam. Pens.

PERIN-NERNAI, Maleal. Melanthesa turbinata *R. W.*

PERIN NIRURI, Maleal. Melanthesa turbinata.

PERIN NJARA, Maleal. Syzigium jambulanum, *DC.*

PERIN-KALAKA PALLAM, Tam. Carissa carandas, *Linn.*

PERIN-KAKU VALLI. Entada pusætha.

PERINSIRAGUM, Tam.

Sonf,	Duk.	Pedda gilakarra,	Tel.
Variari.	Guz.		

Perinsiragum is a name sometimes also given to aniseed.—*Ainslie's Mat. Med., p.* 267.

PERINTAKURA, Tel. Corchorus olitorius, *Linn.*

PERIN TEREGAM. Ficus glomerata.

PERIN-TODALI, Maleal. Zizyphus jujuba, *Lam.*

PERIN-TUTI, Tam. Abutilon indicum, *G. Don.*

PERIN-VULLI KELENGU, Tel. Dioscorea sativa. Dioscorea alata, *Linn.*

PERIOPTHALMUS, a little mud fish, found in great quantities on the mud banks of the Ganges delta, in company with the scarlet crab. Sharks are numerous in the Soonderbuns; the hammer headed shark, one of the Zygæna is also occasionally caught off the Sandheads.

PERIPLOCA APHYLLA, *Duch.*

Bata,	Panjab.	Barrarra, barre,	Panjab.

A plant with leafless erect stems, common in many places Trans-Indus, and in the Salt Range, and occurring in the outer hills east to the Chenab, occasionally up to 3,500 feet. In parts of the Peshwar valley it is so common as to be used for fuel. It is eaten by goats, the buds are eaten raw, or cooked as a vegetable; and as food, they are considered to have a beneficial effect on wounds.—*Dr. J. L. Stewart.*

PERIPLOCA INDICA, *Willd.* Hemidesmus indicus, *R. Brown.*

PERIPLOCA SECAMONE, is said to be used to adulterate Scammony.

PERIPLOCA SYLVESTRIS, *Willd.*

Gymnema sylvestre, *R. Br.*

Root of wild Periploca.		Sirroo coorinja vayr,	Tam.
Binuge,	Singh.		

This bitter root is supposed by the native practitioners to possess virtue in cases of snake bite. Internally it is prescribed in decoction and the powder is applied to the part that is bitten. The root is supposed to possess virtues similar to Ipecacuan.—*Ains. Mat. Med., p.* 314.

PERIPLOCA TUNICATA, *Retz.* Syn. of Cynanchum pauciflorum, *R. Br.*

PERIPLUS of the Erythræan sea. Letronne supposes that the author of this voyage wrote in the time of the emperor Septimus Severus and his son, namely, between the years 198 and 210 of the Christian era. Dean Vincent supposes it to have taken place about the tenth year of the reign of Nero (A. D. 64). It was doubtless near, but subsequent to this era. Periplus, seems a record of an experienced sailor who had navigated the Red Sea, the Persian Gulf, and the coasts of Malabar and Coromandel who had resided many years at Baroach, in the court of a hindoo rajah. He describes Arabia as having pilots, sailors and persons following maritime pursuits. He mentions that large vessels were navigating the Bay of Bengal to the Ganges and Chryse. See Aden, Kalian.

PERISTROPHE .LANCEOLARIA. One of the Acanthageæ; Peristrophe speciosa, Peristrophe montana. Vide Justicia.

PERISTYLUS. This elegant terrestrial orchid with snowy blossoms is occasionally seen in Tenasserim, Wight in Icones, gives Peristylus exilis, Lawii, plantagineus, richardianus, robustior, and spiralis, and Voigt gives elatus. *W. V.*

PERITA CHETTU, or Kharjurapu chettu, Tel. Phœnix dactylifera, *L.*

PERIWINKLE, Vinca major, the Greater Periwinkle has flowers of a fine purple-blue colour, and larger than those of any other species. The English name, Periwinkle, seems to be derived from the French, Pervenche. In Chaucer's time it was called Perwinke:—

> "There sprang the violet al newe,
> And fresh perwinke rich of hewe."

In olden times great virtues were attributed to the Periwinkle; amongst other things, Culpepper says, "the leaves of the Periwinkle eaten by man and wife together do cause love between them." In Italy this plant is called Fiore di Morte, from the practice of making garlands of it in sorceries and incantations, hence the French still call it Violette des Sorciers. Vinca minor, Lesser Periwinkle, has procumbent stems; the flowering stems usually erect. It is a native of Europe, in the same situations as v. major and is often found in Great Britain.—*Eng. Cyc.*

PERIWINKLE TREE. Calpicarpium roxburghii.

PERIYA-PALAYAM, see Hindoo.

PERJI, Malayala, a tree of the forests of Malabar and Canara, about twelve feet in height, and ten inches in diameter. Its timber is very hard and strong, is used by the natives for knees and boat timbers: but is ranked among the jungle-woods of the coast.—*Edye, Forests of Malabar and Canara.*

PERKENIER, see Ai island.

PERKHATUNA, Hind. Cocculus leæba.

PERNA, a genus of molluscs.

PERNAMBUCO COTTON, Gossypium acuminatum. Humboldt mentions that in the equinoctial regions of America, cotton extends to nearly 9,000 feet above the level of the sea, but in Mexico, in 19° 22′ of N. latitude, it reaches only to 5,500 feet. In the Himalaya Royle had seen it about 4,000 feet in the tract between the Ganges and the Jumna rivers; Dr. Govan mentions it as extending with the sugar-cane to about 4,200 feet between the Jumna and Sutlej rivers; both situations are within 28° to 31½° of N. latitude, but in neither is it cultivated to any extent, a few plants only are grown about the villages, of which the produce is used up by the women of the family. Mr. Trail mentions that the cotton of the Kemaon district is superior in softness of texture, gloss of colour, and length of fibre. It is generally admitted that the quality of cotton improves in proportion to its vicinity to the sea; but the Pernambuco cotton is said to be injured by this proximity, and to improve in proportion as its cultivation advances into the interior (Koster's Brazil.)—*Roxb.*; *Royle's Ill. Him. Bot.*, *p.* 88.

PERNINÆ, a sub-family of birds, 2 gen. 3 sp. viz., 2 Bâza, 1 Pernis.

PERNING-KOLLEN, see Kummaler.

PERNIS APIVORA. Honey Buzzard of Europe, Asia, N. Africa; migratory. In India common (if identically the same), in addition to P. cristata. In the crestless or sub-crested Indian specimens (adults), there is a marked tendency to the development of three dark stripes on a white throat, and in the Astur trivirgatus and sundry other Indian species. Can such be a hybrid race between P. apivora and P. cristata?

PERONIA, a sea slug-like greenish-coloured creature found on the rocks of Formosa and Borneo.—*Colld.*

PEROOMAL, see Kerala, Chera, Peninsula.

PEROO-MARUM, Maleal. Ailanthus malabarica, in Tam. Ailanthus excelsa.

PEEROO NAGA, also Sinoo naga, Tam. Eugenia jambolana.

PEROO-NANAL, Tam. Reed.

PEROONJOLI MARUM, Tam. Hymenodyction utile.

PEROON-KOLLAN, see Polyandry.

PEROS BANHOS, a group of 27 islands Chagos archipelago, lat. 5° 14′ S., and long. 77° E.

PEROWTY, see Khiraj.

PEROXIDE OF IRON, see Hæmatite, Iron.

PERPADAGUN, Maleal. Pentatropis mycrophylla, *W. & A.*

PERRA MARAM, Malayala, Coia Maram Tamil, names of the guava tree. Its wood is very hard and close grained. It grows to about twelve or eighteen feet high, and eight inches in diameter; it is used in conjunction with the jungle-woods, for inferior purposes, but is generally known as a garden fruit tree. —*Edye, Forests of Canara and Malabar.*

PERRANDEI CODDI and Elley, Tam. Cissus quadrangularis, *Wall.*

PEREE-ARETEI, Tam. Alpinia galanga, *Swz.*

PERRETAY-KEERAY, Tam. Ipomæa reniformis.

PERRON, Anquetil de, a great oriental scholar, fired by the desire to learn Zend in Nov. 1754, he joined the French army.

PERRON, General. A French officer employed in the service of Scindiah in the year 1797, who was appointed the Deputy of the Maharaja in Northern India. He was an able commander, assisted by several able officers of his own nation he originally took service with Scindiah, with the object of disciplining his troops, for the support of which lands had been assigned between the Ganges and the Jumnah, over which, and at Delhi, Agra and Futtighur, he ruled with almost regal power, though ruling ostensibly as Scindiah's deputy, it was in the name of the Mogul emperor or the blind Shah Alam, who was in fact no more than a helpless captive and puppet in his hands.—*Havelock.*

PERRUNDAY, Tam. Vitis quadrangularis.

PERRY, Sir Erskine: was Chief Justice of Bombay, and President of the Bombay Asiatic Society. Author of a letter to Lord Campbell on Law Reform, Lond. 1850: Translation of Savigny's Law of Possession. Lond. 1848.—Character of the Hindoo king Asoka, Bom. As. Trans., vol. iv.—On the aboriginal tongues of India in Bom. As. Trans. 1852. A Birds Eye view of India. Member of the Council of India. —*Dr. Buist's Catal.*

PERRY. A fermented liquor made from the pear fruit, in the same manner as cider is from apples. It is chiefly made in Worcestershire.

PERSEA of the Ancients, fruit of Balanites egyptiaca,

PERSEA GRATISSIMA, *Gærtn.*

Alligator pear, Eng. | Avocado pear.

P. gratissima is the Avocado pear of the West Indies, and receives its name in consequence of the resemblance in form between its fruit and that of a European pear. The plant which bears it is a tree about the size of an apple tree; the leaves are oblong, veiny, and the flowers small, and of a greenish yellow colour. The fruit is the size of a large pear, and is regarded as one of the best produced in the West India islands. In the inside it is yellow, and contains a kernel inclosed in a soft rind. In taste it is said to resemble the peach, but to be much more agreeable, though not so sweet. It is sometimes eaten with pepper and salt, but more frequently with a little sugar and lime-juice. Three varieties are mentioned, the red, the purple, and the green. —*Wight's Icones*, 1823; *Eng. Cyc.* See Dyes.

PERSEPOLIS, we do not know whether it was originally called Elamais, Istaker, or Takht-i-Jemsheed. After the establishment of the empire by Cyrus, he and his immediate descendants divided their residence chiefly between Babylon, Susa, and Ecbatana. He was a conqueror long before he was a king; and while Cambyses, his father, reigned in Persia and occupied his own capital; and Cyaxares his uncle yet lived, and maintained his state in Ecbatana, the principal city of the Medes, the present Hamadan, Cyrus resided at times in Babylon. which he had subdued, and then afterwards at Susa, when the death of Abradates gave the whole province to his generous prince and friend. Cyrus did not live more than eight years after he became master of the empire, and therefore could not have had much time to distinguish Persepolis by any long residence there; though he often went thither. We learn from several writers, that at different periods both Cyrus and his successors had added to the splendours of the city which the Greeks called Persepolis. Xenophon clearly points out its situation. (Strabo. Diod. Siculus.)—*Porter's Travels, Vol.* i, *pp.* 576, 577. See Hindoo, Istakhr, Jamshid, Persian kings.

PERSIA. The territory known to Europeans by this name, is called by its people Iran. Pars or Fars, from which the term Persia is derived, is a province of the country called by the Greeks *περσις*, Persis, which contained the chief city, and the most splendid of all the Royal palaces. From Pars is also formed Parsee, the Aryan race who are now following the tenets of Zoroaster. The entire southern region of Fars, bordering on the Persian Gulf, is called the Garmsair or "hot region." It extends from the sea to the latitude of Kazeroon, and runs parallel with the Persian Gulf, from the banks of the Tab to the confines of Laristan; from Bushire, eastward as far as Cangoon, the tract is named the Dushtistan or "land of plains." The Tungistan, commonly pronounced Tungistoon, or "narrow land," is a small tract of land east of Bushire. The greater portion of the people of the whole Garmsair, are an independent lawless set, many of the tribes being robbers by profession. A huge wall of mountains separates the Garmsair, or low region, from the Sardsair, or high table-land of Persia. One of the most conspicuous of these, is an abrupt lofty hill, named Hormooj, where specimens of coal were found. Sardsair signifies "cold region." It is also termed the Sarhada, a word literally signifying "boundary or frontier," but generally applied to any high land where the climate is cold. Persia has hardly one river which can be termed navigable, unless the Euphrates and the Tigris may be considered as belonging to that empire. The Karoon in Khuzistan, the Arras or Araxes in Aderbijan, and the Heilmund, which flows through the province of Seistan, are the largest within its ordinary limits. The rains, except in Mazenderan, are neither frequent nor heavy. Of the deserts of Persia the most celebrated is that called the Great Salt Desert. It extends from the vicinity of the cities of Koom and Kashan to that of the sea of Durra and the district of Tarshish; and from the province of Kerman to that of Mazanderan, being in length about four hundred miles, and in breadth two-hundred and fifty. It may also be said to join the deserts of Kerman and Segestan, and like those of Arabia is impregnated with nitre and other salts. The deserts of Kerman, Segestan, Mekran, and Kuzistan, are mentioned in the article Deserts. Kara-Kam, or the Black Desert, divides Khorassan from Karizm, and extends from the foot of the mountain to the north of Meshed, as far as the Lake of Arral. Persia has an area of about 26,000 miles, with a population of 10,000,000.

Mahomedans, Shiah	.. ..	7,500,000
,, Sunni	.. ..	1,500,000
Christians, Nestorians	.. ..	100,000
,, Armenians	.. ..	200,000

The rural population may be about four millions, and there are four great cities Isfahan 60,000, Teheran 80,000, Tauris and Meshed, each 100,000.

The ordinary revenue of the crown, is about two millions but much of the land is held under agreement to give military service. The crown revenue is derived chiefly from land and the tax averages about 20 per cent. of the gross produce. The marriages are of two kinds, one the "aqdi" with a girl of the bridegroom's own rank, the other, the "seegha" from the women of humbler birth. Many of the women read and write, especially the Kajar women. The happiest and most glorious era of Persian history was when that country was governed by the first monarchs of the Seljookian dynasty of Tartar princes. The most ancient of the races that ruled in Persia, was the

Peshdadian dynasty. Of the fourteen known names of this dynasty, the first was Kaiumars, by some supposed to be Adam or Noah, who reigned atBalk; in this line, we notice the name of Jamshid who reigned at Persepolis; Feridun, who was restored by Kawa, the blacksmith; and Afrasiab who was king of Turkistan.

The *Kaianian* dynasty followed the Peshdadian, and amongst its names are Kai Kobad (Kai signifies the mighty). Kai Kaus, son or grandson. Rustam his general. Kai-khosru, grandson, Cyrus the great. Lohrasb, son of Orond Shah. (Cambyses omitted.) Gushtasp, his son, Hystaspes of Grecian history. Isfendiar, his son, Apanda or Astyages of do. Kai Bahman, or Ardashir daraz-dast, Artaxerxes Longimanus.

Homai, daughter and wife of ditto.

Darab, son of ditto.

Dara, his son, the Darius overcome by Alexander the Great.

The petty kings, Muluk-ut-tawaif, who follow Alexander, called by the Persians the Ashkanians and Ashganians, are the Arsacidæ of the Greeks.

Ardashir Babegan bin Sasan, Artaxerxes, the first of the Sassanian kings, A. D. 226.

Ardashir (Artaxerxes ii, the 10th), A. D. 81.

Ardashir iii, (the 25 Sassanian) in A. D. 629 under whom anarchy prevailed.

Ardashir-daraz-dast, or of the long arm, was Kai Bahman, the Artaxerxes Longimanus of the Romans.

After the death of Alexander the Great, Persia as well as Syria, fell to the lot of Seleucus Nicator, who established the dynasty of the Seleucidæ. Antiochus Soter succeeded Seleucus Nicator, and in the reign of his successor, Antiochus Theos, Arsaces, a Scythian, who came from the north of the sea of Azoff, induced the Persians to throw off the Greek yoke, founded the Parthian empire, and made Rhages his capital. This was likewise the period of the foundation of the Bactrian kingdom by Theodotus the governor of it, who finding himself cut off from Syria by the Persian revolution, declared his independence. Arsaces is called Asteh by eastern writers, and is said to have been a descendant of the ancient Persian kings. When he gained the kingdom it is said he promised to exact no tribute and merely to consider himself as the head of a confederacy of princes, united for the double object of maintaining their independence and freeing Persia from a foreign yoke. This is the commencement of that era of Persian history called by eastern writers, Muluk-ut-tuwaif, or commonwealth of tribes.

Chor-saci, is an ancient term by which the Scythians designated the ancient Persians. Baron DeBode supposes the town of Ardea in Fars near the mountainous region of Ardekan, to have been one of the chief towns of the ancient Persians. The Persians built Al maidan out of the ruins of Babylon.

Koornah, is one of these three Apameas built by Seleucus in honour of his first wife, Apamea, daughter of Artabazus. It is situated at the point of a triangle, formed by the confluence of the rivers Euphrates and Tigris, and although now dwindled into a petty town, it was formerly a place of consequence. Koornah is situated on a low flat, with apparently a rich soil, and along the river are low banks to prevent the country being flooded. At this spot some oriental traditions have fixed the Garden of Eden.

It was at Nahavend, in A.D. 632 (Hejira 21) that the celebrated battle of Kadesia was fought, in which the troops of the caliph Omar, commanded by the Arab chief Noman, who was there slain, defeated the Persians in the reign of Yezdejerd, one of the Sassanide princes. This monarch, shortly after his defeat, was killed by a miller of Merv, with whom he had taken refuge. The dynasty of the Sassanides had reigned in Persia 415 years; it became extinct with Yezdijerd, and Persia then fell under the dominion of the caliphs, who compelled the population to embrace Islamism. The town of Nahavend is built just at the foot of the north-east range of hills, upon some craggy points. In the centre of the town rises the citadel, a most imposing-looking structure, and really of some strength. It crowns the top of the highest of the craggy points upon which the place is built, and is supported by immensely solid mud walls from without, rising at least 100 feet high.

The battle of *Kadesia* fought in the year of the Hejira 21 (A.D. 632) under the kaliphat of Omar, by the Arab general Saad, against Rustum, the commander-in-chief of the Persian army, in the reign of Yezdijerd III, the last of the Sassanian race. This battle lasted three days, at the end of which the Arabs were victorious and the Persian monarchy destroyed. In A.D. 906, Rhages was taken by Ismail, founder of the Samanee dynasty. It ceased now to be a seat of empire, and in A.D. 967 became the capital of the house of Shemgur, a race of petty princes who maintained a kind of independence, while the dynasties of Saman and Dilemee divided the empire of Persia. In A.D. 1027, Rhages was the last conquest of Mahmud of Ghuzni.

Timur Lung, usually called Tamerlane, succeeded to the throne of Chaghatai at Samarcand in 1370, being then in his thirty-fourth year. Spent two years in settling his own kingdom and putting down opponents; and then proceeded to extend his dominions by seizing on all others. In addition to Persia he extended his victories over Asia Minor, Syria, Armenia, Georgia, Tartary, Hindoostan, and a great part of Persia. He penetrated to the confines of Siberia, and plundered Moscow. He had placed on his own head no fewer than twenty-seven crowns; and was about to essay the conquest of China with an army of 200,000.

In the beginning of the seventeenth century, during the reign of Shah Abbas the Great, the English first established commercial settlements in Persia. Two enterprizing Englishmen, Sir Anthony Sherely and his brother, with a few followers, had made their way to the court of Persia, where they met with a distinguished reception. Sir Anthony returned as envoy from Shah Abbas to establish an alliance with the christian monarchs of Europe for the destruction of the Turks and with a grant. Permitting all christian merchants to trade freely with Persia. Under the patronage of Shah Abbas, the English, the French, and the Dutch had established factories at Gombroon, to which place the Persian monarch afterwards gave the name of Bunder Abbas or the Port of Abbas, by which it is now known. Shah Abbas, however, had less toleration for the Portuguese, who, in 1507, under Albuquerque, had conquered and occupied the island of Hormuz, at the entrance of the Persian Gulf, not far from Gombroon, and he resolved on their expulsion. He was joined in this enterprise by the English, then at war with Portugal, with whom in 1622 he entered into an engagement granting them half the plunder of the island and half the future customs of Gombroon and Hormuz. The Portuguese were driven out, but the promises of the king of Persia to the English were not kept. The factory at Gombroon was maintained through many losses and disasters till 1761, when it was withdrawn in consequence of the oppressions of the provincial Governor of Lar. The death of Shah Abbas in 1628 was followed by the rapid fall of the Suffavean dynasty. Four weak princes of that house successively ascended the throne of Persia. During their reign the Turks severed from the Persian empire some of the best of the western provinces, the Arab ruler of Muscat possessed himself of the islands in the Persian gulf, the Affghans of the Abdali tribe made themselves independent in Herat and the Ghilzies in Candahar; and in 1722, within a century after the death of Shah Abbas, Ispahan was besieged by Mahmud of Candahar, to whom Shah Hossein formally resigned his crown. The Affghan dynasty was short-lived. Mahmud died insane in 1725. His cousin and only successor Ashraf was slain in 1730 while fleeing in the desert before his conqueror Nadir Kooli Khan, the warrior Nadir Shah. After the abdication of Shah Hossein, his son Tamasp had assumed the name and state of king, and was unceasing in his feeble efforts to recover the crown. Shah Tamasp was permitted to enjoy his nominal sovereignty only two years, when he was dethroned by Nadir Kooli, who, with affected reluctance, accepted the crown. Little had remained of Persia in the feeble grasp of Shah Tamasp, when, in the year 1726, Nadir Shah, after a life of vicissitudes, found himself at the head of a band of robbers in Khorassan, at the age of about thirty-five. The genius of this man alone quickly changed the aspect of affairs, and Persia, from being trodden under foot by all, became, during his lifetime, a formidable empire, and enjoyed once again the glory, such as it is, of being a conquering nation. The first exploit of Nadir Shah was the conquest of Meshed, and the rescue of all Eastern Persia from the Affghans; the next was his victory at Hamadan over the Turks, and their expulsion from Azerbijan and the other western provinces of Persia. While he was besieging Erivan he received the news that the Affghans had again invaded Persia: so he turned round, beat them, and took Herat and Ferrah. He forced the Russians to abandon, by treaty, all conquests on the Caspian Sea, preparatory to his attack on Turkey, and then dethroned his imbecile sovereign Shah Tamasp, whom he had first taken the pains thoroughly to discredit. He failed in an attack on Bagdad, but was successful in Georgia and Armenia, taking the cities of Gengah, Tiflis, Kars and Erivan, the former possessions of Persia in those parts. After his seizure of the throne, he subdued the Bakhtiyari and put Teheran in safety; he then marched 80,000 men and took Candahar and Cabul; sending kind and flattering letters to the Tatar chiefs beyond the Oxus, whose country he did not want, telling them that he would never invade the rightful inheritance of the descendants of Gengis Khan and the high Turcoman families. He thus secured his rear, and affecting indignation and necessity, advanced to the attack of India, because the emperor of Delhi had not answered his letter requiring the reddition of certain Affghan chiefs. In a rapid and successful march he passed through Lahore, beat the emperor Mahomed Shah, and entered Delhi in 1739. The inhabitants were respected till on a report of his death, they rose upon his troops. He then at last gave orders for a general massacre. While it raged, Nadir sat alone and gloomy in a mosque, were Mahomed Shah found him, and entreated him to spare his people. The emperor of India should never sue in vain, replied Nadir, who gave orders for the carnage to cease; so great was his discipline and power over his troops that he was immediately obeyed. After restoring the emperor to his throne, he returned to Persia, conquering on the way Scind, Balkh, Bokhara and Khaurism or Khiva. Meshed was his new capital, whence he made expeditions against the Lesghins and Turks: becoming gloomy and cruel during the last six years of his life, he was murdered in 1747. Under Nadir Shah, the Persian empire had recovered for a time its former glory. He not only recovered the provinces conquered by the Turks and the Russians, but reduced Sind, Candahar, Cabul, Balkh, and the whole country between the Oxus and the Caspian sea, carried his arms to Delhi, which he gave up to plunder and massacre, and compelled the emperor of Delhi to cede to him all his possessions west of the Indus. Within a few years after his murder in 1747, the mighty empire which he had re-created was dismembered. Ahmed Khan, Abdali, proclaimed himself king of the Affghans, took Candahar and Herat and laid the foundation of an empire which he extended by conquests more brilliant than those of Nadir Shah. The province of Khorassan was all that was left to Shah Rokh, the blinded grandson of Nadir Shah. This was guaranteed in his independent possession by Ahmed Khan, but was soon broken up into a number of independent principalities. The southern and western provinces of Lar, Fars, Irak, Azerbijan and Mazenderan were subdued by Karem Khan of the tribe of Zend, and a prince of the Suffavean house named Shah Ismael, a son of the sister of Shah Hossein, was set up as a king. But he was a mere puppet and was soon cast into prison, and Karem Khan ruled alone. He was a just ruler. In 1763 he granted to the British a firman for a factory at Bushire and for the trade of the Persian rule. Karem Khan died in 1779 after a vigorous rule of twenty-six years. His death was the signal for fresh revolutions marked by the most atrocious cruelties, in the course of which the four surviving sons of Karem Khan were savagely mutilated. This state of things ended in 1795 in the elevation to the throne of Persia of Aga Mahmud Khan of the Kajar tribe, the founder of the present dynasty. In 1788, during the brief rule of Jaffir Khan, nephew of Karem Khan, and the last representative but one of the Zend family, the British who, during the revolution, had been subjected to many oppressive exactions, obtained through the chief of their factory at Bussora another firman for unrestricted trade in the Persian dominions. From the success which had attended the invasion of India by Nadir Shah and Ahmed Shah, Abdali, it was believed that the plains of India were exposed to be periodically ravaged by any ambitious ruler in Affghanistan. In 1796, Zeman Shah, grandson of Ahmed Shah, Abdali, advanced to Lahore with the professed purpose of restoring the house of Timour from the domination of the Mahrattas, and after some years in 1801, Captain Malcolm was sent on an embassy to Persia. The re-conquest of Affghanistan was always a favorite dream of the Kajar dynasty, who conceived that their rights of sovereignty over that country were as complete as in the days of the Suffavean kings. In 1828 Futteh Ali Shah was induced by the Russians to advance on Herat, the key of Affghanistan, but, two expeditions were unsuccessful. His son Mahomed Shah, who was ever a friend of Russia and an enemy to British interests, revived the project, and with a large force laid siege to Herat, on 23rd November 1837. To force the Shah to renounce his ambitious projects, a demonstration was made in the Persian gulf by the occupation of the island of Kharack. This induced him to withdraw from Herat after a siege of ten months, during which all his efforts had been frustrated by the energy and ability of Lieutenant Eldred Pottinger, an officer of the Bombay Artillery. Mahomed Shah died in August 1848 and was succeeded by his eldest son Naseer-ood-deen. On the death of Yar Mahomed Khan his successor feeling himself insecure in power, and being threatened by the Ameer of Cabul and by Kohun-dil Khan from Candahar, Syud Mahomed Khan made overtures to Persia, and a force was despatched by the Shah nominally to reduce the Turkomans, but in reality to occupy Herat. A force was sent in December 1855, in violation of the agreement which had been made by the Persian government, Mahomed Yusoof was taken prisoner, and Herat was captured on 26th October 1856. The quarrel could not be adjusted, and a force was sent from Bombay to occupy Kharack, and on the 1st November 1866 war was declared. After a brief successful campaign under Sir James Outram, a treaty of peace, concluded 3rd February 1857, was signed at Paris on the 4th March 1857. In this the previous treaty was adhered to for the abolition of slavery in the Persian gulf. In 1861 an attempt made to arrange for a telegraph line through Persia to Bunder Abbass, failed, but in 1863, the king resolved in constructing a line from Khanakin on the Turkish frontier, through Teheran, Ispahan and Shiraz to meet the British line at Bushire.

The entire town population of Persia does not exceed, if it equals eight millions of souls. The country is very thinly peopled; and a great proportion of it being a barren desert is destitute of inhabitants. The entire annual revenues amounts to about three millions of tomans, not quite a million and half sterling. Persia resembles the highlands of Scotland, in being divided among tribes, the chiefs of which command great respect. Persia is a thoroughly aristocratic country, where high birth and polished manners are much considered. In this point it differs much from Turkey and even Russia, where the feeling is thoroughly democratic, that is to say, Turks and Russians cannot feel or understand why, because the father has been distinguished, the son should be respected. Perhaps one-third of the inhabitants of Iran are nomadic, and this section, by its habits, as well as mode of life, constitutes a race separate from the other or fixed portion, which consists of Persians, Kurds, Armenians, Arabs, Jews and Parsees. The region intervening between the Euphrates and the Indus is thinly peopled. It is occupied by races, the bulk of whom are nomade and of varied origin bounded by the race on the north, known to Europe as Affghans, by the Brahui mountaineers and the Balooch races of Baluchistan, and races on the sea coast whose origin is unknown. Macdonald Kinneir (*Geog. Mem. p.* 44) questions whether the inhabitants would amount to more than eighteen or twenty millions even including the Iliyat races, who probably exceed the number of those who reside in towns. The word Iliyat is derived from Eel, a Turkish or Tartar word, signifying tribe; to which "aut," an Arabic termination of the plural, is added; a combination not uncommon. The Iliyat tribes in Persia, are of Tartar and Turcoman descent; and of tribes from the Bakhtiara mountains, who are of a race totally distinct from the northern hordes, and, probably, something more indigenous to the soil, than any of the other wanderers; but all lead the same manner of life, and bear the common name of Iliyat their pastoral habits little distinguishing them from the Bedouin Arab, or the nomade Tartar on the banks of the Tedzen. The subjects of the Persian empire therefore consist of two large distinct classes: the stationary inhabitants of towns and cities; and the wandering dwellers in tents and temporary villages. They comprise a very large portion of the population of the country, though their actual numbers are not well known. They are mahomedans of the Sunni sect and herdsmen. Many of the best families in Persia are of Iliyat origin. The present royal family is of the Kajar tribe, a Turkish Eel, which came into Persia with Timur. In winter, the Iliyat either inhabit temporary huts, or follow the sun into warmer districts; the empire of Persia being sufficiently extended to yield a temperate climate somewhere, in almost all seasons. They change their places of encampment with the season and climate, going in the summer to the Yeilauk or quarters where pasturage and water are to be found in abundance; and when the cold of winter sets in, adjourning to the Kishlauk or warmer region, in which their flocks and herds, as well as themselves are better sheltered. Their summer abodes consist of large black tents, made of woven horse-hair, the sides being matting, or dried rushes. They are usually pitched in a quadrangular form on the banks of their hereditary rivers, and under the brow of the mountains which had shadowed their forefathers for unknown generations. Hence, though they wander, it is yet within bounds. They have a country, and only change their place in it. The nomade tribes of Arabia and of Tartary bear the same character; possessing an extended inheritance, though it be only a desert. The Iliyat constitute the military force: and their chiefs, to whom the tribes are entirely devoted, are the hereditary nobility of the kingdom of Persia. Those in the southern provinces, the Bakhtiari, Fielhi, and Mahmaseni, trace their origin to the most remote antiquity, and are probably the descendants of the warlike bands who inhabited the same country in the days of Alexander. The Kashgoi are a nomade Turkish tribe of about 120,000 families, whose chief is the Il-Khavi of Fars. They and the Bakhtiari from the warm pastures of Arabistan and the head of the Persian gulf, arrive in spring on the grazing of Isfahan. At the approach of winter, both the tribes return to their respective Garmsair or wintering lands. The entire southern region of Fars, bordering on the Persian gulf, is called the Garmsair or "hot-region." It extends from the sea to the latitude of Kazeroon, and runs parallel with the Persian gulf, from the banks of the Tab to the confines of Laristan. From Bushire, eastward, as far as Cangoon, the tract is named the Dushtistan or "land of plains." The Tungistan, commonly pronounced Tungistoon, or "narrow land," is a small tract of land east of Bushire. The greater portion of the people of the whole Garmsair, consists of an independent lawless set, many of the tribes being robbers by profession. Each tribe has a separate grazing ground for its flocks; and this land, from long and undisputed possession, is considered as the property of the different chiefs. In the fine season they are continually on the move, in search of pasturage; but, in the winter, several of the tribes, amongst which may be numbered the Karagoosli and Afshar, settle in villages. In Dahistan, Asterabad, and the northern parts of Khorasan, instead of tents they live in small portable wooden houses. They principally subsist on the produce of their flocks, and consequently grow but a very small proportion of corn; they manufacture cloth, as well as several other little articles for their own use, and the most beautiful Persian and Turkish carpets, so much admired in Europe, are the work of the Iliyat. Inured, from their infancy, to arms, to danger, and fatigue, and tenacious, at the same time, of the honour of their tribe, they are at once the prop and glory of their country. Each tribe is divided into "teera" or branches, and each teera has a particular leader, all of whom are, however, subservient to the chief. These chiefs are, both from birth and influence, the first men in the empire; they are always mutually jealous and hostile; and the king, by nicely balancing the power of the one against that of the other, insures his own safety and the peace of his dominions. It is also the custom to detain at court, either the chief himself or some part of his family, as hostages for the fidelity of the tribe. The Iliyat or "tribes," says Sir John Malcolm, are all soldiers, and generally horsemen. The cities furnish no soldiers to the army except infantry, they are defended by a militia, who sometimes take the field. In their conduct and morals, the Iliyat women are vastly superior to those of the towns and settlements. They are chaste and correct in their lives, and faithful to their husbands. Persians designate as I'lyats, the whole of those tribes who subsist by their flocks, and also that portion which is employed in the pearl fishery. The I'lyats do not admit that they belong to the old Persian stock, but believe themselves to be descended from strangers, who had been attracted by the thirst of conquest, like the Saracens from the west, or the followers of Jengiz Khan, and other adventurers from the east. The I'lyats settled in Persia at a recent period, and have preserved their peculiar habits and customs. The funerals of the Bakhtiyari, for instance, are attended with dancing and other symptoms of rejoicing and if the man should have been killed in battle, the rejoicings (and this is the case also among the Arabs) are on that account the greater. The I'lyats are brought up in ignorance of almost everything, except tending their flocks, weaving tent cloth, occasional cultivation of the ground, and martial exercises. The head of each tribe is its leader in war, or in the predatory excursions; and he practically teaches his hardy followers to despise the peaceable occupations of the cultivators, who, when not sufficiently protected, are frequently plundered of their corn and cattle. The I'lyat chiefs and their families are the only permanent aristocracy of Persia, in which kingdom they occupy a position nearly resembling that of the old feudal chieftains in Europe; and at times they have been raised by their personal talent, aided by fortuitous circumstances, to the throne itself. Fatteh Ali Shah, was an instance of this sudden elevation. The I'lyat communities usually consist of twenty or thirty families. They make carpets and tents, and have all things within themselves except clothes, copper utensils, pack-saddles and personal ornaments for their dress, and these they obtain from the Persians. Being entirely a pastoral people, their property is calculated by the number of animals (more particularly sheep) which they possess. These constitute the ordinary medium of traffic, and they are sheared twice in each year. Allowing one-fourth for the usual exaggerations to the east, there would still be about 600,000 families, which, at an average of four and a half persons to each, would give 2,700,00 I'lyats.

After Persia was overrun by the mahomedans from Arabia and Tartary, most of th people seem to have become mahomedans, an little is known of the history of the fir worshippers in the years preceding the arrival of a small remnant of them on th coast of Guzerat. On their being presented t the hindoo ruler of that country they avowe their reverence of the cow and its product This doubtless was done with the object t conciliating the people amongst whom they ha arrived, and it is perhaps the sole concessio which during the succeeding three hundre years they have openly made to the religion around them. They are a well educated people and many of their women also have bee educated. In their habits, they have nothin in common with hindoos, and they retain towards mahomedans a dislike, to call it by n strange term, which has been handed dow from the time that they were driven forth, small band of pilgrims, from their native land They have largely engaged in commerce an trade, and cling to the British and their customs, their dislike of the mahomedans and th absence of all sympathy on their part wit hindoo habits, encouraging their Anglican inclinations.

Bokhara has a considerable number o Persians especially Persian captives, who ar brought in small parties. The greater majority however, of this people were transplanted fro Merv, in the reign of Amir Seyid, when th city fell under his sway. With a view o weakening it, and thereby ensure his own safety, he ordered 40,000 families to be transported from Merv to the neighbourhood of Samarkand. It is from them the Persians of Bokhar chiefly descend. The Persian population ar easily distinguished by the regularity of thei features, and their bushy black hair. The profess outwardly the Sunni faith, though i their hearts they remain Shia, cordially hating therefore, the Bokharians.

The Persians of Cabul amount to 12,00 families; they reside in a separate quarter o the city, which keeps up an esprit de corp among them; it also gives them a knowledg of their power which may prove salutary o prejudicial to the factions that divide th country according to circumstances. Beside the Taujiks, who are the original inhabitant of the country, the tribes descended from th Indian stock, and Kuzzilbash sprung from the Tartar conquerors of Persia, there are other nations found in small portions in the country inhabited by the Affghans. It would excite great surprise to find a colony of French o Spaniards settled in a town or country in Grea

Britain, and remaining distinct from the people of the country, after the lapse of several centuries, but this is by no means an uncommon thing in Asia. The wandering habits of a great part of the population familiarizes the whole to the idea of migration. It is also frequently the policy of the Asiatic. The most numerous of this class are the Arabs, who have probably emigrated from Persian Khorassan. Many Arab tribes are still to be found in great numbers and power in that country, where they have probably been settled since the first period of the mahomedan conquest, or at least since the time when the Arab dynasty of Samaunee ruled in Bokhara. The number in Affghanistan may be about two thousand families, some of whom form part of the garrison of Balla Hissaur at Cabul, and the rest reside at Jellalabad, between Cabul and Peshawur. These last are under a chief of their own, who is of such consideration, that the daughter of one of his ancestors was the wife of Ahmed Shah, and the mother of Tymoor. They have lost their original language, but they still live in one society, and are all settled and engaged in tillage.

The bravery of the Persian soldiery has been shown in the attacks on Herat, and at the storming of Bast, as well as on other occasions, they possess the important qualifications (for a country like Persia) of cheerfully accomplished long and difficult marches, even when scantily supplied with necessaries. The Persian like the modern Kurd and Turkoman, is almost always mounted; and having been trained from his infancy, he is one of the most expert horsemen in the world. He is, in fact, quite unrivalled in his skilful management of the animal when ascending the steep sides of rocky mountains, which by most persons would be considered altogether inaccessible for a horseman. The Bakhtiyari and other tribes, maintaining a kind of half independence in the mountains, are also very expert riders; but every Persian, man and boy, is a finished horseman, and particularly skilful in loading and firing from the back of the animals. Like his Parthian ancestors, he can turn round when pursued, and fire his long gun directly to the rear. He then gallops off at full speed, hanging down from his saddle on the off side in such a way that the greater part of his body is covered by the horse. It is not an uncommon thing to see a Persian, whilst going at a brisk pace, stoop down, take a sheep, or even a much smaller object from the ground, and carry it off with unrelaxed speed. The sling is just of sufficient length to allow of its supporting the piece over the left wrist, whilst the hand grasps the muzzle, so as to facilitate the loading. On one occasion, a fowling-piece, belonging to Lieutenant Lynch's party, was thus taken up from the ground, but the timely use of a rifle recovered it. The ancient Persians held that veracity is the mark of piety. The modern Persians are regarded as skilful in dissimulation. Among themselves, with their equals, the Persians of the higher classes who are settled in towns are affable and polite; to their superiors, servile and obsequious; and towards their inferiors, haughty and domineering. All ranks are equally avaricious, sordid and dishonest, when they have an opportunity of being so; nor do they care for detection when they have once reaped the benefit of their superior genius, as they term it, one disagreeable feature in Persian society, being their utter disregard of the truth. With a very few exceptions, they are all alike in dissimulation. Notwithstanding their rapacity and eager pursuit after money, they are by no means niggardly, as far as their own personal gratification is concerned. A Persian loves to make a show with his wealth, however nefariously acquired; and generally spends his money freely in pomp, ostenation, and profligacy. To the Persian have been attributed many of the worst qualities of human nature and his thoughtless extravagance is of itself a root from which many evil branches cannot fail to spring. He is notorious for a total disregard of truth, and for the fraud with which ordinary dealings are conducted. He is devoid of shame in private life, and as insensible to disgrace in public; and, provided he can escape punishment, the most dishonest artifices are viewed as legitimate means of accomplishing his ends. He is superstitious as well as hypocritical in religious matters, faithless in friendship, subject to strong prejudices, and of a revengeful disposition. His minor faults are garrulity and a love of vain display, to which last even personal comforts and cleanliness are too often sacrificed, he is remarked for a dogmatical and egotistical bearing, and a haughty demeanour towards inferiors, with as usual in such dispositions, the utmost servility towards those above him. This dark picture is not, however, without brighter spots. Owing to his politeness towards strangers, and an apparently hospitable disposition, the first meeting with a Persian usually makes a favourable impression, though the offer of his house means no more than the Spanish compliment in like cases; and, it may be the phrase, "it is yours," or "it is at your command," may be easily traced back from Spain into Barbary, and from thence into Arabia. He is, moreover, quick-sighted, sociable, witty and affable, buoyant in spirits, well acquainted with the forms of politeness, and, to a certain extent inquisitive in matters of science and art.

Persians consider the number "thirteen" so unlucky, that in general, they will not even name it. When they have occasion to allude to this number instead of mentioning sezdeh (thirteen), they say ziyad (much more) or hech (nothing.) The Arab, the Persian, the Affghan and Sikh when speaking of the people of India, only call them "black men," and even in India the mahomedan descendents of the Arab, Persian, Moghul and Affghan conquerors, use the same expressive designation, "Kala Admi," literally black man, being ever in their mouths. And hindoos themselves, in their various tongues, likewise so distinguish themselves from all the fair foreigners.

The offering from an inferior is called peshkash. A gift or recompense from a prince or superior is called inam, or khelaat, also bakhshish, a Persian word much used in this sense by the Turks.

The dress of Persian women consists of a pair of immensely wide trowsers, like a couple of petticoats tacked together, made of silk, or cotton, and fastening round the middle by a running string—a very short chemise of gauze, reaching only to the waist—a koortnee or jacket reaching to the hips having open sleeves, which may be buttoned close if required—an arackcheen or small skull-cap upon the head, and sometimes a charkud or handkerchief thrown over the head and descending on the shoulders and back. In full dress a mahomedan lady wears the peshwaz or Persian robe, in which dancing women usually perform. It has long tight sleeves, a tight body crossed in front, and a very voluminous muslin skirt, the most fashionable amplitude being about forty, or even sixty yards in circumference. This garment is often trimmed in a costly manner with gold or silver lace, and is only worn as a bridal dress or at domestic festivals. The Persian ladies regard the bath, as the place of their greatest amusement. They make appointments to meet there; and often pass seven or eight hours together in the carpeted saloon, telling stories, relating anecdotes, sharing their kaliouns. and completing their beautiful forms into all the fancied perfections of the east; dyeing their hair and eye-brows, and curiously staining their fair bodies with a variety of fantastic devices, not unfrequently with the figures of trees, birds and beasts, sun, moon, and stars. This sort of pencil-work spreads over the bosom, and continues down as low as the navel, round which some radiated figure is generally painted.

The usual riding costume of a Persian gentleman, consists of a black lambskin cap, pinched into a conical shape, which is worn alike by prince and peasant. The material is brought from the country about the Oxus, and varies much in quality and value. An open shawl surcoat, lined with fur, reaches about half way down the thigh, the sleeves are cut off a little below the elbow. These surcoats seldom cost less than 25*l*., often much more. Under this a light gown is worn, reaching nearly to the ancle, and open on the sides for about a foot from the bottom. These gowns, likewise an universal dress, have slits left open under the arms and inside the elbows. A shawl is tied round the waist, and supports a long dagger with a handle of ivory or bone, sometimes ornamented with jewels. In cities, the surcoat is usually laid aside, and in winter a cloak of cloth is substituted. On horseback a pair of roomy Hessian boots, of black or red leather, are drawn over the voluminous "shalnar" or "Cossack" trowsers.

The custom of approaching superiors with presents has been the habit of the countries of Asia from the most ancient ages. It is indeed the fee which barbarous despotism exacts from petty rulers and governors under their authority. The natives of Persia do not recline on cushions in the luxurious manner of the Turks, but sit in an erect posture on a thick felt, called a numud. They have seldom or ever fires in their apartments, even in the coldest season; and, in order to be warm, fold themselves in a fur pelisse, or a barounee, which is a handsome robe of crimson cloth, lined with shawls or velvet. Like other oriental nations, they rise with the sun; and having dressed and said their prayers, take a cup of coffee, or perhaps some fruit.

The natives of Persia are enthusiastically devoted to poetry: the meanest artisan of the principal cities of that kingdom can read or repeat some of the finest passages from their most admired writers, and even the rude and unlettered soldier leaves his tent, to listen with rapture to the strain of the minstrel who sings a mystic song of divine love, or recites the tale of a battle of his forefathers. The very essence of Soffeeism is poetry. The following is a list of poets in their true or their takalloos names who have written in the Persian language.

Agah
Arsalan.
Asafi.
Ashraf.
Azad.
Azim-ud-din.
Be-dil.
Farq.
Fakhri.
Gholam Sarwar.
Hafiz.
Hussam.
Husn.
Jalal-ud-din.
Jamal-ud-din Abdur Razzaq.
Jami.
Kama.
Kamal-ud-din.
Hazim wala.
Khakani.
Khaliq.
Khosru.
Moharam
MahmudGhaznavi
Mahomed Taki Sahbar.
Mahomed Toghari.
Mir H aq.
Mir Mashtaq.
Mir Murad Ali Khan.
Mirza HussainWazir Wafa.
Mirza Katil.
Naspati.
Nazim.
Nizami.
Rafiq Sabzi Faroz.
Rumi.
Sadi.
Sadiq Mael.
Saeb.
Shah Sharf-ud-din
Shams-ul-Haq.
Shams-i-Tabriz.
Sharf.
Sharf Ali.
Syed Azim-ud-din
Syed Sabir Ali.
Syed Ali.
Wafa.
Wakif.
Wazir.
Zahid.

Many of the tales and stories current throughout Central Europe, came to it through the

Persian. Professor Max Muller in a lecture on the "Migration of Fables;" traced the history of some familiar examples of this class of literature, until their source was lost in the mists of Indian antiquity. The familiar adage, "Count not your chickens before they are hatched," many would refer to Lafontaine, and to his milkmaid, Perrette. But about the year 550 of the Christian era, it was told to Khosru Nushirvan, king of Persia, that there existed in India books of great worth and wisdom, capable of instructing mankind in matters important to their welfare. The king desired that his own subjects should share in the benefits to be obtained from these books, and he instructed his vizier to employ a proper person to obtain and translate them. The Royal physician, Barzuyeh, was selected for the work and succeeded in accomplishing it. Barzuyeh refused all reward beyond a dress of houour, but stipulated that a notice of his own life and opinions, probably written by himself, should be appended to the work. Of this notice Professor Max Muller said that it was a Religio Medici of the sixth century, and that it exhibited the thoughts of a man who turned away from formalities in search of truth, and who, like many such seekers before and since, found his best refuge from the uncertainties of life in his endeavours to alleviate the sufferings of his fellow men. Among the Indian writings thus translated was a collection of fables known as the Pancha Tantra, or five books; and they were rendered into Pehlevi, the ancient language of Persia. The original version by Barzuyeh is lost, but between the years 754 and 775 it was translated from Pehlevi into Arabic by Abdallah ibn Almo kaffa, who held high office at the Court of Almansur, khalif of Bagdad, the contemporary of Justinian. This second rendering of the Pancha Tantra has been preserved, and an edition of it was published by de Sacy in 1816. It contains among other fables the story of a brahmin, who collected rice by begging, and put the surplus into a pot, which he suspended over his couch. It occurred to him that there might be a famine, in which case he would sell his rice for a hundred rupees, and would buy two goats. The goats would multiply and become a herd, and he would sell them and buy cows. The cows would calve, and increase in value, and he would then buy buffaloes and cultivate land. With the produce he would buy mares, and would sell their foals for gold, with which he would buy a fine house. Then a brahmin would bring him his daughter in marriage, with a rich dowry, and they would have a son, who should be called Somo Sala, and should run to sit upon his father's knee. The child should so run when his father was sitting reading, and would be in danger of being kicked by one of the mares. The father would call out to his wife, "Take the baby! Take the baby!" but she, intent on household cares, would neglect the call. Then her enraged husband would spring up and give her a violent kick, aud the brahmin kicked out so vigorously that he kicked his pot and broke it, and the rice ran out and made him white all over, so that people said of those who formed foolish plans that they should be made white, like the father of Somo Sala. This fable in its course towards modern times, has undergone modifications. In one of these the dreamer was a holy man who had collected butter and honey, and the immediate cause of the final catastrophe, the breakage of the jar, so that the butter and honey ran down upon his beard, was the flourish given to his stick as an expression of his determination to chastise the son who was to crown his prosperity, if that son proved a negligent or backward student, and failed to profit by the masters that would be obtained for him. The version of Abdallah ibn al-Mokaffa was itself translated into Greek by Symon Seth, and from his Greek into Italian and Latin. It was also translated, directly or indirectly, into Hebrew, Latin, German, Spanish, French and English, but the version from which Lafontaine appears to have taken some of his stories came through two successive Persian translations, of which the second, a modernized one, was long a Haileybury text-book, and which appeared in French as the fables of the Indian sage Bed-pai or Pilpay. Lafontaine did not obtain Perette from this source, as the original fable was not included in the collection. Sergius, a Christian, held a position of trust under Al-Mansur, and his son, under the name of Johannes Damascenus, became a famous theologian and controversial writer. Among other works, he wrote a treatise on Christian morals, in the form of a kind of religious novel, the history of Balaam and Josaphat. The latter was a young Prince, of whom it had been predicted that he would embrace Christianity, and become a devotee. His father endeavoured to seclude him from all knowledge of human misery or evil, and to attach him entirely to the pursuit of pleasure. But at length the young Prince took three drives, and saw old age, sickness, and death. He became a hermit, and had been accepted as an actual person by both the eastern and western Churches and was canonized by both. In the Greek Church the festival of St. Josaphat is celebrated on the 16th of August; in the Church of Rome on the 27th of November. But the son of a great officer at the Court of Al-Mansur would certainly be acquainted with the Indian literature that Abdallah ibn al-Mokaffa had translated from Pehlevi into Arabc;

and the history of Josaphat is simply the history of Budd'ha, as given in the sacred books of the buddhist religion. It is strange, indeed, that the founder of buddhism, a religion that had endured for 2,400 years, that even now numbered 455,000,000 adherents, and that taught a morality second only to that of Christianity, has received the highest honour that the Church of Rome can bestow; yet no member of that Church who reads the life of Budd'ha need feel ashamed that this heathen saint had been added to the calendar.

When the Greek historian Procopius wrote, (early in the sixth century of our era), the Persians appear to have scrupulously abstained from concealing human bodies by interment, leaving them all for dogs, and birds of prey. Agathias, another historian and not many years later, says that human bodies were universally consigned to birds and beasts by the Persians, who deemed it unlawful to conceal the dead, either underground, or in a case or cover of any description. Yet that sepulchral urns were occasionally used among them, is affirmed by Mir Yahia, in a passage which D'Herbelot, seems to have amplified, according to his French translation; and of which Gaulmin's latin version does not perfectly correspond to the original text, at least as it appears in two copies of the Lubb-ut-Towarikh; manuscripts not particularly inaccurate. These having mentioned the sculptures and royal tombs in the mountain of Istakhr, inform us that "the graves or sepulchres of those Persian kings who existed before mahomedanism were of three kinds; some bodies being deposited in natural caves, or dakhmahs contrived in mountains; others between rising grounds, in vallies which were afterwards filled with such a quantity of stones, as to become a general level, (or, as one copy expresses it, until they formed a pile or heap,) and some having been put into urns or jars, were preserved in the ground." This author, merely describes in this passage, the different modes of royal sepulture. In the present day, unless a death happen to take place during the night, the funeral follows immediately after it. The body is washed with rose-water; then, being wrapped in a white sheet and cotton shroud, it is carried on a bier to the grave, where the priest, having read some passages from the Koran, throws earth on the body as it is finally deposited in the ground. No coffin is provided, and the corpse is placed on its right side, with its face towards the west. If the deceased be rich, a funeral feast is kept for several days after the ceremony, and alms are distributed at particular intervals. But when a person of rank dies, it is not unusual for the king to command the body to be conveyed to Meshid-Ali, or one of the other places of Shiah pilgrimage; followed by his charg bearing the arms, clothes, &c., of the deceased and also by numerous led horses, with th badges, ensigns, and other expensive insigni of funeral state.

The great caravan lines are in five direction The first passes westward from Central Persi towards Bagdad, Mesopotamia, Syria and Asi Minor. The second runs northward throug Erz Rum, and into Europe by the way Constantinople. The third goes also to Europ by Tiflis. The fourth runs eastward to Bokhara and China. And finally, a fifth procee to India by two distinct lines, which unite Herat. One of these routes comes to this tow from Irak, and the south-western provinces the kingdom, through Shirak; and the oth from the north-west, by Teheran, Nishapur an Mashed. Eastward of Herat, however, th united lines pass through Kandahar, Kabu and Jellalabad, to Attock, from whence branches out to different parts of India. Th trade through Recht, Balfroosh, and other por on the shores of the Caspian, amounts nearly 400,000*l.* The purchases made b Persians with cash at Constantinople during th year 1840 and 1841, amounted to 570,000 each. As the port of Abu-Shehr sends India, goods to the value of 400,000*l.*, exclusive of the trade from Mohammarah; if these be added the caravan trade to Alepp and Bagdad, there will be an export trad amounting to about two millions. Therefor as something like a balance must prevail, th commerce of the modern provinces can scarce be much short of four millions annually.

The modern tongue of Persia is derived fro Zend, as Italian was derived from Latin, b the Persians now speak a language which neither Semitic, like Arabic, nor Turania like Turkish; it is a branch of the Indo-European or Aryan family of speech. A large i fusion of Persian words however found its wa into Arabic, and through Arabic into Turkis and the result is that at the present mome the Turkish language, as spoken by the high ranks at Constantinople, is so entirely ove grown with Persian and Arabic words, th an uneducated Turk from the country unde stands but little of the so-called Osmanl though its grammar is exactly the same as th grammar which he uses in his Tartaric utte ance. The Persian language is met with a over Affghanistan and British India, the gre Affghan families speak it, and in India corre pondence of mahomedans is carried on in th tongue: the Affghan people are acquainted wit it, but they prefer speaking the Pushto, th language of their nation, which is a mixture ancient Persian, Arabic and Hindoostani. Th Affghans have a few works in this languag but they read Persian authors by preference, and have through them formed imperfect ideas of geography, astronomy, medicine and history; these works, full of fictions and deficiencies, have not materially assisted in developing their faculties. Throughout British India, the written language of the educated mahomedan is the Persian. The Persian language is spoken in Erivan and a great part of Aderjiban, Shirvan and Daghestan north of Caucasus. Throughout Persia the inhabitants of towns all speak the Persian language. The tribes to the west of India, especially those of Khorassan, understand Persian generally, and their dress, arms and habitations, while they retain their national peculiarities, approach to those of Persia. The character of the people, however, is essentially different from that of the Persians. Persia possesses few mines of the precious metals; nearly all the gold and silver in the country being imported. There are, however, great quantities of copper, lead and iron; and if these mines were properly worked, the profits would be very great.

Persian weights are :—

Nokhood a kind of a vetch called in India "Bengal gram."

24 nokhood = 1 miscal, about one-sixth of an ounce.

90 miscals = 1 vakka, nearly a pound avoirdupois.

8 vakkas or 720 miscals = one man of Tabreez. In different places varying from 7 to 7½ pounds.

2 Tabreez man = 1 kharwar or ass-load, 725 pounds.

The exhaustive system of agriculture which characterizes Persia, and which, with advantages hardly equalled, certainly not surpassed, by any Oriental country, still keeps her impoverished and consequently warlike along her frontier line, and readily accounts for the attempts of Persia to subjugate the mountainous region, interspersed by fertile valleys, which forms her eastern boundary, from which arises the permanent feeling of irritation that prevails among the hill tribes all along the N. W. of British India.—*Ouseley's Travels, Vol.* i, *p.* 20; *Lecture by Professor Max Müller at the Royal Institution, quoted in London Times*; *Treaties, Engagements and Sunnuds, Vol.* vii, *pp.* 88-91 *and* 97-99; *Ed. Ferrier's Journ., p.* [illegible]; *Kinneir's Geographical Memoir, pp.* 44–5; *Ferrier's History of the Affghans, p.* 107; *Pottinger's Travels, Beloochistan and Sindh, p.* 212; *Euphrates and Tigris, Col. Chesney, Vol.* i, *pp.* 38, 236, 241, 242, 247, 248, 249, 252. —*Skinner's Overland Journ., Vol.* ii, *p.* 70; *Ward's View of the Hindoos, Vol.* ii, *p.* 71: *Milner's Seven Churches of Asia*; *Elphinstone's Kingdom of Cabul, p.* 388; *Burton's Pilgrimage to Mecca, Vol.* iii, *p.* 255; *De Paw, Egypt and China, Vol.* ii, *Sect.* xiii, *p.* 164; *Ockley's Saracens, Vol.* i, *p.* 62; *Porter's Travels, Vol.* i, *p.* 233; *Lieut.-Colonel Stuart's Journal of a Residence in Northern Persia, p.* 185; *Malcolm's History of Persia, Vol.* ii, *p.* 398. See Cambyses, Hindoo, India, Iran, Jews, Kabul, Kalora, Kajar, Kama, Kandahar, Kara-tchi, Kara-kul, Karund, Kasr, Kasra-i-shirin, Kazzilbash, Keifiet, Kelat, Kerman, Kermanshah, Kesra, Khasas, Khiraj, Khorassan, Khosroo Parviz, Kishm, Koran, Koorna, Koh, Koh-i-nokreh, Kohl, Khuzistan or Arabistan, Kudrat-halvassi, Kuhnar, Kullah, Kurdistan, Kurmsaq, Kutub-minar, Lat, Lur, Mommai, Mongol, Nowroz, Parsee, Pir-Panjal, Rama, Rawlinson, Sabi, Sakya muni, Samarcand, Sanscrit, Sarhad, Semitic races, Swords, Tajik, Viswamitra, Zingarri.

PERSIAN. A silken fabric of various colours, and exceedingly flimsy in its texture. It is chiefly used in lining.—*Faulkner.*

PERSIAN BERRIES. Great quantity of yellow berries are annually shipped from Constantinople; 115 tons were imported into Liverpool in 1853. The average annual imports into the United Kingdom are about 150 tons. They come from the Levant in hair bales weighing three and a quarter cwt., or in tierces of four to five cwt., and are used by calico printers for dyeing a yellow colour.

PERSIAN CAT. Recently, a cat merchant in New York sent for a cargo of cats to the island of Malta. On the return voyage a violent storm sprung up, and an old sailor swore that the cats were all devils, and would send the schooner and all to Davy Jones's locker. This was enough for the superstitious crew; and the cats were immediately demanded of the Captain, given up, and drowned. By a coincidence, the storm abated. The owner of the cats sued the owners of the vessel for damages, laying the value of the cats at 50 dollars a piece. The long silky-furred Angora cats are annually brought to India for sale from Affghanistan, with caravans of camels even so far as Calcutta. These animals are currently known as 'Persian cats;' but as Mounstuart Elphinstone remarks, "the long-haired variety of cats, called burak, are exported in great numbers from Affghanistan, but are not numerous in Persia, whence seldom or never exported." Again, Lieut. Irwin notices that "they are bred in Kabul and some parts of Turkistan. By us," he remarks, "it is very improperly called 'Persian;' for very few are found in Persia and not any exported. The Kabulies call this cat baruk or burak, and they encourage the growth of its long hair by washing it with soap and combing it."

PERSIAN FLEA POWDER, the Poudre mismaque, is sold in Paris, in boxes for destroying immediately, bugs, fleas, ants, lice, black beetles, caterpillars and all insects, "Camomille rouge" the beautiful red Pyrethrum (P. carneum, formerly chrysanthemum coccineum), in England a pretty garden,

ornamental flower, is a dread enemy to the Caucasian, Persian, Koordish and Russian fleas. It is prepared from the flower heads of the plant which, when dried and crushed, form the famous Persian flea powder. When used by being sprinkled in beds, &c., it kills all disagreeable and hurtful insects, and a small quantity of the spirit distilled from it, destroys insects in green houses, or can be applied to vegetable life in the open air against green fly, house fly, &c., without injuring the plants. A half tea-spoonful of the powder sprinkled between the sheets will effectually dispel all fleas, bugs and lice, gnats and musquitoes and it is said also to destroy maggots which breed in wounds, a property which the valuable Decamullee gum of India, the gum of the Gardenia lucida, and chloroform, also possess. More than twenty villages in the district of Alexandropol are occupied in the cultivation of the red chamomile, and thirty-five tons of this flea powder are manufactured annually for Russian use, in Trans-Caucasia alone, being equal to about 40,000 kilos of powder from 80 millions of pounds weight of fresh flowers. The red Pyrethrum is now largely cultivated in various circles and governments of southern Russia. The flower heads lose vastly in weight by drying, and to get one pound of dried flowers, 1,000 lbs. of the fresh are required. It begins to flower in June and lasts more than a month. The flowers are plucked in dry weather, and a good collector will pluck 30 to 80 lbs. daily. They should be dried in the shade and care taken to stir them frequently. The Pyrethrum powder, seems the same as the well known Pireoti of Koordistan, and was greatly used in the barracks and hospitals of Turkey and the Crimea, by the British and French officers: it accomplishes very effectually the destruction of fleas, &c. Mr. H. H. Calvert, considered the plant might be a Pulicaria, a Matricaria or Anthemis; but, that the Pireoti is the powder of the half ripe flower heads of Pyrethrum carneum, there now seems no doubt. The Pyrethrum carneum, does not grow in India, but its introduction merits favourable consideration. The property it possesses, of dispersing the vermin which infest beds and bed-rooms, probably depends on the pungent oil it contains; but until its introduction into India, attention might be directed to other species of Pyrethrum and to the allied genus of Chrysanthemum, or Christmas flower, as likely to contain an oil with properties similar to the flea-bane. Mr. Mason mentions two species of Pyrethrum, P. indicum, and P. sinense, as growing in the Tenasserim provinces. The odour of the common fever few, of Britain, P. parthenium, is peculiarly disagreeable to bees, and these insects may be easily kept at a distance by a
person carrying a handful of the flower heads
perhaps, also, the "akarakarum" of India, th
Pyrethrum officinale or common pellitory, ma
have equal power.

PERSIAN GULF. Those portions of th
coasts of the Persian gulf which are not occu
pied by tribes having treaty relations with th
British government are either under the dom
nion of Turkey or Persia. The Turkish suze
rainty is acknowledged on the southern sho
from the Shat-el-Arab to a point nearly opposit
Demam, a small portion nearest the Shat-el
Arab being directly under the pasha of Bagh
dad, and the rest being occupied by Ara
chiefs, who acknowledge dependence on th
Turkish government. The northern sho
nearest the Shat-el-Arab is held by Arab chie
owing allegiance to Persia, and the coast eas
ward to a point nearly opposite to the wester
extremity of the island of Kishm is governe
directly by officers of the shah of Persia. Th
western shore extends nearly 1,495 miles, viz
from the estuary of the Euphrates to th
entrance at Ras-el-Hadd, in which space ar
the bold headlands of Ras Matrah near Mas
kat, and Ras Mussendom, or the Cape of th
Mill, which forms one side of the entranc
and is only 28 miles from the opposite coast
Kirman. Here this rocky coast changes it
direction, running south-westward to Abothub
bee, then westward to Ras Macheereeb. I
now trends northward to Ras Reccan, whic
forms one horn of the deep bay of Bahrein
along this it makes a western curve, and the
trends N. W. to the Shat-el-Arab; previous
forming the three remarkable bays of Abothub
bee, Katif, and Kouweit or Grane. The fir
contains a swarm of hardy boatmen occupie
alternately in pearl-fishing and piracy; th
second is remarkable for its pearl-fishery; an
the last as a commercial port at the entranc
of the Euphrates, with a trade up that rive
and also eastward to Cutch and the adjacen
coast, the vessels making an annual voyag
each way. From different places in the Per
sian Gulf, upwards of 1,000 bagalas, varying i
size from 40 to 300 tons, depart towards th
close of the favourable monsoon, in order to b
able to return thither after the change: the
bring ivory, aloes, canes for spear-handles, dra
gon's blood, gums, gold dust and timber, whic
are obtained after selling, or more generall
bartering their cargoes; these last consist
coffee, spices, horses, dates, and occasionall
pearls. The last form, however, a distinc
branch of trade, and though less valuable no
than formerly, in 1836, it produced mor
than thirty lacs of rupees, or upwards
300,000*l*., which probably is a fair average
the yearly value. Lieutenant Wellsted says 4
lacs annually, or about 400,000*l*. Respectin

the object that Solomon had in view, when he took possession of Palmyra, Volney entertained the belief that he wished to use it as an emporium of the East India trade, by way of the Persian gulf, and the course of the Euphrates. This was about B. C. 1000. Most of the ancient traffic with India seems to have been by way of the Persian Gulf and the Red Sea. The Tyrians established depôts on the shores of the Persian Gulf, and the course of trade being through the land of the Cushdi, the races in India came to be included under the ethnological title of Cush, (Gen. x, 6), and hence the Persian, Chaldean and Arabic version frequently render that term by India, Is. xi, 2, xviii, 1; Jer. xiii, 23. By the natives, however, Hindustan, is a term applied to the whole of that central region of northern India, from the Punjab on one side to Bengal on the other, and from the Himalaya to the southern declivities of the Satpura range running across India in about the parallel of L. 22 N. The Hebrew name of the upper part of the Red Sea was the Sea of Sedge. After the time of Solomon, however, the knowledge of the southern seas seems to have become defective in the south of Europe. In a communication to the Royal Geographical Society, Captain Burton gave his reasons for believing that the Greeks borrowed their Erythrean Sea from the Arabic Sea of Himyar, which seems to have been some part of India. The Erythrean Sea was a name (*Pliny* vi, *lib. cap.* xxii and xxiv,) applied to the Indian Ocean as well as to the two gulfs, the Red Sea, and Persian Gulf, which it forms on each side of Arabia. Herodotus does not particularly distinguish the Persian Gulf, but includes the Arabian Sea and part of the Indian Ocean, under the general name of Red or Erythrean Sea. And Pliny styles the Persian Gulf "a bay of the Red Sea." Greek and Roman authors, however, generally used the term "Persian Gulf," but it appears also among them as the Babylonian Sea, and the Erythrean Sea, and this has caused a confusion with the "Red Sea." The Persian Gulf, by many is described as the "Green Sea" also in Eastern manuscripts as the Sea of Fars or Pars, the Sea of Oman, the Sea of Kirman, Sea of Katis, Sea of Basrah; deriving these and other names from the adjoining provinces and from remarkable places on its Arabian and Persian shores. There are but two winds which prevail in the Persian Gulf, the north-west and south-east, and when the latter sets in, the whole force of the sea is brought to bear directly against the current of the Euphrates, and hence an enormous deposit is effected of the aluvium brought down by the stream, thus barring up its mouth. This deposit, constantly on the increase, progresses, according, to Sir Henry Rawlinson, at the rate of a mile in the lapse of thirty-five to forty years. A great city, of which the ruins are to be seen above Mahammerah, was an island in the time of Sennacherib, named Billat, and can be shown to have been still an island in the time of Alexander. At the present time it is sixty miles from the mouth of the river, and a succession of cities can be traced upon the desiccated delta below it, along the river, down to the sea.—*Ait. Treat. Eng. and Sunn. Eng.*, *Vol.* iv, *p.* 199; *Travels in Oman, Vol.* i, *p.* 265; *Euphrates and Tigris, Col. Chesney, Vol.* i, *p.* 568; *Rennell's Memoir, p.* xxxiv. See India, Kashgoi, Kishm Island, Mamaseni, Muskat, Khuzistan or Arabistan, Pearls, Red Sea, Seir Aboneid.

PERSIAN LILAC, ENG. Melia azedarach, *Linn.*, *DC.* Melia bukayun, *Royle.*

PERSIAN-TOBACCO, the leaves of Nicotiana persica which are very fragrant and agreeable for smoking in pipes, but the tobacco is not suited to cigars from the difficulty of making it burn.—*Simmond's Dict.*

PERSICA SALIGNA, *Royle.*

Bhimi,	HIND.	Bisehur peach,	ANGLO-HIND.

PERSIS PROPER, see Fars.

PERSOONIA. The Dele, the Embothrium, the Hakea, Banksia, and Persoonia, are interesting plants introduced from the Cape and New South Wales, the species being chiefly confined to the southern hemisphere. They are handsome green shrubs, and prized by gardeners for the neatness of their appearance and beauty.—*Riddell.*

PERSULPHURET OF ARSENIC. See Arsenic; Hurtal.

PERTABGURH DEOLAH, a small principality grown out of Mewar, the rajah being descended from a junior branch of the Oudeypore house. From the time of the establishment of the Mahratta power in Malwa the rajah of Pertabgurh paid tribute to Holkar. Under the 4th article of the treaty of Mundisore, the British government acquired a right to the tribute levied by Holkar in Pertabgurh. Rajah Dulput Sing succeeded to the state in 1844. Dulput Sing was grandson of the chief of Pertabgurh, and had succeeded to the state of Doongurpore on the deposition of Juswunt Sing by whom he had been adopted. On his succession to Pertabgurh he relinquished Doongurpore to Oodey Sing, son of the Thakoor of Sablee. He was guaranteed the right of adoption. The area of the state is 1,460 square miles, the population 150,000; the revenue, after deducting the tribute paid to the British government and about two lakhs of rupees enjoyed by feudatories of the state, is in British money about rupees 2,62,400. No local corps or contingents are maintained at the expense of this state. The chief receives a salute of fifteen guns.—*Tod's Rajasthan, Vol.* ii, *p.* 76; *Treaties, Engagements and Sunnuds, Vol.* iv, *pp.* 187–88.

PERTICA MANJO, Malay. See Mundri pullum.

PERTSCHATKI GOLIZU, Rus. Gloves.

PERU BALSAM. See Balsam of Peru.

PERWAN a river near Solutgunge in Purnea.

PERUDA KARADU, Tam. Agriculture.

PERUGU TOTA KURA, or Totakura, Tel. Amaranthus oleraceus, *L.*—*R.* iii, 605—*W. Ic.* 715—1371-2.

PERUI MARAM, Maleal. Ailanthus malabaricus.

PERUMAL, literally the great personage, the most common name of Vishnu in the Tamil country.

PERUMAL TIRUNAL, a festival celebrated in honor of Vishnu and his consort.

PERU MARUM, Tam. Ailanthus malabarica. Mal. Ailanthus excelsa.

PERU MARA, Can. Ailanthus malabaricus.

PERUMARUNDU, also Talashrubi, Tam., also Kadalewegam, Mal., Aristolochia indica.

PERUMPYTUNGAI, Maleal ? Dolichos tranquebaricus.

PERU NAGAL, Tam. Eugenia jambolana, *Lam., Roxb.*

PERUNDA, Tam. Vitis quadrangularis, *Wall., W. & A., W. Ic., Rheede.*

PERUNDEI CODI and Elley, Tam. Cissus quadrangularis, its fruit and leaves.

PERUNGYUM, Tam. Asafœtida.

PERUN POONAK, Calophyllum inophyllum.

PERUN SIRAGUM, Tam. Fennel seed. Fœniculum panmori, Nigella sativa. *DC.*

PERUPUM PULLUM, Tam. Calamus viminalis.

PERU TREE. Myrospermum peruiferum.

PERUVIAN BARK, or Cinchona bark, named, in America, Cascarilla bark. A celebrated medicine obtained from a genus of trees (Cinchona), confined to the lofty Cordilleras of the Andes in south America, and well known for its febrifuge properties.—*Faulkner.*

PERU VIANISCHER BALSAM, Ger. Balsam of Peru.

PER-WARSTI, Gondi. Sciurus maximus, *Schr., Ell., Bly.*

PERUVIANS, see Rama.

PESALA-KAIA, Tel. Dolichos tranquebaricus.

PESALU, Tel. Phaseolus mungo, *Linn.*

PESANG, Malay. Plantains, Musa paradisiaca.

PESCADORE, Pehoe or Ponghon Islands consist of 21 inhabited islands, extending from lat. 23° 12′ N. to 23° 47′ N., and long. 119° 16′ to 119° 39¼′ E. No part of the group rises higher than 300 feet above the sea, and the summits of the islands between Formosa and the mainland are flat.—*Horsb., Colld.*

PESCADOS, *Sp.*

Pesci, It. | Pisces, Lat.

Fishes.

PESHASH, Tam. Whirlwind.

PESHATT. Numbers of gold-washers are constantly employed near Peshatt on the river of Chitral and Kameh. The metal is also found in the rivers of Lughman, and in the river of Cabul, into which they fall, and is sometimes collected near Kergah and Char Bagh of Lughman, and again near Jellalabad. On the joint river of the Kohistan of Kabul before it enters the Safi hills, there is a spot preserving the name of Zar-shu, that is to say gold-washing, though now unfrequented, and it is certain that all, or nearly all the rivers flowing from the north have auriferous sands, as quantities of the metal are procured in the Yusafzai districts. It may be worthy of note, that the people who search for the gold are not of these countries, but of the Panjab; many are natives of Jelam, on the river of that name. It is not improbable that the rivers of Kafristan, when increased in volume, may pass over soils enriched with gold and carry down the precious particles with them. See Kabul.

PESHAWAR, a town of 80,000 inhabitants, in lat. 34° 9′ 30″ N. The brothers Schlagentweit say lat. 34° 3′ 2″ N., and long. 71° 33′ 3″ E. Peshawar lies between the Indus above and below Attock, and the Khyber mountains, through which leads the Khyber pass; being bounded on the north by Swat, and the region lying between it and the Indus, on the east, by part of the last mentioned territory the Indus and the territory of the Affghans holding the Salt or Hala range; on the south by the possessions of the same Affghans, and, on the west, by the Khyber mountains and the Affghan province of Jellalabad. Its climate is very hot in summer, the thermometer frequently reaching 110° or 112° in the shade. The heat is, however, occasionally mitigated by the breeze from the neighbouring mountains and as the country, naturally fertile, is well-watered by the Indus, the Cabul river, the Bara and some other streams of less importance, and is moreover, well cultivated, it is amazingly productive. In annexing all the Sikh states, Jummoo excepted, as well as Peshawur and the Derajat between the river and the mountains, the British frontier was advanced beyond the Indus, adding thereby, 100,000 square miles to British territory, with a population of three and a half millions, yielding a revenue of about a million sterling, and giving promise of containing great mineral wealth.

The far-famed and beautiful Peshawur valley, in the extreme corner of the empire, is encircled on three sides by the Khyber, Momund, Swat and Khuttuk hills, and is on the fourth side open to the Indus. It is watered by the Cabul river and its tributaries, the chief of which are the Swat river and the Bara. Its total area is about 2,400 square miles. It is intersected by the great road, through which the invaders of India have always passed. Peshawur Proper is divided into two portions, one lying on the right bank of the Cabul river, and adjoining the Khuttuk and Afreedee hills, which run down to a point at Attock, the other a triangular-shaped tract, of which the two sides are marked out by the Cabul river and one of its tributaries the Bara, and the base by the Khyber hills. This is the most highly cultivated spot in the whole valley; in the heart of it, stands the city. The inhabitants of Peshawur Proper belong to mixed races of no political importance. They are industrious and peaceful, and long accustomed to bear up against the oppression of harsh masters and fierce neighbours. About Peshawur, lie the Mahmudzye, Dawudzye in Hastnuggur, Momund, Guggiani in Hastnuggur and the Khalil.

Peshawur district.—Eusufzye, Khaleel, Momund of the plains.

Peshawur and Kohat districts.—Khuttuk.

Adjoining frontier of Peshawur districts.—Judoon, Bunoorwall, Swatee, Raneezye, Osmankheylee, Upper Momund.

Adjoining frontier of Peshawur and Kohat districts.—Afreedee. Thus, Peshawur and the hills which surround it, are peopled by various Affghan races, as Eusofzye and Momund in the north and west, Khuleel and others in the centre, and Afreedee, Khuttuk and others in the south. The Eusufzyes claim political importance. As soldiers, they are not inferior to any of the independent tribes. They are the most martial of all the British subjects on the frontier, and the history of many generations attests their military exploits. Participators in every war that has convulsed the Peshawur valley, and always the recusant subjects of the Sikhs they literally turned their swords into plough-shares and became right good lieges of the British. Their customs have been respected, the allowances of the chief and their village headmen have been confirmed. Though constantly tampered with by the Swat government to rebel, they only once yielded to temptation, just after annexation in 1849. The Momunds are a large tribe occupying the hilly country on the north-west border of the Peshawur valley, adjoining Bajour and Koonur to the north, and the district of Ningrehar to the west, the southern boundary being formed by the Cabul river. They own allegiance to the ameer of Cabul, from whom their chiefs receive cash allowances, and the revenue of certain districts in the direction of Jellalabad, amounting to about Rupees 60,000 per annum. The tribe numbers 17,000 men, and is divided into six clans. Owing to the direct influence exercised by the ameer of Cabul over the Momunds, it was chiefly through this tribe that he endeavoured after the annexation of the Punjab, to harass the British border. Three of the clans border on the British districts, the Turrukzai, Haleemzai and Pindiali Momunds, and all three were in the enjoyment of certain villages within the Peshawur district, of the collective value of Rupees 10,000 per annum, and thus owned allegiance to the British government and the ameer. In 1850 and 1851 their raids and robberies were frequent. Lord Clyde proceeded against them in October 1851, but scarcely had his force been withdrawn, when, in April 1852 the tribe determined to make another combined effort. They were attacked and completely routed by Sir Colin Campbell, and from that day the tribe never appeared against us in a body, and left the three clans on our border to make their own arrangements. The Haleemzai at once tendered their submission. The Turrukzai Momunds after a few years, and being defeated by General Cotton were wholly subdued, and in 1860, the Pindiali clan submitted unconditionally.

Ranezai.—The troops were still in the field after the defeat of the Momunds, when intelligence was received by a bold act of atrocity in another part of the district. The large village of Tunzi, on the Swat river, was the residence of a powerful chief named Ajoon Khan, a young man of a restless, proud, and bigotted character. A large part of the village was held by him rent-free, but he desired the whole of it, and exemption from personal attendance at British courts, and from the interference of British revenue and police officials in his village. For the signal chastisement of these tribes a force of 5,000 men was collected near Tungi, on the Swat river, and Sir Colin Campbell proceeded in May against the Otmankhail, who number 3,000 matchlocks. They offered considerable resistance, but they were finally driven from their strongholds with much loss, and their chief villages of Pranghar and Nawadum were completely destroyed. The force passed on into Ranezai and captured the leading men of the tribe. No agreement was entered into at that time with the Otmankhail, but their defeat at Pranghar convinced them of their inability to cope with the British. The Ranezai chiefs shortly afterwards submitted, and wished to become British subjects. This was not acceded to, but they were allowed by Colonel Mackeson, then Commissioner of Peshawur, to re-settle on terms to which they have since steadfastly adhered. At the same time a fort was constructed at Abozai, on the Swat river, to check these tribes. The result of the expedition was to restore order and security to the Hushtnuggur district, and to put a stop to the flight of chiefs and mulliks.

Hussun Khail and Ashu Khail.—The Kohat pass and the Jowakih pass, are two principal passes leading from Peshawur to Kohat. The latter is occupied by the Jowakih clan of Afredi but in the hills leading to it are the Hussun Khail villages of Janakhir and Kooee. Between these two passes the hills are occupied by the Ashu Khail. All the above are sub-divisions of the Adam Khail tribe. The Jowakih village of Boree had, throughout the Sikh rule, been notorious as the residence of free-booters, who plundered in the Attok road. During the investigation which ensued, it appeared that the Hussun Khail and Ashu Khail were powerless against the Jowakih clan, but in the presence of the British force they were enabled to separate themselves, and entered into an agreement on their own parts on the 15th November 1853. The Hussun Khail number 900 matchlocks, and the Ashu Khail 800. They have faithfully adhered to their engagements since.

Jowakih of Boree.—The force then proceeded to attack the Jowakih in their stronghold of Boree. The operations were difficult, and, owing to the nature of the ground, our loss was severe; but the village and all its towers were destroyed, and the Jowakihs were driven from all the positions which they had occupied. The destruction of Boree had the desired effect, and in two months the chief submitted, and entered into an agreement on the 14th January 1854, engaging to abstain from raids themselves, and to eject within two months all the fugitive freebooters with them. These engagements have been strictly fulfilled by them. The Jowakih number 1,000 matchlocks. Subsequently to these proceedings Fort Mackeson was constructed in the plain between the two passes, and the police post of Shumsnuttoo to command the entrance to the Jowakih pass, with patrolling roads and connecting towers.

Kohat Pass Afreedee.—This pass is occupied by the Gulla section of the Adam Khail tribe of Afreedee, except the village of Akhar, at the Peshawur entrance, which belongs to the Hussun Khail section of the same tribe. They number 1,200 matchlocks. The defile extends from near Eymul Chabootra, in the Peshawur plain, for a distance of about 12 miles. The road then winds over a mountain, the crest of which forms the boundary between the Gulla Afreedees and the Bungush who occupy the Kohat valley. From this crest to Kohat is a distance of about 7 miles, the greater part of which is a descent through mountain gorges unoccupied by any tribe. Soon after annexation, the Afreedee of this pass began to be troublesome, and were incited to lawless acts by emissaries of the Cabul government. At the close of 1853, the continued misconduct of the Afreedees necessitated a change. Accordingly, on the 1st December 1853, they entered into an agreement, to maintain the pass on the old terms, from Eymul Chabootra on the Peshawur side to the foot of the mountain. They also relinquished Rupees 300 of the allowance to the Mulliks in favour of the Bussi Khail, a clan occupying the hills close to the entrance of the pass.

Bezotee and Feroz Khail.—The Bungush having failed to make good their position against the Afreedee, called to their aid certain neighbouring tribes, to whom they assigned portions of the allowance, retaining for themselves Rupees 3,000. Of these tribes the Feroz Khail and Bezotee clans of the Orukzai were the chief. One tower on the crest was assigned to them, and they were to receive Rupees 2,000. They number 1,500 men.

Jowakih Afreedee.—The Jowakih Afreedee, who number 1,100 men, also received Rupees 2,000 for the maintenance of another tower on the crest. The agreement with them is dated 3rd December 1853. A similar agreement, was made with the Sipah tribe of Orukzai, who number 300 men. A third tower was assigned to them, and an allowance of Rupees 500. Bahadur Shere Khan, the Bungush chief, was placed in charge of the whole of the pass arrangements on Rupees 14,400 per annum. It will thus be seen that the entire cost of the pass is as follows:—

Gulla Afreedees	Rs.	5,400
Bussi Khail	„	300
Bezotee & Feroze Khail	„	2,000
Jowahkih Afreedees	„	2,000
Sipah	„	500
Bungushes	„	3,000
Bahadur Shere Khan	„	1,200

Rabiah Khail tribe occupies the hills north of Hungoo, in the Kohat district, and numbers about 600 men. They are a clan of the powerful Orukzai tribe.

Aka Khail is a large Afreedee tribe, numbering 1,500 men, whose summer residence is in the Teerah mountains, but they migrate in the winter to the hills bordering on the Peshawur district, between the Kohat pass and the Bara river, where they dwell in caves, grazing their cattle in the plain.

Kookee Khail is one of the principal tribes of the Khyber numbering 6,000 men. They occupy the pass of that name as far as Ali Musjid, and received a cash allowance from the

Ameer of Cabul Dost Mahomed, to whom they own a nominal allegiance.

Otman Khail.—The Kohat district is closely surrounded by independent tribes, more or less connected with those inhabiting British districts. Special agreements have been made with the following:

i—The Otman Khail, a clan of the Orukzai tribe, numbering 450 men.

ii—The Zymoosht, who occupy the north-western hills of Meeranzai, and number about 5,000 men.

iii—The Shekhan, another clan of the Orukzai, numbering 2,500 men.

iv—The Alisherzai, who number 3,000 men.

v—The Aka Khail, who number 500 men.

vi—The Ali Khail, an Orukzair clan of 3,000 men north of Hungoo.

vii—The Mishtee, north of Ibrahimzai, who number 3,000 men.

viii—The Mummoozai, north of Hungoo, numbering 3,000 men.

Agreements with them have been made at different times, but are all of the same tenor, that with the Otman Khail, is dated 2nd August 1853.

Tribes in Rajbree.—North of the Bara river, on the Peshawur border, is a tract of hilly country known as "Rajooree." It is occupied in the winter by parties of the Sipah, Kummozai, Mullikdeen Khail, and Kumber Khail tribes.

The *Jydoon* tribe is partly settled in the Hazara district, where they are British subjects, but a portion remained independent on the spurs and slopes of the Mahabun mountain, on the right bank of the Indus. Since annexation they have been peaceable and on friendly terms with us, but in their neighbourhood is the fanatic colony of Sittana, the members of which have been incessantly engaged in raids, robberies, and murders in British territory. In 1858 a force under Sir Sydney Cotton proceeded against Sittana and destroyed it. On that occasion the Jydoon remained quiet, and the Otmanzai were British allies. After some interval they agreed to pay a fine of Rupees 1,000, to close their country against the Sittana fanatics or other robbers, and to cease from levying certain oppressive dues from traders proceeding up and down the Indus. Peshawar town is 18 miles from the mouth of the Khyber Pass.—*Aitchison's Treatises, &c., pp.* 393–397; *Malcolm's History of Persia, Vols.* i, *pp.* 5, 26, ii, *p.* 141; *Kinneir's Geographical Memoir, pp.* 19-20; *Prinsep by Thomas, p.* 301; *Porter's Travels, Vol.* i, *p.* 475; *Govt. of India Records.* See Affghanistan, Khuttuk, Kohat, Khyber, Koh-i-safed.

PESHING, see Kelat.

PESH-KABZ, Pers., a kind of dagger.

PESHKAR, Paishkar, in India, a tributary officer or collector; a chief agent, assistant, or manager.—*Simmond's Dict.*

PESHKER, see Mommai.

PESH-KUSH, Pers. Tribute. In Persia, presents from inferior officers to superiors, something like the reliefs which in Europe during the middle ages vassals had to pay to their suzerain lords. A Pesh-khidmut is a servant constantly in attendance about the person of his master, particularly while he dresses and takes his meals: nearly answers to the Khidmutgar of India.—*Fraser's Journey into Khorassan, p.* 194.

PESHO, Hind. Nima quassioides.

PESHOLA, a lake in Rajputanah. The abode of Sookhdeo near the Peshola and Oodisagor lakes is in a deep recess, well-wooded, with a cascade bursting from the rock near its summit, under a ledge of which the symbolic representative is enshrined. Around it are several gop'has or caves of the anchorite devotees: but the most conspicuous object is a projecting ledge, named Dyte-kahar, or 'giant's-bone,' on which those who are in search of 'ease' jump from above. This is called the Vira-j'hamp, or 'warrior's-leap,' and is made in fulfilment of vows either for temporal or future good. Although most of the leapers perish, some instances of escape are recorded.—*Tod's Rajasthan, Vol.* ii, *p.* 628.

PESHWA, a title given to the hereditary, ministers of the rajahs of Satarah. After the reign of Sivaji II, in 1749, they assumed the power of the sovereigns in the military government established by Sivaji the first in 1669. Their open power lasted from 1740, when Balaji Bajee Rao, succeeded his father and died after the battle of Paniput, until 1818, when the next Bajee Rao yielded to the British on the 3rd June and was pensioned. Nana Furnavis, Karkun of Madhaji Rao Belal, died November 1771. Madhava Rao, peshwa, died in November 1772, and was succeeded by Narayan Rao his younger brother. But nine months afterwards, his uncle Ragonath Rao or Ragoba, caused Narayan Rao to be assassinated and assumed the rule. He was, however, opposed by his council but he defeated their arms. Ragobas cause was alternately supported and abandoned by the British. See Mahratta, Sevaji, India.

PESHWAZ, Hind., of Delhi a female dress or skirt.

PESOLES also Guisantes, *sp.* Pease.

PESONIA MORINDIFOLIA, see Vegetables of Southern India.

PESSALOO, Tel.

Haree moong,	Hind.	Pessaloo,	Tel.
Pucha pavaroo,	Tam.		

Phaseolus radiatus.

PESSANI, a district of Beloochistan near the sea, a maritime section of Beloochistan. See Kelat.

PETA, Hind. Silk thread or wool for weaving.

PETALA ULAR, Malay. Trichosanthes anguina, *Linn.*

PETAN, Singh. Bauhinia tomentosa, *Linn.*

PETARCURA, Hind. Chaulmoogra odorata.

PETARI, also Kungani, Beng., Hind. Abutilon indicum, *G. Don.*

PETROCINCLA CYANEA. The blue rock-thrush, the P. padoo of Colonel Sykes, is distributed over south-eastern Europe and the temperate and torrid parts of Asia. By some it is supposed to be the bird alluded to in Scripture, "the sparrow that sitteth alone upon the house-top." The difference in plumage between the sexes and young birds caused much confusion with the earlier Indian naturalists. Specimens likewise from the Himalayas have been found to have longer bills than individuals from other countries, and accordingly Mr. Blyth named the latter P. longirostris. This long billed variety is common among the rocks of the N. W. Himalayas; it would seem this is a permanent race of Petrocincla cyanea.

PETHA, Hind. Benincasa cerifera, a gourd used for making sweetmeats, also a sweetmeat, made of the Benincasa cerifera coated with sugar.

PETHA-KALABUNTHA, Tam. Agave americana; Pita.

PETHAL or Bethal of Chenab, &c., Juniperus squamosa, the creeping juniper.

PETHAMBARAM, silk cloth, chiefly brought from Benares and Nagpore: but also made at Combaconum. The Benares cloths are highly prized for the superior quality: they measure 12 by 2½ cubits a piece, two pieces make one suit of an upper and under garment. Hindoos wear these cloths during their devotions and holiday time. They are sold from Rupees 50 to 350 or even more. The fabrics of Combaconum are good, although not equal to those of Benares.

PETHEN, Heb. An adder, Psalm lvii, 4; xci, 13; Deut. xxxii, 33; Job xx, 14, 16, the python snake. See Serpent.

PETHRA, Hind. of Kaghan, Juniperus communis, also Juniperus squamosa, the creeping juniper.

PETHURI or Pracha amavasya, takes its latter name from Prachi, eastern and amavasya, new moon. This hindoo festival is held on the new moon of the month Shravan in honour of the 64 yogini or female attendants of the goddess Durga. This is chiefly held by women who have lost infant children, but many hindoo men also engage in the holiday, purchase sweetmeats and toys. This day falls about the last days of August.

PETI, a belt or girdle.

PETINUR, Beng. Panicum fluitans.

PETIT-GRIS, Fr. Calabar skins.

PETORAGARH, lat. 29° 36′ N.; long. 80° 11,′ in Kumaon, about 8 miles W. of the Kali. Its fort is 5,549 feet above the sea.—*Webb.*

PETREA. One of a genus of climbing plants with dark shining green leaves and beautiful lilac or purple flowers hanging in racemes. It is a native of South America, and only requires to be regularly watered, and grown in a good garden soil, to cause it to extend itself over an immense space, its long slender whip-like shoots should be lopped down, to make it throw out branches, at the end of which the flowers appear in most elegant festoons towards the close of the cold season. It is easily propagated by layers.

PETREL, an ocean bird, see Procellaria.

PETRIFIED WOOD. Sir W. Johnston gave a notice of that of Ceylon, in London As. Trans., vol. i. That, at Trevecaree, near Pondicherry, was noticed by Captain Warren in As. Res., vol. xi, 1, and Captain Newbold, in Lond. As. Trans., 1846. Captain McMurdo gave an account of that in Cutch in Bom. Lit. Trans. vol. ii, 110. For that on the Godavery, see Dr Voisey's account, in Bl. As. Trans. and Dr. Malcolmson in London Geo. Trans., 1839, 566. Captain Vicary's account of that in Sind was given in Lond. Geo. Trans., 1845, vol. iii. Dr. Buist gave an account of a forest near Cairo in Bombay Times, August 1846. See also Captain Newbold's account of same in Lond. As. Trans., 1844, and Professor Orlebar's account of it in Bom. As. Trans., 1846. For that in the peninsula of Sinai, 4,500 feet above the sea, see Dr. Wilson's Lands of the Bible, vol. i, Petrified wood also occurs on the island of Perim, Gulf of Cambay. Dr. Nicholson's account of Bom. As. Trans., vol. 1. The Perim and Pondicherry wood is full of worm-holes and seems to have been in a state of extreme decay before petrification. It so abounds in the districts of Irawadi, as to be used for posts, outside of buildings. This has given rise to the notion which travellers have entertained that the posts they witnessed outside of the buddhist Kyoungs and Theins, consisted of wooden beams in process of petrifaction.—*Dr. Buist's Catal; Yule's Embassy, p.* 12.

PETROLEUM.

Neft,	Ar.	Petroleum,	Lat.
Yai-nan,	Burm.	Minak tanah,	Malay.
Earth oil,	Eng.	Japoo,	Sumatran.
Petrole,	Fr.	Man tylam,	Tam.
Stein-ol,	Ger.	Matti tylum,	Tel.
Matti ka tel,	Hind.	Bhoomi tylam,	„
Kesoso no abra,	Jap.		

Brought from Bussorah from the Sooloo island, from Burmah also found in Japan and Sumatra. Petroleum is officinal but little used by the hakeems at Lahore, it is a product of the hills on the west side of the Indus, called Tukle reisar near Banu and Tank, procurable in the bazaar of Dhera Ismail Khan. It is of a reddish colour, and is lumped as spirit at Lahore. Petroleum, as its name indicates, is an oil-like exudation from rocks, which has been employed in medicine from the earliest times, though little used now. It is very abundantly diffused, and in other forms, as of asphalte, naphtha, &c. In Barbadoes and Trinidad, Petroleum is found floating on some springs of water in Britain as at Colebrooke Dale, &c., in many parts of Europe, also at Baku on the shores of the Caspian, and very abundantly at Ranangoong, or Earth-oil creek, on the banks of the Irrawady. Colonel Symes describes the wells as about 500 in number, and says upwards of 400,000 hogsheads are taken away in boats. It may readily be obtained by digging into the sand in warm weather. Drs. Christison and Gregory, who found in it paraffin, and bupion, which Reichenbach met with among the products of the destructive distillation of wood; whence they infer that Rangoon petroleum is the product of the destructive distillation of vegetable matter, probably from subterraneous causes now in operation. Petroleum has the consistence of treacle; reddish brown or black colour, with a bituminous taste; floats on water, in which it is insoluble; burns with a dense black smoke, leaving a carbonaceous residuum. Acids, alkalis, and rectified spirit have little effect on it; ether and both volatile and, fixed oils dissolve it. Exposed to the air, it hardens into asphalte: if exposed to heat, a yellowish coloured liquid distils over, which resembles the naphtha obtained in making coal-gas. Both are free from oxygen, and therefore used for preserving potassium and dissolving caoutchouc, has been recommended externally in rheumatism and in cutaneous affections; internally as a vermifuge. The Rangoon is probably as good, if not better, than other kinds. Petroleum was collected in an early survey of Cheduba, on the Arracan coast, and is found abundantly in the Burman empire. The town of Rai-nan-ghong, is the centre of a small district, in which there are some hundred petroleum wells, (more than five hundred, *Mason*) in full activity. The district in which they are situated consists of a sandy loam, resting upon alternate strata of sandstone and indurated clay: under these is a layer of pale blue, argillaceous schist, of considerable thickness, impregnated with petroleum: and resting upon coal. The petroleum flows into the well when it is sunk a few feet into the schist, and when it begins to fail the well is deepened. It is remarkable that no water ever penetrates into these wells. The annual quantity of petroleum produced by the district, exceeds 400,000 hhds. The uses of petroleum, where it abounds are very important. It serves the lower classes, instead of oil, for lamps, and mixed with earth or ashes, answers the purposes of fuel. A composition of petroleum and resin is an excellent material for covering wood work and for paying the bottoms of ships and boats, as it protects the timber from the attacks of worms and insects. When rectified by distillation, it affords naphtha.

Asphaltum or black Bitumen, (Zift-roomi, *Pers.*) is a deep black, pitch-like, solid; hard, softens at 150°, and melts above that; highly inflammable, believed to be the result of the natural distillation of petroleum. It is produced in abundance in Barbadoes and Mesopotamia. It is a valuable lacquer for the protection of iron or tinned iron vessels. A lump rubbed over the asphalt-heated metal coats it with a hard adhesive brilliant coat, which resists most of the common corrosive agents. The Petroleum wells in Burmah were described by Captain Cox in As. Res., Vol. vi, p. 127. Springs of it occur near Hit, on the Euphrates, and were noticed by Dr. Winchester in Bom. Geo. Trans., Vol. iii, p. 15. Vast abundance of it is found in the volcanic islands off Assam, of which Captain Halsted gave an account in Bl. As. Trans., 1841. Capt. Hannay states, that the wells farmed by the Ava government, yield close upon 93,000 tons a year, worth £90,000 annually. The oil sells at about a shilling per cwt. Earth oil wells of Burmah occur near the town of Yenan-gyoung (Fetid water rivulet), the town proclaiming the nature of its staple, to the smell and sight. One can smell the coal-tarry odour of petroleum everywhere; and piles of earthen pots to hold it, line the beach, while the outside skirts of the town abound in potters' kilns. In the view from the heights which surround the town, all, as far as the eye can reach, seems of a barren character: the soil sandy and stony with very scanty herbage, scarcely enough to redeem the surface from the title of absolute desert, with occasional scraggy bushes or grim euphorbias. Trees with substantial foliage were only seen in the bottoms, but even there no water was visible, or anything to indicate the season of the monsoon. Fossil wood abounded everywhere, and of a size to be used as the posts of temples. The road winds among ravines and at the steep sides of the rotten sandstone hills, till, about three miles from the town, you enter on the plateau, on which the principal wells are situated. It is an irregular table with a rising surface forming a sort of peninsula among the ravines. The wells are frequent along its upper surface and on the sides and spurs of the ravines which bound it on the north and south-east. They are said to be about a hundred in number, but of these, some are exhausted or not worked. The depth of the wells appear to vary in tolerable proportion with the height of the well mouth about the river level, but an inspection of the lowest, situated near the bottom of the ravines, allowed it to be ascertained that all were sunk a good deal below the level of the ravine bottoms which bounded the plateau. Those measured on the top of the plateau, were 180 feet, 190 feet, and 270 feet, in depth, to the oil, and a fourth was said to be of a depth equal to 306 feet. So far as could be judged, the area within which these wells stand, does not exceed half a square mile. There is another group of wells in a valley about a mile to the south, the wells are in some places pretty close together; less, that is to say, than a hundred feet square. They are all exactly alike in appearance; rectangular orifices, about four and a half feet by three and a half, and lined with horizontal timbers the whole way down. The oil appears to be found in a stratum of impure lignite, with a good deal of sulphur. In one of the valleys is to be seen a stratum of this cropping out, with the oil oozing between the laminæ. A rude windlass, mounted on the trunk of a tree laid across two forked stems, is all the machinery used. An earthern pot is let down and filled, and then a man and woman walk down the slope of the hill with the rope. The petroleum from these pits is very generally used as a lamp oil all over Burmah. It is also largely used on the wood work and planking of houses, as a preservative from insects and for several minor purposes, as a liniment, and even as medicine taken internally. It is said to be a sovereign remedy for the itch. There is a considerable export of this article from Rangoon to England; and in 1855, one of the mercantile houses at Rangoon had a European Agent residing on the spot. It is understood that the demand for it in England is as a lubricating oil, but it is also employed by Price's Company at Lambeth, in the manufacture of patent candles, and has been found to yield several valuable products. It has sold in the London market at from £40 to £45 a ton. The oil is of a greenish colour, of the consistence of thin treacle, and the smell is not unpleasant in the open air, if in moderate strength. Mr. Crawfurd speaks of the pits being spread over a space of sixteen miles, but all that Major Phayre's mission could hear of, were in the northern and southern groups, above alluded to. The northern group of wells, in 1855, contained about eighty wells then yielding oil. The southern group contains about fifty, which yield an inferior kind of oil mixed with water. At either place, there are many exhausted wells; each group occupies about half a square mile or somewhat less. The wells are private property, the ground they occupy being owned by twenty-three families residing in Ye-nan-gy-oung. No one is allowed to dig a well within thirty cubits of one already being worked. The cost of digging a well of 150 cubits deep was said to be 1,500 to 2,000 tikals, sometimes even more; and the tikal averages in value something more than one rupee and a quarter or 2*s*. 6*d*. But a well dug within a few yards of another yielding a good supply, often proves a failure. The work of excavation becomes dangerous as the oily stratum is approached, and frequently the diggers become insensible from the exhalations. This also happens occasionally in wells that have been long worked. If a man be brought up to the surface with his tongue hanging out, said one of the informants, it is a hopeless case. If his tongue is not hanging out, he can be brought round by hand rubbing and kneading his body all over. Captain Macleod who saw the people engaged in sinking a well which had reached a depth of 125 cubits, says that each successive workman remained below only from fourteen to twenty-eight seconds, and appeared much exhausted on coming to the surface. The yield of the wells varies greatly. Some afford no more than five or six viss, whilst others give 700, 1,000, and even it is said, 1,500 daily. From all that could be learned, the average yield of the wells in the northern groups might be assumed to be about 200 viss. Generally the supply from a well deteriorates the longer it is worked, and if it be allowed to lie fallow for a time, it is said that the yield is found to be diminished on the recommencement of work. The oil is described by the people as gushing like a fountain from the openings in the earth. It accumulates in the well during the afternoon and night, and is drawn off in the morning. The proprietors have the oil conveyed to the river side in carts loaded with earthen pots containing ten viss each. Purchasers generally buy at the river side. The ordinary price of the article used to be one tikal the hundred viss, or about sixteen shillings a ton. An intelligent proprietor, who was the my-ook of the town, stated that out of 27,000 viss, which formed the whole monthly yield of his wells, 9,000 went in payment to the work people, 1,000 to the king, and 1,000 to the lord of the district. The annular yield of petroleum, was estimated at 6,424,000 viss from the northern and 730,000 from the southern group, making 7,154,000 viss annually, equal to about 11,69 tons: very various estimates have however, been formed of the annual productiveness of these wells:—

Captain Cox estimated it at,	56,960,000 viss.
Captain Macleod,	1,405,000 „
Mr. Crawfurd,	17,568,000 „

Petroleum has also been found and bored for near Jeypore, and at a place called Makoom a few miles beyond Jeypore on the Dehing. It is doubtful whether sufficient quantity can be found to make it a successful commercial speculation, but some experimenters are confident that petroleum and coal would give a good return. The "Tel gandak" of the Panjab is petroleum floating on water from the spring. Ratta Hotar hills. Petroleum is found at Jabba, a hamlet of Kussan, west of Chakrala, and about nine miles east of Kalabagh; at Dhadur, three miles west of Kabbakhi in the Salt Range; at Narsinghpur, in the Salt Range; at Jabba, near Nurpur; in the Algad ravine, at Kafir Kot, on the Indus, and in smaller quantities at some other places.

Petroleum is nearly allied with bitumen on the one hand and naphtha on the other, between which it occupies an intermediate place; the principal distinction being a difference of consistency and colour. Bitumen in its several varieties known as mineral pitch, asphalte, pisasphaltum, &c., is solid or nearly so, and black or dark-coloured; naphtha is perfectly liquid and light in colour; petroleum, earth oil, or rock oil, is viscid or oily and greenish or reddish brown in colour. The principal supply of petroleum in the regions adjoining the Indus namely, at Jabba, near Kalabagh is in nummulitic limestone. At Kafir Kot, Dr. Fleming says, it exudes from brown bituminous sandstone. The mineral oil is usually found floating on the surface of certain springs, it is thus at Jabba, near Kalabagh, at Kafir Kot, and at a spring in the Kohat district, about four miles from Hungoo Khota and six from the Indus. It appears that the present cost of the Kalabagh petroleum, before despatch down the river, may be reckoned about Rupees 3 per maund. It is not stated that he had it boiled with vegetable resin, which is frequently done. Candles are made of paraffine, a substance obtained by Mr. Warren De La Rue's process from Burmah petroleum, and also produced by distillation of coal and other minerals of disputed relationship to coal. Paraffine oil, obtained by the distillation of petroleum, of coal, &c., is a lubricating oil of much value for machinery of all kinds, as it does not injuriously effect brass or other metals. At Baku, on the shores of the Caspian Sea, is a petroleum locality well known for ages past, and possessing a peculiar interest in connection with India as a place of hindoo pilgrimage at the present day and maintaining a small fraternity of resident brahmins, attendants on the sacred fire of the petroleum springs. The viscid mineral is rolled up into balls with sand, for the purpose apparently of obtaining a fuel in a convenient form. At the same place, and at many others, petroleum is used also as covering for the flat roofs of houses. In the Trans-Indus, northern Derajat, &c., where it is found, it is the common application for sores on the backs of camels. Momyai," is a black substance principally clay, which, however, burns feebly and softens slightly to the flame of a lamp, giving out a peculiar empyreumatic odour. The momyai, "osteocolla" of native medicine, is also, when genuine a substance of this class; but it is of very high price, and its use is solely medicinal. The specimens purchased often consist of solidified mineral tar, or still oftener of lignite. Petroleum springs occur in Labuan. The petroleum of Yuynanyoung, in Burmah is unlimited in quantity but price high, being now a close monopoly of the king of Burmah.

The petroleum of Assam, Cheduba and Akyab is used by natives for burning; by Europeans for medical purposes; by both for varnish and to preserve wood. Also put on the bottoms of boats, it being an excellent preservative of wood from insects and worms. In the island of Ramree there are 13 wells, in Cheduba 22 wells. Each well produces about 2 maunds per season, the aggregate produce of all the wells being 70 maunds per annum. The produce might be increased some 10 to 20 maunds by digging more wells. No petroleum is exported from the province. The petroleum is thick and dark-coloured.

Ramree naptha, is used as a varnish for oiling boats, posts, &c. There are 2 wells; they each produce about 14 maunds per annum. No great increase is expected. The naphtha is clear and bright, and none is exported. Price from 6 to 7 Rupees per maund of 80 lbs.—*Honiberger, p.* 322; *Royle's Mat. Med.*; *Smith's Mat. Med.*; *Powell's Hand-book, p.* 20; *Dr. Buist's Catalogue*; *Tomlinson's Cyclopædia*; *O'Shaughnessy, p.* 693; *Mason's Tenasserim*; *Yule's Embassy, Cal. Cat. Ex.* 1862; *Ainslie's Mat. Med., p.* 31. See Asphalte: Bitumen: Naphtha: Rock oil.

PETROSELINUM SATIVUM, *Hoffm.*

Apium petroselimum, *Roxb.*

Bilati pitursilli,	BENG.	Πετροσέλινον,	GER.
Common Parsley,	ENG.	Pitar saleri,	HIND.

Parsley, one of a genus of plants belonging to the natural order Umbelliferæ.—*Hogg., p.* 382.

PETROMYZONTIDÆ, a family of fishes of the sub-class Cyclostomata, as under:

SUB-CLASS V.—Cyclostomata.

FAM. I.—Petromyzontidæ.

Mordacia mordax, *Rich.*, Tasmania, Valparaiso.
Gestria australis, *Gray.*, S. Australia.
Chilensis, *Gray.*, Chili, Swan River, New Zealand.

FAM. II.—Myxinidæ.

Bdellostoma cirrhatum, *Forst.* S. Africa, Japan, New Zealand.

PETTAH, Anglo-Hindi., from Peth a market, a bazaar, a town outside a fort. A town or suburb attached to, but distinct from a fort; a sub-division of a district. A town surrounding a fortress ; the suburbs of a town.

PETTENKOFER, a medical man, of Europe, who promulgated the opinion that—

1. Cholera is due to a specific agent, say Z.
2. This is not passed off by the human body in a developed and active condition capable of producing the disease, but as an inert material capable of developing, say X.
3. In order for the conversion of X into Z, a suitable nidus for development is required, say Y.
4. This nidus Y is to be found in that layer of the soil in which the great seasonal changes of water-level occur. The greater these changes are, and the more charged with organic matter the soil is, the better the nidus is.
5. Organic matters tend to be washed down to this layer and there to accumulate, and it is a particular stage of moisture in this layer that provides the necessary soil conditions for the development of X. The necessary conditions may be absent from this layer being too wet or too dry,—if the former be the cause a subsidence of soil-water, if the latter a rise of its level, will furnish the change requisite for the development of X.
6. Granted that X encounters Y, the result is the formation of Z.
7. Z having been formed, it can only reach the body in two ways—by means of air or by means of water.
8. The former way is the common one—the poison Z rising through the interstices of the soil to the surface.
9. If therefore X does not meet with Y, or if, after Z is formed, it be shut off from the human subject by any impermeable layer between it and the surface of the soil, a similar result follows, *i. e.*, there is no spread of the disease in the locality even though X be introduced into it.
10. It is not then, any special soil that gives immunity, but special conditions of various soils. For example, a layer of clay is, if thoroughly dry extremely permeable, if moist very impermeable.
11. Air and water do not furnish the conditions necessary for the development of Z from X—but after it has been developed they form the means of its transmission.
12. Even in localities furnishing every condition for immunity one or two cases may occur, as in the first place individuals may bring in the poison in their own persons, and it is quite possible that in certain cases the whole of Z may not be converted into X while in the body, and a portion may escape unchanged and still retaining its active fully developed properties.
13. In addition to the presence of X, Y and Z, personal predispositions have great influence in favouring the spread of the disease.
14. A small quantity of Z introduced into the body results in the production of a large quantity of X which, as such is inert, but is capable of developing Z.

PET-THAN, Burm. A tree, abundant in Tavoy; not procurable in Moulmein, found in Tavoy and Mergui. When seasoned it sinks in water. Maximum girth and length not ascertained. A very hard and durable wood, used by Burmese for wedges.—*Captain Dance.*

PETTHAR, Petthri, Hind. Juniperus communis.

PETTIGALLE KANDA, see Ruby mines.

PETUNIA, an ornamental genus of plants, easy of cultivation, the colours are white, purple, crimson and purple, or rose coloured; they grow readily from seed either in the rains, or cold weather, and form pretty border flowers. —*Riddell.*

PE-TUN-TZE, the Chinese name for a white earth used with Kaolin in the manufacture of porcelain. It is stated that while Kaolin is derived from the decomposition of the felspar of granitic rocks, Petuntze is the same mineral which has not suffered decomposition, and on account of its fusibility it is employed in glazing the porcelain.—*Eng. Cyc.*

PET-WOON, Burm. Berrya mollis, *Wall.*

PEU, Tib., a carbonate of soda, found all over Dingcham and Tibet, south of the Yaroo; it appears as a whitish powder on the surface of the soil, never in masses under ground. It is not used to make soap or otherwise in the arts, a small quantity is always put into the water with tea; it is considered to improve the flavour, and it gives a high brown colour to the decoction. It is generally used in medicine.

PEUDI, Hind., Guz. Ochre.

PEUKELAOTIS or Pushkalavati, Peukelas, peukalei, peukolaitis, proklais. See Greeks of Asia.

PEUNIKA, Tel. Clerodendron inerme, *Gœrtn.*, *Roxb.*, *Rheede.*

PEUPLIER, Fr. Poplar.

PEU RA, Tibet goat, small, hairy, of all colours. Has an undercoat of fine wool, similar to the shawl wool, but there is no shawl wool trade from Eastern Tibet to India at present. Flesh pretty good.

PEUVAK——? Areca nut. See Ceylon.

PEUE, Hind. Kachra.

PEVETTI, Mal. Physalis somnifera, var. P. flexuosa, *Nees.*

PEWAN, Hind. Two small flat pieces of stoneware or porcelain, used by fine wire-drawers to grind the point of a wire between, so as to be able to insert the point in the plate.

PEWAND, Hind. A graft. Pewandi, any graft tree.

PEW-BOCK, Burm. A tree of maximum girth 3 cubits, maximum length 25 feet. Very abundant along the sea coast near Tavoy and Mergui. When seasoned it sinks in water. It is a strong, tough, durable wood; recommended for helves.—*Captain Dance.*

PEWTER.

Risas,	Ar.	Stagno,	It.
Etain,	Fr.	Olowo,	Rus.
Zinn, Zinngeisserzin,	Ger.	Estano, Peltre,	Sp.

A compound metal made of four parts of tin, and one of lead; a finer kind consists of tin mixed only with a little antimony and copper. It is used in making plates, dishes, spoons, and such other domestic articles.—*McCulloch's Com. Dic., p.* 900.

PEYADASI, a buddhist monarch of the third century B.C., who set up inscriptions exhorting to peace and morality, the peoples in the eastern, northern and south-western regions of India.

PEYA HERI, Tam. Cassia occidentalis, *Linn.*

PEYAJ, Beng. Onion, Allium cepa.

PEYARA, Beng. Psidium pyriferum, or pomiferum.

PEYAZ-I-DASHTI, Pers. Squill.

PEY-CUMUTI-KAI, also Varri cumuti kai, Tam. Colocynth.

PEYGAL, Tam. Evil spirits or devils, represented as being very horrible.

PEYMARUTTIE, Tam. Anisomeles malabarica.

PEYPOODEL, Tam. Trichosanthes cucumerina.

PEYYAPA, or Pedda manu, Tel. Ailanthus excelsa, *R.*

PEYYA REGU, Tel. Grewia orientalis, *W. & A.* 277—*R.* ii, 586.

PEYYA RODDA, or Rotta, or Karu japhara, Tel. Rottlera laccifera, *Voigt.*

PEYZOO PASS, see Khyber.

PEZ, Sp. Pitch; Citrullus colocynthis.

PFEES, Sindh. Chamærops ritchiana, *Griffiths.*

PFERD, Ger. Horse.

PFOOL, Hind., the flower of the mahwa tree, a spirit from it is the favourite drink of a Rajput. Classically, in Sanscrit it is madhuca.—*As. Res., Vol.* i, *p.* 300.

PHA BHAN of Akyab. Bignonia stipulata, *Roxb.*

PHACELIA. A genus of hardy flowering plants, flourishing in any common soil; the flowers are curious, from the manner in which they slowly unroll themselves. Some are perennials, and others biennials; the flowers are chiefly pink and blue coloured—propagated from seed.—*Riddell.*

PHŒNICIA, the narrow tract lying between the mountain of Syria and hills of Palestine and the Mediterranean. The ancient city of the name stood in L. 33° 34′ north, on a promontary. India seems to have obtained an alphabet from the Phœnicians, about the fifth century B. C. about the time that the Greek letters became known on the higher feeders of the Indus.

PHÆNICOPHAINÆ, a sub-family of birds, of the family Cuculidæ, as under:

Fam. Cuculidæ, 10 gen. 36 sp. viz.

Sub-fam. Cuculinæ, 3 gen. 2 sub-gen. 17 sp. viz., 9 Cuculus; 2 Surniculus; 3 Chrysococcyx; 1 Eudynamis; 2 Oxylophus.

Cuculus canorus. Common cuckoo.

Sub-fam. Phænicophainæ, viz., 1 Dasylophus; 3 Phænicophaus; 5 Zanclostomus; 1 Rinortha; 4 Taccocaia; 5 Centrophus.

PHÆNICOPHAUS CALLIRHYNCUS, of Celebes, is one of the finest known cuckoos. Its bill is of a brilliant yellow red and black.

PHÆNICOPTERINÆ, a sub-family of birds, of the family Anatidæ as under:

Fam. Anatidæ, Gooses.

Sub-fam. Phænicopterinæ, 1 gen. 1 sp. Ph. roseus.

Sub-fam. Anserinæ.

Div. i. Swans, 1 Cygnus olor; 2 C. atrata.
„ ii. Geese, 3 Anser; 1 Bernicla.
„ iii. Perching geese; 2 Dendrocygna; 2 Sarcidiornis; 1 Nettapus.
„ iv. Shieldrakes; 1 Casarca rutila; 1 Tadorna vulpanser.

Sub-fam. Anatidæ, 1 gen. 6 sub-gen. 10 sp. viz., 1 Spatula; 3 Anas; 1 Daffila; 1 Chaulelasmus; 1 Mareca; 3 Querquerdula.

Sub-fam. Fuligulinæ, contains one species of the genus Biranta, and four species of Fuligula, viz.:—

Fuligula ferina. The Pochard, in circuit of northern regions, Barbary, common in India.

Fuligula nyroca. 'Ferruginous Duck.' Europe, Asia, N. Africa: common in India.

Fuligula marila. 'Scaup Duck.' Circuit of northern regions: Punjab, Sindh, Nepal.

Fuligula cristata. 'Tufted Duck.' Europe, Asia, Barbary: common in India.

Fuligula rufina. (Pallas,) is the crested Pochard.

PHAETON, a genus of birds of the family Phaetonidæ.

Phæton æthereus, *Blyth.*, or redtailed tropic bird: also by seamen called "the boatswain" from the long tail feather, which they call a marline spike. They are seen seven and eight hundred miles from land.

Phæton candidus, *Brisson.* The white tropic bird of tropical seas, Bay of Bengal to Mauritius.—*Collingwood.*

PHAG, Hind. Ficus caricoides, bat phagar, Hind., is Ficus reticulata.

PHAGLU, Hind. A kind of bamboo in Kangra.

PHAGORU, Hind. Ficus caricoides.

PHAGRI, Hind. Loranthus, *sp.*

PHAGURA, also phagwara or phagwari, Hind. Ficus carica, Ficus caricoides.

PHAURA, Hind., a shovel, a hoe.

PHAILWAN, Hind. A wrestler. See Kushtigar, Kelat, Phailwanzye.

PHAK, Tib. pig, two varieties. The Lho phak or southern pig which is most abundant to the south of Lassa, and is described as similar to the Indian village pig, and the small China pig now abundant in Lassa and other towns: no wild hogs anywhere in Thibet. The Chinese butchers in Lassa blow their pork and take in the country folks greatly by its fine appearance.

PHAKRA, Hind. Premna arborea.

PHAL, Hind., a ploughshare, a blade, an arrow head.

PHAL, also Bar or Mewa, Hind., Pers. Fruit.

Boen phal, Hind. Fungus, *sp.*
Daku phal, Hind. Elæagnus conferta.
Kai phal, Hind. Myrica sapida.
Mend phal, Hind. Randia dumetorum.

PHALA, Hind. Acacia modesta.

PHALA, Hind., the iron point of a plough.

PHALA, a sort of frame used in the threshing floor.

PHALACROCORAX CARBO, 'Common cormorant.' Circuit of northern regions, Barbary: common in the Himalaya; rare in Central India.

PHALACROCORAX SINENSIS, see Pelecanidæ.

PHALÆNA PATROCLUS, *L.* (Cramer, pl. cix, a, b,) a well known Burmese moth, a splendid species, common in collections from China, Assam, Sylhet, and Arakan.

PHALAHA or phalahar, Hind. Lawful food for hindoos on fast days, such as buckwheat, &c. Lawful to be eaten in hindoo fasts.

PHALANGISTA MACULATA, this animal as big as a cat, has a long snout, large, round, protuberant eyes; yellow and brown spotted skin; long tail covered with hair on the upper part, but bare on the lower part and at the end. With its tail it fastens itself in climbing, and rolls it up when running. A female, had a yellow skin, with long soft hairs, but without spots, and had a pocket under the belly, formed by a fold in the hide, into which the hand could be inserted. She carries her young ones in it hanging on the nipples, until they have grown strong enough to leave this shelter.—*Journal of the Ind. Arch., June* 1852, *pp.* 326–27.

PHALANGUIM BISIGNATUM, a long black legged spider of Ceylon with a tiny white body; in the high country it congregates in groups of from fifty to a hundred in hollow trees. In the low lands they are not gregarious. *Tennent's Ceylon.*

PHALARIS ZIZINIA, *Linn.* Andropogon muricatum, *Retz.*

PHALAROPUS FULICARIUS, 'Grey Phalarope.' Circuit of northern regions: one specimen obtained near Calcutta, so late in the year as May 11, 1846, in the Calcutta provision bazaar.

PHALA SAMPENGA, or Manoranjitam, Tel. Artabotrys odoratissimus, *R. Br., W. & A.* 33. Uvaria odoratissima, *R.* ii, 666—*Rheede*, vii, 46.

PHALASI, woollen dresses, of Dera Ghazi Khan.

PHA-LAUNG, Burm. Tadpole, in Aracan a term of abuse of the British.

PHAL BABUL, Hind. Acacia arabica, pods.

PHALGOON, is one of the hindoo months of spring, or Vasant. At Oodeypur the merry month of Phalgun is ushered in with the ahairea, or spring-hunt. The preceding day the rana used to distribute to all his chiefs and servants either a dress of green, or some portion thereof, in which all appear habited on the morrow, whenever the astrologer has fixed the hour for sallying forth to slay the boar to Gouri, the Ceres of the Rajputs; the ahairea is therefore called the Muhoorut ca sikar, or the chase fixed astrologically. As their success on this occasion is ominous of future good, no means are neglected to secure it, either by scouts previously discovering the lair, or the desperate efforts of the hunters to slay the boar when roused. As Phalgun advances, the bacchanalian mirth increases; groups are continually patrolling the streets, throwing a crimson powder at each other, or ejecting a solution of it from syringes, so that the garments and visages of all are one mass of crimson. On the 8th, emphatically called the Phag, the rana joins the queens and their attendants in the palace, when all restraint is removed and mirth is unlimited. But the most brilliant sight is the playing of the holi on horseback, on the terrace in front of the palace. Each chief who chooses to join has a plentiful supply of missiles, formed of thin plates of mica or talc, enclosing the crimson powder, called abira, which with the most graceful and dextrous horsemanship they dart at each other, pursuing, caprioling and jesting. This part of it much resembles the Saturnalia of Rome of this day, when similar missiles are scattered at the carnival. The last day, or Poonim, ends the holi, when the nakarras from the Tripolia summon all the chiefs with their retinues to attend their prince, and accompany him in procession to the Chougan, their Champ de Mars. In the centre of this is a long sala or hall, the ascent to which is by a flight of steps: the roof is supported by square columns without any walls, so that the court is entirely open. The festival of Huli, more classically called Hulica, otherwise Phalgutsava, meaning the festival of Phalguna, as occurring in the month of that name, commences about the full moon, at the approach of the vernal equinox. It is one of the greatest festivals among the hindoos, and almost all sects seem to partake in its festivities; and all ranks, from kings downward, appear animated by the season, which is peculiarly dedicated to Krishna. Images of the deity are then carried about in palkis, and on elephants, horses, &c., attended by music and singing, and various antics. People of condition receive numerous visitors, who are entertained with dancing girls, music, singing, betel and rose-water. An annual festival to celebrate the birth of this god, is held in the month Bhadra. On this day his worshippers fast; but, on the conclusion of the worship, indulge themselves in music, dancing, singing, and various other festivities. In the month Shravuna another festival is held in honour of him, which lasts from three to five days, during which the same festivities prevail; to which is added the ceremony of swinging the image of the god in a chair, suspended from the ceiling. In the month Kartika, a third festival takes place to celebrate his revels, among the Gopia; and in the month Phalguna is also held the celebrated festival of the dola, the ceremonies of which last fifteen days, and are accompanied with great splendour and festivity. During these holidays the hindoos of northern India spend the night in singing and dancing, and wandering about the streets, besmeared with the dola (a red) powder, in the daytime, carrying a quantity of the same powder about with them, which, with much noise and rejoicing, they throw over the different passengers they may meet in their rambles. Music, dancing, fire-works, singing, and many obscenities take place on this occasion. The Reverend Mr. Ward, says :—"At these times, the grey-headed idolator and the mad youth are seen dancing together, the old man lifting up his withered arms in the dance, and giving a kind of horror to the scene, which idolatry itself, united to the vivacity of youth, could scarcely be able to inspire." Krishna is also worshipped under his infant form as Gopala and Bala-gopala, and again as Gopee-natha, the god of the milk-maids. In the picture of Krishna, observes Sir William Jones, it is impossible not to discover, at the first glance, the features of Apollo, surnamed Nomios or the pastoral, in Greece, and Opifir in Italy, who fed the herds of Admetus, and slew the serpent Python.—*Tod's Rajasthan, Vol.* i, *p.* 567. See Krishna.

PHALGUTSAVA, see Krishna, Phalguna.

PHALI, Hind. In Karnal, a sort of Sal ammoniac.

PHALI GUAR, Hind. Cyamopsis psoraloides. Maror phalli, Hind. Helicteres isora. Mung phalli, Hind. Arachis hypogæa.

PHALJA, Hind. Hazara and Murre, Populus ciliata.

PHALLUS, Gr., the priapus of the Romans and the Lingam of the saivite hindoos. Colonel Tod says that no satisfactory etymology has ever been assigned for the name of the phallic emblem adored by Egyptian, Greek, Roman, and even by the Christian. He supposes that it may be from the same primeval language that formed the Sanscrit. Phalisa he says, means the 'fructifier,' from phala 'fruit,' and Isa 'the god.' Thus the type of Osiris can have a definite interpretation, still wanting to the lingam of Iswara. Both deities presided over the streams which fertilized the countries in which they received divine honours. Osiris over the Nile, from the Mountains of the Moon, in Æthiopia; Iswara over the Indus, (also called the Nil), and the Ganges from Chandragiri, 'the mountains of the moon,' on a peak of whose glaciers he has his throne. The Greeks, who either borrowed it from the Egyptians or had it from the same source, typified the fructifier by a pine-apple, the form of which resembles the Sitaphala, or fruit of Sita, whose rape by Ravana carried Rama from the Ganges over many countries ere he recovered her. In like manner Gouri, the Rajput Ceres, is typified under the cocoanut, or sriphala, the chief of fruit, or fruit sacred to Sri, or Isa (Isis), whose other elegant emblem of abundance, the camacumpa, is drawn with branches of the palmyra, or cocoa-tree, gracefully pendent from the vase (cumbha.) The sriphala is accordingly presented to all the votaries of Iswara and Isa on the conclusion of the spring-festival of Phalguna, the Phagesia of the Greeks, the Phamenoth of the Egyptian, and the Saturnalia of antiquity; a rejoicing at the renovation of the powers of nature; the empire of heat over cold, of light over darkness. Its worshippers, the Sivite sect appear to be the oldest now prevailing in British India, dating its origin there probably from the commencement of the Christian era, previous to which buddhism must have been predominant, when Asoca had so zealously laboured for its diffusion. The example of the Sivites must have emboldened the Sacta sectarians to introduce the worship of the female generative principle, the earliest mention of which is to be found in the Periplus, which alludes to the temple of Comori, at Cape Comorin in the second century. Before long, mutual affinity must have coalesced the two sects to merge their interests in one common superstition.—*Tod's Rajasthan, Vol*, i, *p*, 599; *Tr. of Hind., Vol.* i, *p.* 265. See Balanus, Lingam.

PHALLUS ESCULENTUS, Morilla (Fungus) Morels are imported from the hills into Lahore but are very little used by the natives; and the English use them, not medicinally, but for culinary purposes. The morels which are brought from the Hazara country, are large.—*Honig., p.* 323.

PHAL MODEKA, Malay. Batatas paniculata.

PHALSA, HIND. Grewia asiatica.

PHALSI, HIND., a sherbet prepared from fruit of Grewia asiatica.

PHALWA, HIND. The grass, Andropogon bladhii.

PHALWAI, HIND., of Hazara and Murree, Cæsalpinia sepiaria.

PHAMPLI, HIND. Berchemia, *sp*.

PHAN, HIND. Rhus cotinus.

PHANAH, a river near Belgutchee in Purneah.

PHAN-DAYAT, MAH. Antilope bezoartica, *Jerdon*.

PHANDWA. The head-quarters and civil station of the district of Nimar. It contains 1,219 houses and 9,708 inhabitants.

PHANGAN, a pass which leads to Man-chi in China occupies a little more than a month on its journey and leads over mountains 6,000 to 8,000 feet high. The Patkoy pass from Bamo and China, was the route followed by the Burmese in their invasions of Assam and is the means of communication between the Singpho tribes on the north and south of the Patkoy mountains. The passes through Assam are along the Dihong route into Tibet, the northern banks of the Lohit and through the Mishmi hills into Tibet called the Mishmi route.

PHANGRA, HIND. .Tribulus lanuginosus and T. terrestris.

PHANSI, CAN. Carallia lucida, *Roxb*.

PHAO, HIND., of Lahaul, a substance put into ferment, a kind of spirit, which is put into the mixture called "lugri," when the fermented materials are placed in the still.—*Powell's Hand-book, Vol.* i, *p.* 312.

PHAORA, HIND. Hoe.

PHAP, HIND., a ferment for beer, &c.

PHAPAR-CHOR, BEAS. Coriaria nepalensis, *Wall*.

PHAPHAR, HIND. Fagopyrum emarginatum.

PHAPHAR, or Phaphra, HIND. Fagopyrum esculentum, Phaphar chor, HIND. Coriaria nepalensis.

PHAPHOR, HIND., a kind of morel in the Jhang district.

PHAPHOR, HIND. Urginia indica.

PHAPRA, HIND. Buckwheat.

PHAPRI, HIND. Thin biscuits; Phapri or Phapra means any thin shell-like substance.

PHAPRU SAG, HIND. Pharbitis nil; Til phar, HIND. Impatiens, *sp*.

PHARA, the wedge used to adapt the size of the shoe-maker's "kalbut" or last.

PHARAHITASA, see Kabul.

PHARAHO, SIND. Grewia asiatica, *Linn.*, *Roxb.*, *W. & A.*

PHA-RAI, BURM. Citrullus cucurbita, *Water-melon*.

PHARAOH, a title of the rulers in Egypt, in the time of Moses, rendered famous among all nations who follow the Hebrew, the christian or mahomedan faiths. One of the Pharaohs is said to have followed the Israelites and been drowned in the Red sea. At Suez, after a north-westerly breeze has been blowing some time, the water recedes; and should it be followed by a south-east wind, it rises very suddenly, sometimes as much as six feet, and renders the ferry, situated about one mile and a half to the northward of the town impassable.—*Wellsted's Travels, Vol.* ii, *p.* 42.

PHARBITIS CŒRULESCENS, *Choisy*.

P. nil β cœrulescens,	ROXB.	Sky-blue Ipomæa,	ENG.

Flowers large, in the morning of a pale blue, gradually growing darker.

PHARBITIS DIVERSIFOLIA, *Lindley*, is very like P, hederacea and P. purpurea.

PHARBITIS HEDERACEA, *Choisy*.

Ipomæa hederacea, *Linn*.

A plant of America and N. Holland,

PHARBITIS HISPIDA, the pale blue large flowered pharbitis.—*Riddell*.

PHARBITIS NIL, *Choisy*.

Convolvulus nil,	*Linn.*	Ipomæa cœrulea,	*Koen,* *Roxb.*
Ipomæa nil,	*Roth.*		
Hub-ul-nil,	AR.	Kala-dana,	HIND.
Inflaton,	"	Marchai,	"
Aishq-pecha,	"	Bildi,	JHELUM.
Nil-kalmi,	BENG.	Ker; Kirpawa,	"
Phaproo-sag,	BEAS.		

This plant grows in all tropical countries, and throughout India, its seeds are used as a purgative, but are irregular in their operation. They are roasted slightly and powdered and the dose is thirty to forty grains. A cathartic oil is obtained from the seeds.—*Voigt*; *Birdwood*; *Irvine Gen. Med. Top.*, *pp.* 144-181; *Honigberger*, *p.* 291.

PHARBITIS PURPUREA.

P. hispuda,	*Choisy.*	Ipomæa purpurea,	*Linn.*
Convolvulus purpureus,	*Linn.*	" hispida,	*Zucc.*
" mutabilis,	*Sales.*	" zuccagni,	*Roem.*
" glandulifer,	*Spr.*	" glandulifera,	*Roxb.* *Pers.*
" discolor,	*Roxb.*		

Var. a. purpurea, C. purpureus, light purple.
" *b.* violacea, violet flowers.
" *c.* elata, C. purpureus, *var* elatior.
" *d.* varia, C. " " varius.
" *e.* leucantha, white flowers.

A plant of America.

PHARFURA, the fine enamelling on the back of jewelled ornaments, done at Jaipur, &c.

PHARID-BUTI, HIND. A mucilaginous plant found at Ajmere: used in sherbets.—*Gen. Med. Top.*, *p.* 149.

PHARNACEUM CERVIANA, *Linn.* Syn. of Mollugo cerviana, *Ser*.

PHARNACEUM MOLLUGO.

Ladies bed strew,	ENG.	Ghimasag,	HIND.

Wild in gardens during rains, sometimes used as a pot herb.—*Gen. Med. Top.*, *p.* 148.

PHARISEE, from pharash, set apart, Hebrew reformers after the seventy years' captivity.

PHARNAVIS, a public officer under the Maratha government, the keeper of public registers, through whom all orders or grants were issued.

PHARNI, HIND. A leather-polishing tool.

PHARRASII of Curtius.

PHARWAN, also Pilchi, and Koa, RUKH. Tamarix gallica, *Linn.*

PHASEE, URIA. A tree of Ganjam and Gumsur, of extreme height 60 feet, circumference 6 feet, and height from the ground to the intersection of the first branch, 30 feet. A light hard wood, used for sugar presses, rice pounders, and bandy wheels, and occasionally for making boats of. It is tolerably plentiful.—*Captain Macdonald.*

PHASEOLUS, a genus of plants of the natural order Fabaceæ, the Bean tribe. The East Indian species are as under:

aconitifolius, *Jacq.* All India.
aureus, *Roxb.* Cultivated.
augustifolius, *Roxb.* China.
calcaratus, *Roxb.* Mysore.
caracalla, *L.* W. Indies, introduced.
dolichiodes, *Roxb.* Chittagong.
fuscus, *Wall.* Prome.
glaber, *Roxb.* Mauritius.
lunatus, *L.* All India.
minimus, *Roxb.* China.
mungo, *L.* Cultivated.
multiflorus, *L.* Cultivated.
nanus, *L.* Cultivated.
radiatus, *Linn.* Peninsula of India.
rostratus, *Wall.* Cultivated.
roxburghii, *W. & A.* All India.
semierectus, *L.* W. Indies introduced.
sublobatus, *Roxb.* Bengal.
trilobus, *Ait.* All India.
torosus, *Roxb.* Nepal.
vulgaris, *L.* All India.

PHASEOLUS ACONITIFOLIUS, *Jacq.*

Dolichos dissectus, *Lam.*

Mat,	GUZ.	Adas,	PERS.
Moot,	HIND., DEC.	Vasunta,	SANS.
Mash; Moth,	„	Mohae,	SINDH.
Aconite-leaved kidney bean,	ENG.	Tulka-pyre,	TAM.
		Kooncoomapesaloo,	TEL.

Grown as fodder throughout the Peninsula and in Upper provinces of India: in 100 parts,

Moisture..............	11·22	Fatty or oily matter	0·64
Nitrogenous matter.	23·80	Mineral constituents	3·56
Starchy matter......	60·78		

This is a small pleasant tasted pulse, much cultivated in the higher provinces of India, where there are two kinds of it. The moth cultivated in the north-western provinces is used for feeding cattle. Phaseolus aconitifolius is cultivated in the Punjab, for food. Its roots, as well as those of Phaseolus radiatus, are said by Royle, to be narcotic.—*Ainslie, p.* 246; *Eng. Cyc.*; *Dr. Honigberger, p.* 323.

PHASEOLUS ALATUS, *Roxb.*, also Phaseolus amarus, *Raxb.* Syns. of Phaseolus rostratus, *Wall.*

PHASEOLUS AUREUS, or Soona Moong of the Bengalee, is cultivated in Bengal, but it is not known on the Coromandel Coast. It is sown, like the others, about the end of October or beginning of November, and reaped in February or the beginning of March.—*Voigt., Eng. Cyc.*

PHASEOLUS HIRTUS, *Retz.* Syn. of Phaseolus mungo, *Linn.*

PHASEOLUS LUNATUS, *Linn.*

P. maximus, *Sloane.*

Bun-burbutie,	BENG.	Lima bean,	ENG.
CountryFrench beans,	ENG.	Duffin bean,	„
Country Haricot,	„		

Sown in rows the same as other beans, but with a much greater space between; they require very strong sticks for support, and are ready in about six months. No very particular care is necessary. This is a most valuable bean, much prized by the European inhabitants of India; by some of whom it is preferred to the Windsor bean. It was originally brought to India from Mauritius and is extremely prolific. —*Jaffrey*; *Ainslie, p.* 240.

PHASEOLUS MULTIFLORUS, the Scarlet runner, is a native of South America. Both are delicate, and in England cannot be safely planted in the open air till the beginning of May.—*Eng. Cyc.*

PHASEOLUS MUNGO, *Linn., DC., W.&A., Roxb., Vol.* iii, *p.* 292.

var. (*a.*) chlorospermum.

P. hirtus, *Retz.*

Hali moong,	BENG.	Mung,	MAHR.
Hessaru,	CAN.	Danie masha,	SANS.
Oorud,	DUK.	Ulundoo,	TAM.
Green gram,	ENG.	Wooddooloo,	TEL.
Oorad,	HIND.	Pacha pesaloo,	„

This very pleasant tasted pulse is much prized, dressed in various ways. It is of great value whenever the periodical rains fail and rice cannot be grown, and famine is the consequence; in 100 parts,

Moisture,	9·20	Fatty or oily matter,	1·48
Nitrogenous matter,	24·70	Mineral constituents (ash)	3·26
Starchy matter,	60·36		

It is commonly cultivated in the Punjab plains, and to 3,500 feet in the hills, for its pulse, which is considered nutritious and digestible. It will keep good for about three years if carefully preserved by packing it in parcels.

var. β. melanospermus, black seeds.

Phaseolus max, *Roxb., Vol.* iii, *p.* 295.

Mash,	ARAB	Wooddoo,	MALEAL.
Kalo moog,	BENG.	Benoo mash,	PERS.
Krishna moog,	„	Musha,	SANSC.
Chicuda,	CAN.	Boo-mæ,	SINGH.
Black gram,	ENG.	Karpa-oolandoo,	TAM.
Black ulundoo,	ANG.-TAM.	Nalla woodaloo,	TEL.
Hairy podded kidney bean.		Nalla pesaloo,	„
		Minomolu,	„
Kali oorad,	HIND.	Karpa,	„
Kali moong,	„		

This pulse is grown in the Sutlej valley between Rampur and Sungnam at an elevation of 6,000 feet. The seeds are both black and green. It differs but little from the common ulundoo, P. mungo, except that it is of a darker colour, and somewhat larger. The moong of the natives, and black gram of the English, is like P. mungo but distinguished by its black seeds, and is, like it, found in a cultivated state; it takes about the same time to ripen, and yields nearly the same produce. One of the most common pulses seen in Burmah is the Phaseolus max which is the plant that produces the black gram of India.—*Punjab Report*, *p.* 66; *Ainslie*, *p.* 237, 247; *Eng. Cyc.*; *Mason*; *M. E. J. R.*

PHASEOLUS NANUS, *Linn.*

P. compressus, *DC.*	P. saponaceus, *Savi.*
P. romanus, *Savi.*	

Dwarf kidney bean, cultivated throughout India.

PHASEOLUS ROXBURGHII, *W. & A.*

Phaseolus radiatus, *Roxb. Vol.* iii., *p.* 296.

var. (*a*) chlorospermus, green seeds.

Mash kulay,	BENG.	Mash, Harri mung,	HIND.
Hasaroo,	CAN.	Cherroo poioor,	MALEAL.
Harie mung,	DUK.	Harita, masha,	SANS.
Rayed kidney bean,	ENG.	Putchi payaru,	TAM.
Green gram,	„	Patsa pesalu,	TEL.
Mag,	GUZ.		

Roots said by Royle to be narcotic. It is cultivated, and is the most esteemed of all the Indian leguminous plants. Besides using it as an article of diet, the natives make bread of the meal for some of their religious ceremonies.

var. (*b*) melanospermus, black seeds.

Ticorai kulay,	BENG.	Mah,	SIND.
Bladi gram,	ENG.	Oolandoo mæ,	SINGH.
Bladi pea,	„	Karooppoo dooloonthoo,	TAM.
Kali-koolti,	HIND.		
Thirkiree moong,	„	Panay pyroo,	„
Thikri moong,	„	Menumooloo,	TEL.
Mashi,	PANJAB.	Nalla-woodaloo,	„

This valuable pulse gets its Tamil name from being nourished by the dews in January and February. It is a variety of the Patchay pyre. This is the most esteemed of all the leguminous genus phaseolus and bears the highest price. Its produce is about 30 fold. Natives make bread of its meal for many of their religious purposes, cattle eat the straw.—*Ainslie*, *p.* 243; *Cleghorn's Panjab Report*, *p.* 66; *Roxb.*, *Vol.* iii, *p.* 296; *O'Shaughnessy*, *p.* 317.

PHASEOLUS TRILOBUS, *Ait.*, *Roxb.*, *W. Ic.*

Glycine triloba, *Linn.*	Dolichos stipulaceus, *Lam.*
Dolichos trilobus, *DC.*	

Mugani,	BENG.	Kulaee, Trianguli,	HIND.
3 lobed bean,	ENG.	Pilli pesara,	TEL.

This species of phaseolus, sown like any other beans, grows spontaneously everywhere in the Tenasserim provinces. Roxburgh says he never found it but in its wild state; Voigt says the leaves are said to be tonic and sedative, and are used in cataplasms to weak eyes.—*Mason*; *O'Shaughnessy*, *p.* 137.

PHASEOLUS ROSTRATUS, *Wall*, *W. & A.*

Ph. alatus, *Roxb.*, *Rh.*	Ph. amarus, *Roxb.*

Bun burbuti,	BENG.	Karalsana,	TEL.
Hullunda,	HIND.	Karu alachanda,	„
Katon paira,	MALEAL.		

This species is grown in the Circars and in Malabar where the tuberous roots are eaten: other parts of the plant are used in medicine. *Voigt.*, *Roxb.*

PHASEOLUS VULGARIS, *Linn.*

French bean,	ENG.	Lobiya,	HIND.
Kidney bean,	„	Bakla,	„
Haricot bean,	„	Dambala,	SINGH.

Native of Cabul and Kashmir, said to be a native of India, but Dr. Royle states that seeds were brought to him from Cashmere, and he is therefore inclined to consider that it was introduced into Europe from the most northern parts, such as Cabul and Cashmere, and that this accounts for our being able to cultivate it at a lower temperature than other species of the genus.—*Eng. Cyc*; *Voigt.*, *p.* 229.

PHASIANIDÆ, the pheasant family of birds, comprises the pea flowl, pheasants, jungle-fowl and spur fowl, all of them peculiar to Asia, India, Burmah and Malayana, some authors include also the turkeys. They frequent forests, jungles and thick coverts, perch and roost on trees:

Sub-Fam. Pavoninæ, Pea-fowl.

Pavo cristatus, *Linn.*, Common peacock.
„ japanensis, Japan „
„ muticus, *Linn.*, Burmese „
Polyplectron tibetanum. Assam to Tenasserim.
„ bicalcaratum, *Linn.*, Malacca, Sumatra.
„ chalcurus, *Temm.*
Argusanus giganteus, *Temm.* Malay Peninsula, Archipelago.

Sub-Fam. Phasioninæ, Pheasants.

Lophophorus impeyanus, *Latham.* The Monal Himalaya.
Crossoptilon auritum, *Pallas.* Snow pheasant.
„ tibetanum, *Hodgson.* „
Ceriornus satyra, *Linn.*, Sikim horned pheasant.
„ melanocephala, *Gray*, Simla. „
„ temminckii, *Gray*, China.
„ caboti, *Gould*, „
Ithagenis cruentus, *Hardw.*, Green blood-pheasant, Butan, Sikim.
Pucrasia macrolopha, *Less.*, Purkas pheasant.
„ castanea, *Gould*, North-west Himalaya.
Phasianus wallichii, *Hardw.*, Cheer pheasant.
„ colchicus.
„ torquatus—? Ring-necked pheasant of China.
„ mongolicus, *Gould.*
„ versicolor, *Viellot*, Japan.
„ reevesii, *Gray*, China.
„ sœmmeringii, *Temm.*, Japan.
„ lineatus, *Lath.*, Silver pheasant of Burmah.
Thaumalea picta—? China, Central Asia.
„ amherstiæ, *Leadbeater*, North China, Manchuria.
Gennæus nycthemerus, *Gould*, Silver pheasant of Himalaya.
Gallophasus albo-cristatus, *Vigors.* White-crested Kalij pheasant.
„ melanotus, *Blyth*, Sikim, the Kalij pheasant.
„ horsfieldii, *Gray*, Assam, Tipperah, Chittagong.
„ lineatus——Assam, Burmah.

Sub-Fam. Gallinæ ; Jungle fowl, Fire backs, Black Pheasant.
Diardigallus prelatus, *Bonap.*, Siam.
Gallus ferrugineus, *Gmelin.* Red jungle fowl.
„ sonneratii, *Temm.*, Grey „ „
„ stanleyi, *Gray*, Ceylon.
„ furcatus, *Temm.*, Java.
„ æneus, *Temm.* Batavia.
Galloperdix spadiceus, *Gmelin.* Red spur fowl.
„ lumilosus, *Valerie*, Painted spur fowl.
„ zeylonensis—— ? Ceylon.

The genus Phasianus, is higher up the Himalaya slopes than the Gallophasis, and the Gallus is still lower. Phasianus colchicus and the Chinese Ph. torquatus, readily intermix and blend, wherever the latter has been introduced in Europe. Phasianus colchicus, the common pheasant was originally from Asia Minor. P. torquatus came from Shanghai about the middle of the 18th century, P. mongolicus from Mongolia. P. lœmmenigii from Japan. P. Reevesii from China, and P. versicolor from Japan,

PHASIANUS GALLUS. *Sonnerat.* Syn. of Gallus sonneratii, *Temm.*

PHASIANUS INDICUS, *Leach*, *Blyth*, *Sykes*, *Jerdon.* Gallus sonneratii, *Temm.*

PHASMA, a genus of insects, called the walking stick insects. These and the green Mantis genus often escape observation from their resemblance to grass and brown twigs. The Phasmæ or Spectre insects are found in Asia, Africa, S. America, and Australia, and from their varied shapes are called Spectres, Phantoms, Devils, Horses, Soldiers of Cayenne, Walking Leaves, (Phyllum) animated sticks, &c.—*Colld.*

PHASRUK, CHENAB. Verbascum thapsus, *Linn.*

PHASSIE, MAHR. Dalbergia paniculata, *Roxb.*, *W. & A.*

PHAT, HIND., the lower bar in a yoke.

PHATAKRI, HIND. Alum.

PHATAL PIPAL, HIND.? A tree of Chota-Nagpore, with a hard, white timber.—*Cal. Cat. Ex.*, 1862.

PHATEE, HIND. A fine kind of cotton grown near Dacca, see Dacca.

PHATIS, GREEK. A Bard.

PHATMER, HIND. Francœuria crispa.

PHAT-PERA, HIND. The silk winder.

PHAT THAN, BURM. A tree of Moulmein, wood used for chisel handles.—*Cal. Cat. Ex.*, 1862.

P'HAURA, HIND. A mattock.

P'HA YUNGB'HAN, BURM. Allamanda cathartica, *Linn.*, *Kœn.*

PHA YUNG KHA, BURM. Cucurbita maxima, *Duch.*, *W. & A.*

PHEASANT birds belong to the family Phasianidæ. Gold and silver pheasants are inhabitants of China; but the golden pheasant, according to M. Temminck, inhabits not only China and Japan, but the northern parts of Greece, as also Georgia and the Caucasus; and it has been met with even in the province of Orenbourg. M. Degland informs us, that M. Gamba, French Consul at Tiflis, met with this gorgeous bird in numerous flocks on the spurs of the Caucasus, which extend towards the Caspian sea ; and that now it has gone wild and multiplied in some of the forests of Germany. The golden pheasants inhabit no part of India ; nor does any kind of Pheasant inhabit south of the Himalaya in British India and Ceylon, unless the different jungle-fowl be so designated.

Dr. Adams says that close to the melting snow, he came on several flocks of the great snow-pheasant, known to the Cashmerees by the names gor-ka-gu, and ku-buk-deri. It is also called "lepia" and "jer monal" in other districts westward. This species seems to frequent the high ranges of Affghanistan, and suitable situations all over the great Himalayan chain. There are three allied species, one of which is possibly only a local variety (Tetraogallus tibetanus) ; the other two are decidedly distinct. One of the latter is said to frequent the Ladakh mountains, it has a band on the front of the neck like the chuckor. He saw a flock of snow-pheasants together with quoir monal or snow-partridge (Lerva nivicola.) This handsome bird is not uncommon in certain localities and at high altitudes on Cashmere, Ladakh, and northwards. The snow-partridge breeds near the limits of vegetation, and lays from six to seven eggs. The black-headed or Hasting's pheasant (Ceriornis melanocephala, *Gray*) is found on the wooded slopes of the Peer Pinjal. This noble representative of the Phasianidæ is one of the gayest, and at the same time largest of its family. From the brilliancy of its plumage, it has been designated by Europeans the Argus pheasant, but the true Argus is a native of Sumatra and the Malayan peninsula. The most common local name for this species, besides the above, is "Jewar." In some parts of the Cashmere ranges, the male is called "sonalu," and the female "selalee." Its close ally, the Sikim horned-pheasant (C. satyra), has not been met with on the north-western Himalaya. The loud wailing cry of the jewar sounds mournfully along the valleys, and is more often heard at dusk and break of day than at any other time. Oft, in the stillness of an alpine solitude, at his tent door, by the cheerful log-fire, Adams listened to the well-known wa, wa, wa, of this bird. Foremost of all the various species of pheasants stands the impeyan, or monal. This splendid bird, once so abundant in the western Himalaya, is now, comparatively speaking, restricted to certain localities in the wooded slopes of the higher ranges. Whole tracts of forests, once dazzling with the gorgeous forms of these birds, are now without a single specimen; however, it will be long before it is extirpated, for its haunts are high up among the craggy rocks where few ordinary sportsmen venture. The average weight of an adult male monal is nearly 6 lbs.; that of the female about 5 lbs.; the young of the first year about 3 lbs. The favourite haunts of this species are in the deepest solitude of the forest, or among the bamboo and dense jungle which clothe the sides and bottoms of the valleys. It is found along the line of the Himalaya, from 6,000 to 8,000 or 10,000 feet, but is partial to localities. The monal is strictly alpine in its haunts and prefers the cooler regions of the middle ranges to the forests bordering on the plains of India. Hundreds are sold at Stevens' sale-rooms. They are bought chiefly to adorn ladies' bonnets. Its favourite food consists of acorns, earth-nuts, bulbs, wild strawberry, currants, &c. They may be met with in scattered flocks, singly, or in pairs. The female monal lays four to six eggs, very similar in colouring to those of the turkey. The young bird has the dark-brown plumage of the female until the autumnal moult. It has certain names in different localities—for instance, about Mussouree and Simla it is known by the name monal; to the eastward it is called Ratteah cowan, and Monalee. The male is the Lont and the female the Ham of the Cashmerians, who adorn their mosques with the brilliant feathers of the male. The plach pheasant, known by the local names Pukras, Coclass (Pucrasia macrolopha,) is less plentiful, and does not appear so generally distributed as the monal. The cheer-pheasant (Phasianus wallichii), is one of the most elegant species to be met with in the Himalaya. It is likewise known by the local names of Booinchil and Herrel. The male measures about 18 inches, exclusive of the tail, which varies from 20 to 26 inches in length. The naked skin around the eye is bright red. The iris is light brown. The tail is composed of eighteen feathers, which graduate in pairs, and are broadly barred with pale yellow, or dusky brown and olive blotches. The cheer frequents the lower and middle regions, and is seldom found at very high elevations. It delights in grassy situations, among stunted oak, or such like, and is generally met with in flocks of from six to twenty. The moment they are disturbed they separate and secrete themselves among the grass, or in the foliage of trees, whence it is said they have been knocked down with sticks.

The kalij, Euplocomus albocristatus is the most common and widely distributed of the Himalayan pheasants. There is a congener, with white markings on the crest and back, found on the eastern ranges, Sikhim, &c. Mr. Blyth considers it a distinct species, and has named it E. melanotus. But Adams has seen many old males of the E. albocristatus with very little white on the crown and back. The kalij pheasant ("Merghee kookera" of the natives) is plentiful along the great valleys, called Dhoons, bordering on the plains of India, up to elevations of from 6,000 to 8,000 feet. It prefers, however, the more southern ranges, and is seldom met with in the remote interior. The egg is white, and about the size of the bantam's. A nest may contain from nine to twelve, and even more eggs, which are hatched about the end of May. Grubs, insects, seeds, shoots and leaves of trees, constitute the favourite food of the kalij.

The red-legged partridge, better known in the east by the name of "Chukor," has a wide distribution. It does not differ in any well-marked particular from the Greek partridge of south-east Europe, and shows how easily species can be made. Lieut. Wood, in his journey mentions taking part in a hunting expedition, when the party bagged 500 chukor by running them down with beaters and dogs." Of Perdix græca there is a variety in the island of Crete. The chukor prefers barren mountains to the rich and luxuriant vegetation of the more southern ranges; bare stony ridges clad with low scrub are its favourite haunts. During incubation the male remains near the nest, and may be heard all day piping his loud call—"cuc cuc," resembling that of the domestic fowl. The Cashmerians call the bird "kau-kau" on account of its call.—*Adams.*

PHEDU, or feru, HIND. In Chamba, Ficus roxburghii; F. macrophylla, and Ficus caricoides.

PHEEA of the Hunnia, the marmot.

PHEES——? Chamærops ritchiana.

PHEET, GUZ., HIND. Ribbon.

PHENI, HIND. A sweetmeat.

PHENICIA, see Hindoo.

PHENILA, SANSC. Zizyphus jujuba, *Lam.*

PHEROSOPHI, are found amongst the Coleoptera of Hong-kong.

PHESAK LANE, HIND. Suæda fruticos

PHET-WOON, BURM. Corchorus olitorius? also Triumfetta lobata? and Grewia spectabilis Grewia hookerii.

PHEWA, in Thaneswar, on a slab of sandstone in a temple, was a Sanskrit inscription of 279 Samvat, probably of the Vallabhi era. The character used in inscriptions was a variety of Kutila. The kings and princes mentioned, are Mahendrapala, Jatula, Vajrata, Yajnika, Sagga, Purna, Devaraja, Ramachandra bhoja. This inscription is very imperfect, but interesting, as throwing some light on a dark period of Indian history. If we may assume the bhoja of the document to be the first of that name noticed by Abul Fazal and Prinsep, his era is definitely fixed.—*Vol.* xxii, *p.* 673 ; *McClelland.*

PHIH or Pruh, the name given by the Lepchas to the Butani.

PHILADELPHACEÆ, *Lindl.* The syringa tribe of plants comprising 1 genus, 1 species, viz.: 1 Philadelphus.

PHILADELPHUS, *sp.*

Buzru, mudnu, zhoang, SUTLEJ.

On the Sutlej what appears to be a species, occurs at from 8,000 to 9,500 feet, and is stated to be used for ropes.—*Dr. J. L. Stewart, M.D.*

PHILADELPHUS CORONARIUS. A handsome shrub, producing white blossoms, having the appearance and smell of orange flowers; propagated by seed or layers.—*Riddell.*

PHILIPÆA CALOTROPIDIS.

Bhum-por,	HIND.	Khalatri,	PANJ.
Khurjin,	PANJ.		

This parasite grows on the roots of the Calotropis in Shahpur and is said to be used as fodder for sheep.

PHILIPPINE ISLANDS. The great group of the Philippines, although contiguous to the proper Indian Archipelago, differs materially in climate and the manners of its inhabitants. It extends over fifteen degrees from near latitude 5° to 20° N., and consists of many islands of which only Lucon and Mindanao are of great size. The bulk of the people are of the same tawny complexioned, lank haired, short and squab race, as the principal inhabitants of the western portion of the Indian Archipelago. The focus of the aboriginal civilization of the Philippines, as might be expected, has been the main island of the group, Lucon. This is a corruption of the Malay and Javanese word lesung, meaning a rice-mortar. The Spaniards are said to have asked the name of the island, and the natives, who certainly had none, thinking they meant a rice-mortar, which was before the speakers at the time, answered accordingly. In the Philippines, are many separate nations or tribes speaking distinct languages, unintelligible to each other. The principal languages of Lucon are the Tagala, the Pampanga, the Pangasinan, and the Iloco, spoken at present by a population of 2,250,000; while the Bisaya has a wide currency among the southern islands of the group, Leyte, Zebu, Negros and Panay, containing 1,200,000 people. Mr. Crawfurd tells us that it does not appear, from a comparison of the phonetic character and grammatical structure of the Tagala, with those of Malay and Javanese, that there is any ground for fancying them to be one and the same language, or languages sprung from a common parent, and only diversified by the effects of time and distance, and that an examination of the Bisaya Dictionary gives similar results. The great islands of Mindanao, Palawang, and the Sulu group of islets, forming the southern limits of the Philippine Archipelago, contain many nations and tribes speaking many languages of which little has been published. Mr. Crawfurd, on the information given by Mr. Dalrymple, informs us that even in the little group of the Sulu islands, a great many different languages are spoken, and he gives a short specimen of 88 words of one of those most current.

Sulu has for many years been the market where the Lanun and other pirates disposed of much of their plunder, and in former times itself was decidedly piratical. The mahomedan religion has made much progress in Mindanao and the Sulu islands, as has the Malay language, the usual channel through which it has at all times been propagated over the islands of the Indian Archipelago. Mr. Crawfurd remarks that whether the principal languages of the Philippines be separate and distinct tongues or mere dialects of a common language, is a question not easy to determine. Certainly, the phonetic character of the Tagala, the Bisaya, the Pampangan, and Iloco are, sound for sound or letter for letter, the same. Words of the Malayan languages are to be found in the language of the aboriginal inhabitants of Formosa, or Taiwan; and as this large island, about half as big as Ireland, stretches as far north as the 25° of latitude this is the extreme limit in a northerly direction to which they have reached. The aborigines of Formosa are short in stature, of tawny complexions and lank hair. Although inhabiting a great and fertile island, affording to all appearance a fair opportunity of development, they never made any progress in civilization, and at present seem to live in a state of barbarism. They are thought by Mr. Crawfurd to belong to, or much to resemble, the brown complexioned race of the Archipelago of whom the Malays are the type.

The entire population of the Philippine Archipelago, is estimated at 4,000,000, of whom 3½ millions are christians. The Indian race are in general superstitious, credulous, fond of gaming, and particularly addicted to cock-fighting. The Negritos are said to be the original inhabitants of the islands who retired before the invading Indians. The extent of this Archipelago is 300 leagues from north to south, and 180 leagues from east to west. It is made up of countless islands. This Archipelago received its name after Philip the Second of Spain, in whose name they were finally conquered, pacified, and peopled.

The Negritos, of the Philippines, are polytheists, but without temple or ritual. They believe in omens, invoke Camburan (God), the moon and stars, and adore the rainbow after a storm. They have also a worship of ancestors, a god of the harvest, of the fisherman and hunter; and a remnant of fetichism in a grotesque native devil.

Negros or Buglas island, extends from lat. 9° 4′ to 9° 50′. Of the central group of the Philippines, consisting of Panag, Negros, Samar, Leyte, Masbate, Bohol, and Zebu, the two former are the only islands in which Negrito tribes exist to the present day, and even as regards Panag, the fact must be considered doubtful. Negros, however, contains a considerable Negrito population, the crest of the mountain range, which extends throughout the length of the island, a distance of one hundred and twenty miles, being almost exclusively occupied by scattered tribes.

The Philippine archipelago, of innumerable islands, is about 300 leagues from north to south and 180 leagues from east to west. The Caraballos range of mountains runs through the centre of the whole, and in Luzon, the mountains are occupied by unsubdued races of idolatrous Indians. There are large lakes in most of the islands and Mindanao, "men of the lake," gets its name from its numerous waters. There are thermal springs at La Laguna, and boiling springs north in the district of Mainit. There is a rainy season of 6 months and a mixed one of equal duration. No rich spices, no precious gums, no abundance of rare metals or drugs, were there to allure Spanish cupidity. The Spaniards, nevertheless, appear to have been guided in their plans of colonization—at least in India, by a theory which nations still more great, and infinitely more free, might have adopted with advantage to themselves and to all humanity. They were not sordid monopolists; they ruled less by terror, and more by moral influence and the persuasions of their priests; and their power, not founded on the edge of the sword, was tolerable to the native race. They encouraged settlements; they allowed freedom to traffic; and though they levied unjust and irksome taxes, their system has been productive, within its narrow sphere, of more good than that of other conquerors in the Oriental Archipelago. That their commerce in the further east never developed itself to any lustre or grandeur, is true; but it was because their monopoly was less rigid, not because their vigour was less manly than that of the Dutch. Had Spain been more energetic, and still more liberal, her prosperity in the Indian Archipelago might have rivalled that which she once enjoyed in the western world. The Tagala, who dwelt in the district round about Manila, and are derived according to their traditions, from the Malays, have submitted thoroughly to their rule and become the servants of strangers. The Zebuans appeared firm in the defence of their independence; but were driven from their position by a body of men landed in good order from the ships. The island of Luzon, with its fertile soil, and attractive aspect, tempted their desires. It is the largest of the group, and the best known to Europeans. Long and narrow, four hundred and fifty miles by from ten to a hundred and forty—its coast is fringed with rocks and broken by many gulfs, inlets and capacious bays. The surface is covered through a large portion of its extent by mountains—two high ranges in the north being divided by the Cagayar river, which flows between two headlands into the sea. In all respects Luzon appeared to them a desirable field for colonization, and the Spanish settlers considered themselves equal to its subjugation.

The Aheta or Negrito, of the Philippines, are a Papuan race, the second name, meaning little Negro, being given to them by the Spaniards: but that of Ita or Aheta, so pronounced but written Ajeta, is their usual appellation among the planters and villagers of the plains. The woolly haired tribes are more numerous in the Philippines than in any other group of the Indian Archipelago, they were estimated, by M. Mallat, in 1842 to amount to 25,000. The islands Samar, Leyte, and Zebu, have not any of them; but they are found in Negros, Mindanao, Mindoro, and Luzon. In the early accounts of them by Spaniards, they are described as being smaller, more slightly built and less dark in colour, than the Negros of Africa, and as having features less marked by the negro characteristics, but as having woolly instead of lank hair; and their social condition could not then have been much better than now, since they are described as living on roots and the produce of the chase, and as sleeping in the branches of the trees, or among the ashes of the fires at which they had cooked their food. They are all well-formed and sprightly, but very low in stature, as they rarely exceed four feet and a half in height. The character of the negrito is untameable, and it is impossible to surmount their tendency to idleness. Prompted by an irresistible instinct to return to the place of their birth, they prefer a savage life to all the charms of civilization. They are ebony-black like negroes of Africa. Their hair is woolly, and as they take no pains in clearing it, and do not know how to arrange it, it forms a sort of crown round the head, which gives them an exceedingly fantastic aspect, and makes the head appear, when seen from a distance, as if surrounded with a sort of aureole.

Among the Aheta of the Philippine islands, when a man wishes to marry a girl, her parents send her before sunrise into the woods. She has an hour's start, after which the lover goes to seek her. If he find her and bring her back before sunset, the marriage is acknowledged; if not, he must abandon all claim to her. The Alfuros, seem to have affinities with the Tagala race of the Philippines, through the Sanguir islanders. Mr. Crawfurd observes that the sailors of the Philippines are so dexterous, that they are used, almost exclusively, in the other islands, as steersmen, and as such have a preference in many parts of the east. The Indians of the Philippines are among the best favoured of the Asiatic islanders, but they are not reckoned so brave as the Malays. They are a quiet inoffensive race, clean and well-shaped, and are all converted to the Catholic faith. A line commencing to the east of the Philippine islands, thence along the western coast of Gilolo through the island of Bouru and curving round the west of Flores, then bending back by Sandalwood island to take in Pratti, will separate the Malayan and all the Asiatic races, from the Papuans and all that inhabit the Pacific, though along the line of junction intermigration and commixture have taken place.

Mr. Crawfurd remarks that whether the principal languages of the Philippines be separate and distinct tongues or mere dialects of a common language, is a question not easy to determine. Certainly, the phonetic character of the Tagala, the Bisaya, the Pampangan, and Iloco are, sound for sound or letter for letter, the same. The alphabet of the Tagala nation of the great island of Lucon or Luconia, consists of 13 characters. It is the only one existing in the whole of this group, and seems at one time to have been used among the civilized tribes of the neighbouring islands, having spread even to Magindanan and Sulu. The forms of the letters are rather bold and more complex than that of the Sumatran alphabets.

Spain has in all her conquests kept prominently before her the propagation of Christianity in the form embodied in her Church. The Philippines, therefore, present a spectacle which contrasts strongly with the Dutch dependencies in the East. Spain appears in the Archipelago in her religious earnestness, her ecclesiastical assumption, and her gorgeous establishments. The natives of the Philippines have generally been converted and received into the Catholic Church. It is observed by Malte Brun, in his sketch of the inhabitants of the Philippines, that they are the only people in the eastern Archipelago who have improved in civilization from an intercourse with Europe. A commercial monopoly formed no part of the Spanish policy in that quarter of the world. The bounties which nature has showered on these islands have often been neutralised by the terrible forces hidden under their beautiful exterior. They are often shaken by earthquakes, and volcanic explosions are so frequent as to be regarded almost as common occurrences. In no other part of the world are storms so terrific as there during the change of the monsoon. Australia and California, Sir John Bowring thinks, will hereafter be largely if not wholly supplied with sugar from the Philippines. Manilla hemp has acquired a high character in Europe: 25,000 tons were shipped in 1858 from Manilla alone, of which Great Britain received one-fourth. Gold is found in the mountains and in alluvial deposits, and with proper machinery copper may be raised in abundance. A sample taken from a lode, seven feet in width and only four yards from the surface, gave an analysis 44 per cent. of pure metal.

Walton states from the collective returns recently made out by the district magistrates, it would appear that the total number of tributes amounts to 386,654, which multiplied by 6½ produce the sum of 2,515,406, at which he estimates the total population, including old men, women and children:—

Indians of both sexes....	2,395,687
Sangley Mestizos........	119,719
Sangleys................	7,000
Whites of all classes.....	4,000

Comparison of population in 1791 and 1810:

	Year 1791.	Year 1810.
Indians....	1,582,761	2,395,687
Mestizos...	66,917	119,719
	1,649,678	2,155,406

The provinces are frequently visited with dreadful hurricanes, called in the country, leaguios, and often desolated by locusts. The sileucao is a logwood of an excellent quality. They have also the braziletto, another dye-wood; the eagle-wood, narra, a species of red ebony striped; the tindal-wood, all red; the sandal-wood; the pangasinang fir, the molave, an incurruptible wood, the guijo, excellent for ship-building, as well as the banava, calantes, or Philippine cedar, the sagovan, red and white, mary-wood, for small masts, spars, &c., the manga-chapuy betis, dasag, dungol, calumpan, and many others.

Gold abounds in Luzon and in many of the other islands; but as the mountains which conceal it are in possession of the infidel Indians, the mines are not worked; indeed it may be said they are scarcely known. The savages collect it in the brooks and streamlets. The natives of the province of Camarines in Luzon partly devote themselves to the working of the mines of Mambulao and Poracale, which have the reputation of being very rich. The natives distinguish the varieties of rice by the size and shape of their grain, viz :

Binambang.—Leaves slightly hairy; glumes whitish; grows to the height of about five feet; flowers in December: aquatic.

Lamuyo greatly resembles the above; is more extensively cultivated, particularly in Bantangas, where it forms the principal article of food of the inhabitants of the coast: aquatic.

Malagoquit.—Derives its name from its being very glutinous after boiling; it is much used by the natives in making sweet or fancy dishes; and also used in making a white-wash, mixed with lime, which is remarkable for its brilliancy, and for withstanding rain, &c.: aquatic.

Malagoquit.—With smooth leaves, and red glumes (all the preceding are whitish); possesses all the qualities of the aquatic variety of the same name—that of being very glutinous after boiling. This rice is said to be a remedy for worms in horses, soaked in water, with the husks on: it is given with honey and water.

Bonlot Cabayo.—Common in Hocos, where it is cultivated both upland and lowland; it produces a large grain, and is therefore much esteemed, but has rather a rough taste.

Dumali, or early rice.—Raised in the uplands exclusively, derives its name from ripening its grain three months from planting; the seed is rather broader and shorter than the other varieties; it is not extensively cultivated, as birds and insects are very destructive to it.

Quinanda, with smooth leaves.—This variety is held in great estimation by the people of Batangas, as they say it swells more in boiling than any other variety; it is sown in May, and gathered in October: upland.

Bolohan.—This variety has very hairy glumes; it is not held in much esteem by the natives, but it is cultivated on account of its not being so liable to the attacks of insects and diseases as most of the other upland varieties.

Tangi.—Leaves slightly hairy, glumes light violet color. This upland variety is held in much esteem for its fine flavour.

435,067 arrobas of rice were exported from Manilla in 1847.—*M. Earl, p.* 141; *Mr. Rich, botanist to the United States exploring expedition*; *Lubbock's Orig. of Civ., p.* 82; *Marryat's Indian Archipelago, p.* 126; *Wallace, Vol.* ii, *p.* 218: *Quarterly Review, No.* 222 *pp.* 507, 508; *Walton's State, pp.* 4, 27, 28, 31, 82, 121, 276; *Earl, Papuan's, pp.* 121 *to* 131; *St. John's Indian Archipelago, pp.* 165-77. See Ahetas, Archipelago, India, Negros, Negritos.

PHILISTINE, or foreigners, who gave that name to Palestine, where they opposed the Jews in the conquest of that country.—*Sharp's History of Egypt, Vol.* i, *p.* 29.

PHILLU, Hind. Hamiltonia suaveolens.

PHILYDRACEÆ, the water-wort tribe of plants.

PHILLYREA. Of this genus, Wight in Icones, gives, P. robusta, terminalis and affinis.

PHILLYREA PANICULATA, A small tree with oblong ovate leaves; flowers in terminal panicles, pure white, bending down the branches, and giving the tree a graceful appearance. Introduced from China.—*Riddell.*

PHI-LOK, see Laos.

PHILOMACHUS PUGNAX, or Machetes pugnax; 'Ruff.' Europe, Asia, N. Africa: common in India.

PHILOMELA LUSCINIA.

Motacilla luscinia, *Linn.*	Philomela luscinia, *Selby*
Sylvia „ *Latham.*	*Gould, Swain.*
Curruca „ *Flem.*	

Nightingale,	Eng.	Usignulo,	It.
Rossignol,	Fr.	Luscinia,	Lat.
Nachtigall,	Ger.	Ruisenor,	Sp.
Rusignuolo,	It.	Nachtegahl,	Sw.
Rossignuolo,	„	Eos,	Welsh.

The nightingale.

PHILOMELA TURDOIDES, *Blyth.*

Luscinia major, *Brisson.*	Sylvia philomela, *Becht.*

Thrush nightingale, inhabits Europe and Egypt.

PHILOXENES, see Greeks of Asia.

PHIN. Stone circles, which the Todas call P'hin. Also a common term for a pot, urn, or any vessel of such like description.—*Harkness' Neilgherry Hills, p.* 33.

PHINDAK, Hind. Cratægus oxyacantha.

PHINEAS, see Khizr, Khajah.

PHIPHAR. Hind. Gongli or golu kishangunga, and elsewhere the turnip.

PHIPNI, Hind. of Kaghan, Rhamnus virgatus, Rh. Persica.

PHI-PHRAI, see Laos.

PHIR, Hind., à threshing floor.

PHIRAOTI, Hind. A small wheel like a chalar on the edge of a pond or nullah for raising water; it is worked by the foot.

PHIRI of Kashmir 'seconds' of shawl wool.

PHIRKI-TUGUR, Beng. Tabernæmontana coronaria.

PHIRTI, Hind. A blight occasioned by sand-storms.

PHISAKLANA, Hind. A plant burned for soda making.

PHISBEKKAR, Hind. Colebrookia oppositifolia.

PHITNI, Hind. of Jhelum, Kangra, Zizyphus vulgaris, *Lam.*

PHLEGÆNAS TRISTIGMATA, the ground dove of Celebes.

PHLEUM and Festuca pratensis, see Graminaceæ.

PHLOMIS ESCULENTUM, see Leucas aspera.

PHLOMIS RUSSELLIANA, Jerusalem sage, perennial and shrubby plants, with coarse hairy leaves resembling the common sage; the flowers are purple, red, yellow, &c., growing readily from seed in any common soil.—*Riddell.*

PHLOMIS INDICA, *Linn.*

Toombi-ki-bajee,	DUK.	Drona	SANS.
Ghoomra,	HIND.	Toombi keeray,	TAM.
Dawn-Beran,	MALAY.	Toombi koora,	TEL.

This green possesses a considerable degree of acrimony which the natives temper by an admixture of some agreeable acid. Rumphius tells us that the Woriahs in Amboyna squeeze the acrid juice of the plant, into their eyes to make them bold and intrepid in war.—*Rumphius*, vi, *p.* 40; *Ainslie's Mat. Med., p.* 257.

PHLOX, a genus of elegant plants, which, from their lively colours have a pretty appearance when grown in patches, the colours are red, purple, lilac, white, &c., grow readily from seed in a light garden soil, either in pots or the flower beds, should be sown thinly, and when one or two inches high, transplanted where intended to flower, require in pots a somewhat loamy soil well manured and drained.—*Riddell, Jaffrey.*

PHOBEROS GÆRTNERI, *Thunb.* Katu kurundu, SINGH.

PHOBEROS HOOKERIANUS, *Wight.* A large tree of the central province of Ceylon, at an elevation of 4,000 to 7,000 feet.—*Thw., p.* 17.

PHOBEROS ROXBURGHII, *Bennet.*

Ludia spinosa, *Roxb. Fl. Ind.*
Flacourtia stigmarota, *Wall., Cat.*

A tree of Sumatra, Fl. small, reddish-white, March and April; fr. Sept. *Roxb.*

PHOCÆNA COMMUNIS.

Ph. rondeletii, *Willughby.*
Delphinus phocæna, *Linn.*

The common porpoise.

PHOCA. The seal. The seal may be taught to assist in fishing. Apollonius related that he had seen at Ægæ, near Issus, a female Phoca, which was kept for fishing purposes.—*Yule Cathay, Vol.* i, *p.* 112.

PHŒNICIA. This ancient kingdom was on a narrow fertile strip of land, lying between the western slope of Lebanon and the Mediterranean sea, and extended from the river Eleutherus on the north to near Mount Carmel in the south. In Jeremiah 44th, 15-17 and 19 it is called the Queen of Heaven. See also Judges x, 6, 1 Samuel vii, 3, xii, 10. Astarte, or Ashtoreth or Baalith, the Queen of Heaven, the great female divinity of the Phœnicians, the female power of Baal, whom the Greeks changed into Baaltis or Belthes, in the chief city of Sidon, but her worship was extended to the east of Jordan. Physically, she represented the moon, hence her name in Gen. xiv, 5. Deut. i, 4. Josh. xii, 4. Ashtaroth karnaim or the two horned, from the crescent moon. See 1 Kings xi and 5; 53, 2nd Kings xxiii, 13; vii, 18; xliv, 25. It was by the names, Ashtoreth or Astarte that the moon was worshipped by the Israelites, Assyrians, Phœnicians, Carthaginians and the people of Tyre and Sidon. See Baal, Hindu, India, Ken, Semitic races.

PHŒNICOBALANUS of the ancients was probably the nut of the Doum palm of Egypt.

PHŒNICOPHAUS CURVIROSTRIS was observed by Captain Tickell on low jungly hills, very like Ph. tristis in habits, a pair shot were both precisely similar, except in colour of iris; the male having that cobalt blue and the female orange. Food Coleoptera, Hemiptera, and very large caterpillars.

PHŒNICOPHAUS TRISTIS, "Mahoka" of the natives of India, has a note like that of the British cuckoo, as heard late in the season.—*Hooker, Him. Jour., Vol.* i, *p.* 27.

PHŒNIX. A genus of palms, the species of which are found in the south of Europe, in the north of Africa, and in the south of Asia, eastwards to the Archipelago, the date tree is indigenous to Africa and Asia and embraces several species, the products of which are brought into the markets of India. The trunk, marked with the scars of fallen leaves, is, in some species, so short that it hardly appears above ground. It is not decided whether the East Indian P. sylvestris, Roxb. be or not the P. dactylifera of Linnæus in a wild state.—*Seeman.*

PHŒNIX ACAULIS, *Ham.*

Stemless date-palm.		Pind khajur, ?	PUNJAB.
Schaap,	LEPCH.		

A small stemless palm which grows in Sikkim on the driest soil and in the deep valleys. The Lepchas eat the young seeds and use the feathery fronds as screens, when hunting. It is a dwarf palm growing east of Siligoree in the Terai; a sure sign of a hungry soil.—*Dr. J. L. Stewart's Punjab Plants, p.* 243; *Hooker's Him. Jour., Vol.* i, *pp.* 143, 400.

PHŒNIX DACTYLIFERA, *Linn., Roxb.*

Tamr,	AR.	Khoorma,	MALAY.
Nukhal,	„	Khajur, khaj,	PANJ.
Swon-pa-lwon,	BURM.	Kurjan, khoorma,	PERS.
Paynd khajur,	DUK.	Payr-etchum pullum,	TAM.
Date tree,	ENG.	Carjura pundu,	TEL.
Date palm,	„	Kharjurapu chettu,	„
Palm tree,	„	Mudda kharjurapu	„
Kajur,	HIND.	Perita chettu,	„
Chuhara,	„		

The fruit.

Rutub,	AR.	Pind, Chirwi, Bagri,	HIND.
Tamr, (fresh)	„	Bela, (dried)	„

The cabbage.		*The gum.*
Gadda, Galli,	HIND.	Hokm-chil.

The stone.

Usteh-khurmah,	AR.	Gutla-i-khajoor,	PERS.
Tukhm-i-khoormah,	PERS.		

The date tree grows in tropical and middle Asia, in north Africa, and in some parts of Northern India. It does not thrive in Bengal, but it is the great support of the Arabs of Yemen. Dr. J. L. Stewart says, it was introduced into the southern Punjab in the 7th or 9th century, but that the true date is nowhere known in any quantity to the north or east of Tulamba and Jhang both close to the Chenab, although the tree has been tried in the districts of Lahore and Umritsur, and there are a few in the northern part of Jalandar, where, however, the chief use of the tree is for the sweet juice. He also mentions that there are some at Saharanpur, which give good fruit especially when the rains are late. The finest trees range up to 100 and 120 feet high, the natives assert that it will not grow except where the soil is or has been subject to inundation. There are now hundreds of the trees about various towns in Multan and Mozaffargarh, but it is most abundant near Dhera Ghazi Khan, Trans-Indus, where the country for ten or twelve miles from north to south has such numbers of trees that eight or ten thousand rupees are said to be annually got by government from the small tax which is levied on each female tree the sexes are on separate individuals. At Multan there is a bedana (*i. e.*, seedless) fruit in which the stone and its kernel are represented only by a little shrivelled membrane, the rest of the fruit consisting of the pleasant sweet pulp. Edgeworth states that there is only one tree producing these, which was formerly reckoned badshahi, " royal" *i. e.*, the produce was reserved for the ruler of the country. But several trees produce these which are the upper fruit ripening after the lower ordinary dates of the same tree. The fruit of a female tree is much more valuable than its sugar, and the male tree has but little juice. The terminal bunch of young leaves, taken only when a tree is cut down, is much eaten by the natives both raw and cooked. There are at least sixty varieties of dates. The date stones are made into beads, the leaves are made into couches, baskets, mats, bags, brushes, fly-traps. —*Dr. J. L. Stewart's Punjab Plants, p.* 245; *Seeman on Palms ; Dr. Mason's Tenasserim ; Roxb., Flora Ind. ; Royle's Fibrous Plants ; Ainslie, p.* 30; *Voigt's Hortus Suburbanus Calcuttensis ; Powell's Hand-book, Vol.* i, *p.* 379.

PHŒNIX FARINIFERA, *Roxb., Cor.*

Phœnix pusilla, *Gærtn.*

I'ntha,	MALEAL.	Chiruta ita,	TEL.
I'thi,	TAM.	Chittita chettu,	"

This dwarf palm grows in the sandy plains of the south of India, where the sweet pulp of its seeds, also the farinaceous substance of its stem are eaten in times of scarcity. The stem is split into pieces beaten in mortars and sifted and sago is boiled. It has a bitter taste, as thus prepared and is not so nutritious as common sago. The leaflets are made into mats, and the common petioles are split into three or four and are used to make baskets of various kinds. It is a dwarf plant, the trunk about one or two feet high, and so enveloped in the leaves as to appear like a bush. It is common on the peninsula of India, on dry barren sandy ground. Its leaflets are wrought into sleeping mats. The common petioles are split into three or four, and used to make baskets of various kinds. The exterior or woody part of the trunk consist of white fibres matted together, these envelope a large quantity of farinaceous substance which the natives use for food in times of scarcity. To procure this meal, the small trunk is split into six or eight pieces, dried, and beaten in wooden mortars, till the farinaceous part is detached from the fibres ; and the meal, when separated by sifting, is fit for use, by being boiled into a thick gruel or conjee. It is, in fact, an inferior sago.—*Seeman on Palms.*

PHŒNIX HUMILIS, *Royle.* Dwarf date-palm.—*Dr. J. Stewart's Punjab Plants, p.* 245.

PHŒNIX PALUDOSA, *Roxb., Corr.*

The marsh-date palm.

Hintal,	BENG.	Giruka tati chettu,	TEL.
Then boung,	BURM.	Hintalamu,	"

This small palm, grows plentifully on the Sunderbuns, South of Calcutta, on the low islands in the rivers, and on the shores which are inundated with the highest tides, the marsh-date palm abounds. It is a small tree about twenty feet high, no thicker than a walking cane ; whose fruit looks precisely like a bunch of dates, but it is not edible. Griffith says it is well-worth cultivating on account of its elegant impenetrable tufts, which well adapt it for bank scenery. P. paludosa, is the most southern Indian species of the phœnix palms. The trunks of the smaller trees serve for walking sticks, the long trunks for rafters and the leaves for thatch.—*Hooker's Him. Journ., Vol.* i, *p.* 1 ; *Mason* ; *Seeman.*

PHŒNIX SYLVESTRIS, *Roxb., Rh.*

Elate sylvestris, *Linn.*

Khajur,	BENG.	Khajoori,	SANS.
Wild date palm,	ENG.	I'tsham pane,	TAM.
Send ka jhar,	HIND.	Eetcha maram.	"
Khajoor,	"	Ita chettu ; Ita,	TEL.
Sendi,	MAHR.	Pedda ita,	"
Khaji of Salt Range,	RUS.		

The wild date palm grows throughout British India and is of great value on account of the palm wine it yields and the sugar made from the palm wine. It occurs wild in many plac in and near the Siwalik tract up to and prob bly beyond the Indus, in the Salt Range, an out into the plains in the east of the Punjab. I is not seen much above 3,000 feet, in the oute hills, and Vigne correctly points out that th " palms of Baramoule" in Kashmir were crea tions of Moore's imagination. If not too earl notched for the wine, it grows straight and ver tall, length of trunk being 50 feet, and girt

2 feet; attains full size in 40 years. Its wood is used for water conduits, and for temporary bridges; leaves extensively employed for matting floors. This date tree is found in almost all the desert districts of the Sind Sagar Doab; they grow on the borders of sandy tracts, and in such land that little else grows there. The fruit forms the staple of food in some districts, and is known by different names, according to the method by which it is preserved, split, dried, boiled in oil, &c. These date trees pay a tax to government, which forms an important item in the "sair" revenue of some districts. Mr. Coldstream writing of this tree in Muzaffargarh says it does not grow actually in the sandy desert, but flourishes on its borders in the most wretched soil, and where hardly any other vegetable exists; it is often found in luxuriant groves.—*Dr. Stewart's Punjab Plants, p.* 245; *Balfour, p.* 187; *Roxb., Powell, Stewart.*

PHOG, Hind. Polygonum convolvulaceum, Calligonum polygonoides, also Ficus caricoides.

PHOG or Phogli, Hind., a wild grain.

PHOG, dregs or lees of anything after infusion, &c.

PHOGLI of Muzaffargarh is from the plant called Phoke found in desert tracts in the Panjab. It somewhat resembles the caper in its habit and colour, being destitute of true leaves and composed of numerous fine and angular branchlets. It is much more slender than the caper and does not attain to the same size. The flowers and fruit, which are very small and of a grey colour, fall off on attaining to maturity, and are gathered by the natives, who mix them with ghi, and use them as a relish. The fruit is called phogli, and is well known throughout the districts.

PHOGLI, Hind., a term applied to a coil of fine gold wire in spangle-making.

PHOGRI, Hind. Ficus reticulata.

PHOILSAH, Hind. Lightning struck.

PHOK, Hind. Calligonum polygonoides.

PHOLADIDÆ, a family of molluscs.

Family XXI. Pholadidæ.

Genera. Pholas. Piddock, *rec.* 25 sp., *fossil* 25 sp.
Pholadidea, *rec.* 6 sp.
Pholas, *Madr.*
Pholas orientalis, Indian Ocean.
Pholas costata, East Indies and America.
Pholas striata, India and North America.
Pholas orientalis.
Pholas striatus and two others.
Sub-genera. Martesia, *rec.* 10 sp. also *fossil.*
Jouaunetia, *rec.* 3 sp. also *fossil.*
Parapholas, *rec.* 4 sp.
Xylophaga, *rec.* 2 sp.
Teredo. *Syn.* Septaria, *rec.* 14 sp., *fossil* 24 sp.
Teredo navalis.
Teredo clava, Coromandel.
Sub-genus. Teredina, *fossil.*

PHOLAHEE, Hind. A thorny tree, which does not grow to a very great height. Wood of the young tree white, of the old dark coloured, especially the heart-wood, tough and durable; used for cart wheels and sugar mills. The branches of the tree are used for fences. Length of tree to first branch 5 feet, and girth 3 or 4 feet.—*Dr. Campbell.*

PHOLIDOTA ARTICULATA, a white-flowered species of pholidota, is not rare in the suburbs of Maulmain.—*Mason.*

PHOLLORNIS SONNERATII, see Phœnicophaus curvirostris.

P'HOOL, Hind. A flower.

P'hool charhana, alias Zeearut, or Teeja, a mahomedan funeral ceremony.

P'hool kee chuddur, Hind. A covering of flowers.

P'hool pahanna, a mahomedan ceremony.

P'hool ka tubuq, the fairy flower tray.

P'hool soongnee, any sweet-scented flower, enclosed in a piece of cloth for the bride to smell.

Phoolel-ka-tel, an odoriferous oil made by placing sweet-scented flowers, in three or five successive patches, over gingelly oil seed, and then expressing the oil. The best is sold at 1½ rupee for two pounds.—*Herklots.*

PHOOL-KOPI, Beng. Cauliflower. Brassica oleracea, B. cauliflora.

PHOOLOHA, ? Pongamia.

PHOOLSHAHAR is situated about fifteen miles from Poonah, near the high road to Ahmednuggur, it is on the banks of the Beema, and is remarkable for its salubrity.—*Malcolm's Government of India, p.* 85.

PHOOL-SHOOLA, Hind. Æschynomene aspera.

PHOOL-SOLA, Beng. Æschynomene aspera.

PHOONTEE, Beng. Cucumis momordica.

PHOOT or Phooti, Hind. Cucumis momordica, Field cucumber. A wild species of cucumber sown generally in the fields amongst jawari, and is something between the melon and cucumber; it keeps for a long time if not too ripe and would be valuable as a store vegetable for sea.—*Riddell.*

PHOOTANAY, or Poothanee, parched Bengal horse-gram.

PHORMIUM TENAX, the Koradi or Harakeke, or New Zealand Flax plant. There are several varieties of this plant, which yield flax of varying degrees of fineness. It is a plant likely to thrive on most of the lower hill ranges of British India and to prove especially suitable for culture on parts of Coffee Estates, in which the coffee has died out. The fibre, or flax, of this plant when well prepared is superior in strength and equal in other respects to European flax, so that it seems very desirable that its culture should be encouraged. Dr. T. von Hochstetter's 'New Zealand' gives the comparative tenacity of New Zealand flax, according to Dr. Lindley as follows :—

Silk	34	European flax	16
New Zealand flax	23	„ hemp	11

The Phormium is a flag-like plant with sword-shaped leaves, and bears its flowers on a stalk like the American aloe. The flower contains a sweet juice much liked by children, which is collected by the natives in their calabashes to the extent of ½ pint from a plant. At the root of the leaves a gum-like substance is found, which serves the Maoris as a substitute for sealing-wax and glue, and is also eaten. The pith of the dried flower stalk when ignited grows like tinder, and is used as a slow match to carry fire on a journey. The leaf is applied to various purposes. When green it is used for writing on, the characters being engraved with a sharp-edged shell. Split and cut into strips, it serves instead of cords, strings, ropes, straps, &c., and as a means of binding is indispensable to the natives in building huts and canoes. The green strips of the leaves are plaited by the women into neat baskets, which at dinner serve as plates and dishes; while the men make lines, nets and sails of them. They also extract the fibre, dye it of various colours, and thus get material for mats and garments. The plant covers millions of acres in New Zealand, growing spontaneously on any kind of soil, moist or dry, and in any locality, high or low. It however attains its greatest luxuriance in moist alluvial soil. The leaf in structure resembles that of the Agave. The separation of the fibre may be effected by means of maceration, or mechanical force applied so as not to injure the bast-cells, and sometimes a process combining both these means is employed. The natives who use only the upper part of the leaf and only on one side of it, clean the fibre by scraping off the parenchyma with a shell. The quantity prepared by them is very small, and the government of New Zealand being impressed with the great value of the flax as an article of export, offered some years ago a reward of £4,000 for a machine that would clean the fibre rapidly and effectively. In a small factory near Nelson the process employed was to boil the leaves in lyewater, then to dry and twist them into a thick rope, after which they were passed between ribbed wooden rollers, until the fibre was laid bare in a tolerable state of purity. The dried and bleached produce thus prepared was sold for £25 per ton. In 1860, the Rev. Mr. Purchas invented a machine for cleaning the flax, and the samples produced by it leave no room for improvement as regards purity of fibre. It is very simple, consisting essentially of a large solid cylinder or drum of hard wood, revolving and so put together that its surface presents the cross section of the wood. Above it are a number of perpendicular iron plates grooved on their lower edges, which being raised descend in succession by their own weight. The green leaves are passed between the drum and the iron pounders, when the action of the latter, aided by a stream of water, separates and cleans the fibre. A steam engine of 8 horse power works the machine, which will clean 1 ton of fresh leaves, yielding 3 cwts. of flax per day. It has been tried on other fibrous plants and found equally suited for the Agave, Manilla hemp and pine apple. —*Dr. Hochstetter, quoted by George Bidie, M. B., Ootacamund, 28th July* 1868.

PHOSPHORESCENCE, the phenomenon of phosphorescence, says Dr. Hooker, is very conspicuous on stacks of fire-wood. At Darjeling, during the damp, warm, summer months May to October, at elevations of 5,000 to 8,000 feet, it may be witnessed every night by penetrating a few yards into the forest, at least it was so in 1848 and 1849; and during Dr. Hooker's stay there, billets of decayed wood were repeatedly sent to him by residents, with inquiries as to the cause of their luminosity. It is no exaggeration to say that one does not need to move from the fireside to see this phenomenon, for if there is a partially decayed log amongst the fire-wood it is almost sure to glow with a pale phosphoric light. A stack of fire-wood, collected near Mr. Hodgson's cottage, presented a beautiful spectacle for two months (in July and August), and on passing it at night, Dr. H. had to quiet his pony, who was always alarmed by it. The phenomenon invariably accompanies decay, and is common on oak, laurel, (Tetranthera), birch, and probably other timbers, it equally appears on cut wood and on stumps, but is most frequent on branches lying close to the ground in the wet forests. He had reason to believe that it spreads with great rapidity from old surfaces to freshly cut ones. That it is a vital phenomenon, and due to the mycelium of a fungus, I do not, he says, in the least doubt, for I have observed it occasionally circumscribed by those black lines which are often seen to bound mycelia on dead wood, and to precede a more rapid decay. I have often, he adds, tried, but always in vain, to coax these mycelia into developing some fungus by placing them in damp rooms, &c. When camping in the mountains, I frequently caused the natives to bring phosphorescent wood into my tent, for the pleasure of watching its soft undulating light, which appears to pale and glow with every motion of the atmosphere; but except in this difference of intensity, it presents no change in appearance night after night. Alcohol, heat, and dryness soon dissipate it; electricity I never tried. It has no odour, and my dog, who had a fine sense of smell, paid no heed when it was laid under his nose. As far as my observations go, this phenomenon of light is confined to the lower orders of vegetable life, to the fungi alone, and is not dependent on irritability. I have never seen luminous flowers or roots, nor do I know of any authenticated instance of such, which may not be explained by the presence of mycelium or of animal life. In the animal kingdom, luminosity is confined, I believe, to the Invertebrata, and is especially common amongst the Radiata and Mollusca; it is also frequent in the Entromostracous crustacea, and in various genera of most orders of insects. In all these, even in the sertulariæ, I have invariably observed the light to be increased by irritability in which respect the luminosity of animal life differs from that of vegetable. Phosphorescent matter, is secreted or emitted at will by an infinite number of crustacean and molluscous animals with which the ocean abounds, but has been observed to obtain also in a species of shark, and in the glow-worm, fire-fly, and the luminous centipede, Geophilus fulgens, one of the myriapoda. It also exists in some fungoid plants a species of Agaricus in the Australian woods is vividly luminous, and is described by Dr. Hooker as occurring at Darjeling. The Pyrosoma atlanticum, from three to four inches long, is composed of an aggregation of small tunicaries, and produces a powerful light on being disturbed. Medusæ possess luminous powers. The Salpæ are luminous. The Squalus fulgens, or luminous shark gives out a shining light like that of the pyrosoma. Dr. Bennett, found the surface of the water become brilliantly phosphorescent, when his boat struck on a coral reef at Thur bay in the island of Rotuma. One of the pyrosoma, a luminous aggregate tunicated mollusk, has been found floating in great numbers and little minute points, apparently of a jelly-like substance, is found on the Australian coast, similar to those which on the coasts of England have been called nactiluca.—*Bennett, pp.* 64, 69; *Hooker's Him. Jour., Vol.* ii, *pp.* 150-52.

PHOSPHORUS PILLS for destroying rats, consist of Hog's lard ground up with cocoanut and phosphorous made into paste. This forms the most certain bait and poison combined to destroy rats, care must be taken in mixing the phosphorus, of which very little suffices.

PHOTI, Beng., see Dacca.

PHOTINIA DUBIA. In Nepal they use the bark of Photinia dubia or Mespilus bengalensis, for dyeing scarlet, see Dyes.

PHOTINIA GLABRA, is common in China and ornamental. It is a noble evergreen, which in the winter becomes covered with bunches of red berries.—*A. Res. among the Chi., p.* 51.

PHOTINIA SERRATIFOLIA, *McClell.*

Doukyat, Burm.

Found in the neighbourhood of Rangoon and along the banks of the streams in the Rangoon districts, in the direction of the teak forests. Wood red, adapted to cabinet making. The leaves of this plant are used for a green dye. Voigt mentions Photinia (Mespilus) Bengalensis, *Wallich*, as a small tree of Nepal, the Khassya hills, Assam and Chittagong: and Photinia eugenifolia, *Lindl.*, as a tree of the Khassya mountains: their woods are not known.—*Dr. McClelland, Voigt.*

PHOUNG, Burm. Arundo.

PHRAAPATIUS, see Greeks of Asia.

PHRA BANG, see India.

PHRAHATECES, see Greeks of Asia, Kabul.

PHRA-KYWN, Burm. Buddhist pagoda slaves. In the buddhist religion, as it prevails in Burmah, the servitors at the temples are invariably outcasts, with whom the rest of the community will hold no intercourse. They sweep the vicinity, clear away the remains of offerings; and wash the idol.

PHRAT, or Frat or Phorat, the Euphrates river. Phrat is mentioned in scripture, and is said to have two derivations from the Hebrew, Phar or Pharatz, to spread, and Pharah to produce fruit or flowers. Foort, in Arabic, means abundance.—*Vincent*; *Kinneir's Geographical Memoir, p.* 8.

PHRE, a small kingdom tributary to Siam, on the N. E.

PHROL, Hind. Arundo, *sp.*

PHRYNIUM DICHOTOMUM, *Roxb.*

Maranta dichotoma, *Wall.* | Theen, Burm.

Very plentiful in the forests of the Pegu and Tonghoo districts. It is said to afford a strong fibre.—*McClelland.*

PHRYNUM, a harmless, inert creature, a connecting link between the spiders and the scorpions, spinning no web, and resembling in its habits the harvest men of the fields of Britain.

P'HTAH, see Kneph.

PHUL of Chenab, Verbascum thapsus, *Linn.*

PHUL of Scripture, identical with the names Tiglath pileser, Sardanapalus.

PHUL, Hind. A flower; also the first distilled spirits, see Ek-atisha, technical in Karnal also a sort of sal-ammoniac, mahadeo-ka phul, Hind. Daphne cannabina; paighambari phul, Hind. Arnebia echioides; tulenni phul, Hind. Hamiltonia suaveolens, see Kansi.

PHUL, a flower, a head ornament.

PHUL, Heb. Beans.

PHULA BANS, see India.

PHULA-DOLA. In the chief zodiacal phenomena, observation will discover that Vishnu is still the object of worship. The Phula-dola, or Floralia, in the vernal equinox, is so called from the image of Vishnu being carried in a dola, or ark, covered with garlands of flowers (phula.) Again, in the month of Asar, the commencement of the periodical rains, which date from the summer solstice, the image of Vishnu is carried on a car, and brought forth on the first appearance of the moon, the 11th of which being the solstice, is called "the night of the gods." Then Vishnu reposes on his serpent-couch until the cessation of the flood on the 11th of Bhadoon, when he turns on his side.

PHULAHI, Phulahi or Phulah, HIND. Acacia modesta. A thorny tree, which does not grow to a very great height. Wood of the young tree white, of the old dark colored, especially the heart-wood, tough and durable used for wheels and sugar mills. The branches of the tree are used for fences. Length of tree to first branch 5 feet, and girth 3 or 4 feet.—*Powell's Hand-book*, *Vol.* i, *p.* 541.

PHULAN, HIND. Fagopyrum emarginatum, *Meisn.*

PHULANCH, HIND. Ribes rubrum.

PHULI, HIND. Jewellery.

PHULKARI, HIND., a peasant woman's sheet or veil, worked with sprigs of embroidery.

PHULON, AR. Beans.

PHUL-SOLA, BENG. Æschynomene aspera.

PHULSA, BENG. Grewia asiatica.

PHUDSEL, HIND. Viburnum stellulatum.

PHULSHASHA, BENG., HIND. Grewia asiatica.

PHULBHANG, HIND., BENG. Hemp.

PHULBHANGA, HIND. Male hemp plant.

PHULI from Nubra valley in Ladakh, a salt used in infusing tea.

PHULIARI, HIND. Rosa brunonis.

PHULIAT, HIND. Quercus annulata.

PHULLAEED. In Nepaul, a kind of oak, the wood of which is in high repute for its strength and durability; the acorns are used medicinally and also serve as food for the pigs. —*Smith's Nepaul.*

PHULJHAR, is one of the clusters of states formerly known as the eighteen Garhjat, and is now included amongst the ordinary khalsa zemindaries of the Sambalpur district. The census returns of 1866 give the population at 32,721. The agricultural classes are chiefly Agharia, Kolta, and Gond, but there is a sprinkling of other castes, such as Brahmins, Mahautis, Telis, Malis, &c. A few Khonds are also settled here and there.

PHULKANRI, HIND., of Hazara Deutzia staminea.

PHUL MAKHANA, HIND. Euryale ferox, kamal phul, HIND. is Gentiana kurroo, kan phul, HIND. Taraxacum officinale.

PHUL-MAKHANA, HIND. Asteracantha longifolia; barleria.

PHUL TUN, tun flowers, give a yellow dye.

PHUL SUPYARI, galls of Areca catechu.

PHULWAI, HIND. Cæsalpinia sepiaria.

PHUL-WARA, HIND. Bassia butyracea.

PHULWARA, HIND. Prinsepia utilis.

PHULWARI, HIND. Rosa brunonis.

PHULGURIYA, see India.

PHULYAN or Phulwar, HIND., of Kaghan, Rosa macrophylla.

PHULYARI GULAB, HIND. Rosa brunoniana.

PHUMAN, HIND. Leucas cephalotes.

PHUMNI, HIND. Jewellery.

PHUNDAYAT, MAH. Antilope cervicapra pallas.

PHUNDU, HIND. Allium, *sp.*

PHUNNAS, DUK., HIND. Artocarpus integrifolia.

PHU-NGAN-BHUM, mountains in which feeders of the Irawaddy, have their source. The summit was seen covered with patches of snow in May.

PHUNG-NYET, BURM. Calophyllum inophyllum, *Linn.*

PHUNI-MUNSA, BENG. Cactus indicus.

PHUNSI also Funsi, GUZ. Jack wood.

PHUNSI, MAR. Carallia integrifolia.

PHUNT, HIND. Cucumis momordica, ba phunt, is Syringa emodi.

PHUNTAR, HIND. Verbascum thapsus.

PHUNTI, BENG. Phunt tuti, HIND. Cucumis momordica.

PHUPHARI, HIND. Gymnosporia spinosa Celastrus spinosus.

PHURILI, HIND., of Kashmir, Deutzia staminea.

PHURRA. Leaves of the Chamærops ri chiana, which are brought from Beloochist into Sind, and made into baskets, fans, brushe sieves, sandals, pouches, platters and ropes.—*Simmond's Dict.*

PHURZ, HIND. Betula bhojputra, also Betula jacquemontii, *Spach.*

PHUS, HIND. Potamogeton gramineus.

PHUT, HIND. Lonicera quinquelocular also Ballota limbata.

PHUT, a favourite garden flower of Sia It resembles a white rose.

PHUTAH, HIND. Fused glass, a drug.

PHUTAKSHA, see Ladak.

PHUT JATA, HIND. Leaves of Apium i volucratum.

PHUTKAL, HIND. A tree of Chota-Nagpo with a soft, white wood.—*Cal. Cat. Ex.* 186

PHUTKANDA, HIND. Achyranthes asper also Ballota limbata, Asparagus racemosus.

PHUTKI, GUZ. Alum.

PHUTTI, HIND. Uncleaned cotton.

PHUYEN, name of a river and bay i Cochin-China, the harbour, one of the best i the world, is in lat. 13° 23′ N.

PHWON or Mwoon, a Shan tribe on the Irawaddy above Bamo. The Ph-won are found to the north of Bamo and describe themselves emigrants from a country to the N. E. called Mo-toung, also Moo-long. Their language is said to be distinct.

PHYA, **Burm.** An image of Buddha.

PHYIPA. A marmot, in the countries of the Bhot people, in whose burrowings gold is found. It is supposed to be the country of the Iessdones, alluded to by Herodotus.—*Latham.*

PHYLLANTHUS. Of this genus of plants, Dr. Wight gives—

bacciformis.
leprocarpus.
madraspatensis.
multiflorus.
myrtifolius.
niruri.
polyphyllus.
rhamnoides.
rheedii.
scandens.
tetrandus.
turbinatus.
vitis idœa.

There is a small Phyllanthus tree very abundant at Maulmain, and in many other localities on the Tenasserim coast, which bears a small intensely sour fruit, that is valued by the natives.—*Mason* ; *W. Ic.*

PHYLLANTHUS, *Species*, *Brandis.*

Nasha, **Burm.**

A light coloured wood exhibiting a natural shine or polish when planed. A cubic foot weighs lbs. 35. In a full grown tree on good soil the average length of the trunk to the first branch is 30 feet and average girth measured at 6 feet from the ground is 6 feet.—*Dr. Brandis, Cal. Cat. Ex.*, 1862.

PHYLLANTHUS EMBLICA, *Linn. Willde.*

Embhca officinalis, *Gærtn.*, *W. Ic.*

Amluj,	Ar.	Nelli,	Maleal.
Awla Aunli,	Duk.	Amlaka,	Sans.
Shrubby phyllanthus,	Eng.	Topu nelli,	Tam.
Emblic myrobalan,	„	Topa nelli,	„
Aola, Anola,	Hind.	Oosarika,	Tel.
Aonli,	Mahr.		

This plant is held sacred to Siva, and its leaves are used in worshipping that deity as also his consort Durga or Kali. The Bengal Hindoos, however, do not hold it in veneration, but those of the North-west Provinces annually worship it on the festival of the Shava-ratri.

It grows to a pretty large tree and is cultivated throughout most parts of India, but is found wild throughout the Concan and Deccan. The tree is cultivated at Ajmeer, but grows wild in Kotah and Mewar.

The flower.

Vurdi amluj,	Ar.	Nelli poo,	Tam.
Aole ka-phool,	Hind.	Wusheri-ka pu,	Tel.
Amalaka,	Sans.		

This flower is supposed to be cooling and gently aperient, and is prescribed in conjunction with other articles in the form of electuary.—

The fruit.

Amluj,	Ar.	Amuleh,	Pers.
Aunla ka phal,	Duk.	Nelli-kai,	Tam.
Aunwera,	Hind.	Nelli pallum,	„
Aole ka phal,	„	Ooserekee kaia,	Tel.
Buah-malacca,	Malay.		

The fruit is used abundantly fresh or dried as a condiment, being pickled, also in dyeing, and to wash the hair with ; the fruit is very acid and astringent, and contains gallic acid. The fruit has been supposed beneficial as an adjuvant in treating scurvy. The fruit resembles the gooseberry, having a sharp acid juice, and is eaten raw by the natives, and is sometimes made into preserves ; the bark is strongly astringent and is used for tanning leather.—*Ainslie's Mat. Med.*, *p.* 94 ; *Riddell.*, *Genl. Med. Top.*, *pp.* 124, 208 ; *Roxb.* See Dyes, Emblica officinalis.

PHYLLANTHUS FASCICULATUS, *Poir.*

Phyllanthus kirganelia, *Willde.*
Kirganelia virginea, *Roxb.*
Bois de demoisille, **Pers.**

A plant of the Mauritius.

PHYLLANTHUS MADRASPATENSIS, *L.*

Sada hajur muni,	Beng.	Niruri,	Tam.
Kila-nelle,	Tam.	Nalla usarika,	Tel.
Nilla kadambu,	„		

Grows in the south of India, where it is used in medicine.

PHYLLANTHUS MULTIFLORUS, *Willde.*

Rhamnus zeylanicus,	*Burm.*	Anisonema multiflora,	*R. W.*
Katu niruri,	Maleal.	Nella puru gadda,	Tel.
Pula ver patta,	Tam.	Puru gadda,	„
Pula pattay,	„		

Its bark, which is also called Neerpoola puttay, from the plant growing near water, is occasionally employed by the natives of India in the process of dyeing reddish brown.—*Ains. Mat. Med.*, *p.* 194.

PHYLLANTHUS NIRURI, *Linn.*, *Wight*, *W. I.*, *Rh.*, *Roxb.*

Urinaria indica erecta,	*Burm.*, *Zeylan. Rheede.*	Herba mœroris alba,	*Rumph.*
Sadi hazur muni,	Beng.	Boovoo shiram,	Sans.
„ hajur mani,	„	Pitawakku,	Singh.
Bhuin aonla,	Duk.	Kizhanelli ; Kila nelli,	Tam.
Dan-kotti,	Jav.	Nela usirika,	Tel.
Kirga nelli,	Maleal	Yerra ooserekoo,	„

A common weed, flowers sessile, capsules dull, scabrous, young plants deeply dark red. The white root, bitter leaves, and tender shoots of this plant, are all used in medicine by natives of India, who consider them as deobstruent, diuretic and healing, the two first are generally prescribed in powder or decoction, in cases of an over-secreted, acrid bile and in jaundice, an infusion of the latter together with vendium seed, is supposed to be a valuable remedy in chronic dysentery. The root is bitter and astringent, and according to many writers, a powerful diuretic, used in several maladies—*O'Shaughnessy*, *p.* 55 ; *Ains. Mat. Med.*, *p.* 83.

PHYLLANTHUS POLYPHYLLUS, *Willd.* A very common shrub or small tree in the northern parts of Ceylon.—*Thw. En. pl. Zeyl.*, *p.* 282.

PHYLLANTHUS RETICULATUS.—? A shrub of the Coromandel side of India, the

Konkans, and Bengal, with a white and durable wood employed by the hill people for various economical purposes. It is frequently employed for ornamental hedges. Cattle eat the leaves.

PHYLLANTHUS RHAMNOIDES, *Retz.* Syn. of Melanthesa rhamnoides, *Retz.*

PHYLLANTHUS SIMPLEX, *Retz.*, *Roxb.*

Oochie userekee, Tel.

Fresh leaves, flowers, and fruit, with cummin seeds and sugar are made into an electuary, and given by the natives as a remedy for gonorrhœa; fresh leaves bruised with buttermilk are used to cure the itch.—*Roxb.*, iii, *p.* 654; *O'Shaughnessy*, *p.* 552.

PHYLLANTHUS SIMSIANUS, *Wall.*, also Phyllanthus turbinatus, *Roxb.* Syns. of Melanthesa turbinata, *R. W.*

PHYLLANTHUS VELUTINUS, *Mull.* Syn. of Glochidion velutinum, *W. Ic.*

PHYLLANTHUS VIROSUS, *Roxb.*

Fluggea virosa, *Roxb.*

Among the Circar mountains, where this chiefly grows, it is frequently a middle-sized tree. In the forests of the low countries it is much smaller or only a large shrub. It flowers during the hot and beginning of the wet season. The bark is a strong astringent and possesses the power of intoxicating fish, when thrown into the water where they are, which, like the berries of Menospermum cocculus, renders them easily taken.—*Roxb. from Rohde MSS.*

PHYLLANTHUS URINARIA, *Linn.* ?

Urinaria indica spinosa, *Burm.*
Herba mœroris rubra, *Rumph.*
Jeru kirganelli, Maleal of *Rheede.*

Hajur muni,	Beng.	Mavirang china,	Jav.
Binko-hamba,	Singh.	Tsieru kuganeli,	Maleal.
Bin-nelli,	„	Erra usirika,	Tel.

PHYLLANTHUS VITIS IDÆA, *Roxb.*

Melanthesa rhamnoides *Retz.*		Khaton, nirouri, *Rh.*	
Hunkata jooli,	Beng.	Yerrapooroogoodoo,	Tel.

This is found wild in every part of India, and seems to thrive well in all soils and situations, but amongst the mountains, it grows to be a tree; whereas in the low lands, it is generally a large shrub. It flowers and produces fruit all the year round. The wood is white, hard and durable. The hill people employ it for various economical uses. Cattle eat the leaves. In drying for a hortus siccus they always become very black; it is frequently employed for ornamental hedges in gardens for which end it is well chosen, as its thick evergreen foliage and constant succession of beautiful red berries give it a pretty appearance.—*Roxb.; Rohde.*

PHYLLIDIADÆ, a family of molluscs.

Phyllidia, *rec.* 4 sp.
Diphyllidia, Syn. Pleurophyllidia, Linguella, *rec.* 4 sp.

PHYLLIUM SICCIFOLIUM, Walking leaf insect.

PHYLLOCLADUS TRICHOMANOIDES, is the Sanekaha or Tawaiwai or Pitch-pine timber tree of New Zealand.

PHYLLOPNEUSTE OCCIPITALIS. *Blyth Jerdon.* This bird was known from a specimen procured in S. India by Mr. Jerdon.—*Beng. As. Soc. Jour.*, *Nov. of* 1854.

PHYLLORNINÆ, a sub-family of birds comprising 3 gen. 12 sp., viz. 7 Phyllornis; 4 Iora: 1 Irena puella.

PHYLLOSCOPINÆ, a sub-family of birds, the tree-warblers, of the family Sylviadæ, viz.

Neornis flavo-livacea, *Hodgs.*, Aberrant tree-warbler, Nepal, Sikkim.
Phyllopneuste rama, *Sykes*, all India.
Phylloscopus tristis, *Blyth*, Brown trew arbler, all India.
„ fuscatus, *Blyth*, Calcutta, Arakan.
„ magnirostris, *Blyth*, all India.
„ trochilus, *Linn.*, Europe, W. India.
„ lugubris, *Blyth*, all India.
„ nitidus, *Latham*, „
„ viridanus, *Blyth*, Lower Bengal, Nepal.
„ indicus, *Jerdon*, Central India.
Reguloides occipitalis, *Jerdon*, Nellore, Dehra.
„ trochiloides, *Sundeval*, Himalaya.
„ chloronotus, *Hodgs.*, India, China.
„ viridipennis, *Blyth*, Tenasserim, Darjeeling.
„ erochroa, *Hodgson*, Nepal, Sikkim.
Culicipeta burkii, *Burton*, Sub-Himalaya, Calcutta.
„ cantator, *Tickell*, Central India to Assam.
Abrornis schisticeps, *Hodgs*, Missuri, Nepal.
„ affinis, *Hodgs.*, Nepal, Sikkim.
„ albogularis, *Hodgs.*, Nepal, Sikkim.
„ castaneoceps, „ „ „
Tickella hodgsoni, *Moore*, Sikkim, Nepal.
Regulus himalayensis, *Blyth*, Himalaya.—*Jerdon.*

PHYLLOSOMA, a genus of the crustacea.

Phyllosoma communis, *Edws.*, African and Indian seas.
„ stylifera, *Edws.*, Indian ocean.
„ affinis, *Edws.*, New Guinea seas. [seas.
„ clavicornis, *Edws.*, African and Indian
„ longicornis, *Edws.*, New Guinea.
„ freycinetii, *Edws.*, „
„ laticornis, *Edws.*, India seas.
„ indica, *Edws.*, Indian ocean. [seas.
„ brevicornis, *Edws.*, African and Indian
„ stylicornis, *Edws.*, Indian ocean.

PHYMATEA PUNCTATA. This large, wel known, beautiful locust, has a scarlet abdomen and yellow and bronze above. Its ravag in Ceylon are not continuous in the coffee tree, but are occasionally very annoying. A swar settled on a field of one year old coffee an gnawed the bark off the stems, causing the to throw out many shoots and permanently di figured five per cent. of the trees. They not touch the Illuk grass, Saccharum konig *Retz.*, but seem only to attack cultivated plan and trees. At Tangalle they destroyed tobac plantations, and at Matillee in Kandy th native grain crops were injured by these locust The larvæ and pupæ are as destructive as th perfect insects, but this seems, fortunately, the only species of locust that does any real injury in Ceylon, and this injury is in importance not to be compared with that done by other species in other countries.

PHYOO, Burm. A tree of maximum girth 1½ cubits, and maximum length 17 feet. Abundant in Tavoy and Mergui, also in less abundance in Amherst province. When seasoned, it floats in water. It has a tolerably good strong wood, but not with much tenacity of fibre.—*Captain Dance.*

PHYSA, a genus of molluscs.

PHYSALIA, one of the Acalepheæ, its filaments touching the skin, impart a stinging pain, *Figuier.*

PHYSALIA CARAVELLA, the Portuguese man of war.

PHYSALIA PELAGICA, *Lamarck,* the Portuguese Man-of-War, it is the Holothuria physalis of Linnæus. It is moved along the surface of the water by an inflated oblong bladder, which catches the wind, and underneath the bladder are many tentacula which sting severely.—*Bennett's Gatherings.*

PHYSALIA UTRICULUS, the Portuguse Man-of-War, has a large air vesicle or bladder generally raised above the surface of the water and has purple and azure hues for the lower surface of its body having many sucking tubes and long tentacles, in blue and violet which can be extended and can seize fish.—*Hart.*

PHYSALIS ALKEKENGI, the Winter-cherry, is a native of Europe on exposed hills, and of Japan. The corolla is a dirty white; the calyx reddish-yellow, inclosing a red berry. The fruit of this plant was well-known to the ancients, and is described by Dioscorides. In England, however, the fruit is seldom eaten, and the plant is cultivated chiefly on account of its appearance. In Arabia and Armenia, Spain and Germany however the berries frequently supply the place of other eatable fruits. They have a sub-acrid and not unpleasant flavour, but the persistent calyx with which they are invested is very bitter. Ray speaks of these berries as a preventive of gout, and others have extolled them as diuretics, and recommended them in the treatment of dropsy. The Physalis alkekengi, having some repute as a febrifuge, MM. Dessaignes and Chautard analysed it, and succeeded in procuring a bitter substance, which they called Physaline forming a light white powder with a very slight shade of yellow, leaving in the mouth after a time a very marked taste of bitterness. This substance does not seem to have been used medicinally, nor has its value, if any, been ascertained. Were it otherwise it might be well to examine Physalis flexuosa of British India, used in native medicine as stimulent and diaphoretic. Honigberger, p. 324, tells us that its fruit (Halicacabum), the winter cherry, is what the easterns call Kagnuj, which the British apply to Physalis flexuosa or somnifera, as this is the name of the plant in the lower parts of Hindoostan, in Bengal? The winter-cherry is used by the Hakims as a diuretic, and in ulceration of the urinary bladder. It is said to be purgative and is much used in veterinary medicine. The winter-cherry is now regarded as useless.—*Eng. Cyc.*; *Ind. Ann. Med. Sci. for April* 1856, *p.* 384; *Honigberger, p.* 324; *Hogg, p.* 551.

PHYSALIS ANGULATA, *Linn.*

Country gooseberry. | The tooth-leaved winter-cherry.
Winter-cherry.

Jouz-ul nuruj,	ARAB.	Agni-munda,	SANS.
Poplah,	DUK.	Takali pallam,	TAM.
Kaknuj,	PERS.	Takkali pundu,	TEL.

This has got the name of country gooseberry in India, from its resemblance in taste to that fruit: it is the produce of a small bush.—*Ainslie, p.* 233.

PHYSALIS FLEXUOSA, *Linn., Willde.*

Physalis somniferum var. flexuosa, *Hort. Cal.*
Phyllanthus urinaria, *Linn.*

Asgand'h,	HIND.	Agsend,	PANJAB.
Ashwa-gandah,	„		

This plant is commonly found all over India, the roots are employed medicinally, and are considered good in rheumatic and dyspeptic disorders, especially those accompanied by flatulency: they are of a warm nature, calculated to promote all the secretions. The root is not given alone; but is combined with other medicines and mesalihs. The Punjabees call the plant agsend not as stated by so many authors as also in the Bengal Dispensatory, Asgend. Asgend (Ysgund) Nagowri, is a root officinal with the native doctors in the Punjab, and is imported from Hindoostan. The seeds used by Honigberger under the name Physalis flexuosa semina, were not the seeds of the Lahore plant, but had been imported from Mooltan. They are kept by the druggists, who call them Panir ke bij. Piddington states that Paneru is Physalis flexuosa. Panir is the Persian name of cheese, and as these seeds are employed in the coagulation of milk for making cheese, the derivation of its name is palpable. The plant which yields these seeds grows on the west side of the Indus river. The leaves which are very bitter, are used as an infusion by the Lohana in fever. Galium verum, *Linn,* was formerly used in Europe for the coagulation of milk. Its flowers are yellow, those of Paniru not known. The fruit of Physalis flexuosa is accounted diuretic, and the root and leaves powerfully narcotic, the latter are used in India as a poultice to inflamed tumors. Common at Ajmere the roots are sold by punsaris, and are considered stimulating and diaphoretic.—

Irvine's, Gen. Med. Top. pp. 123, 183 : *Honigberger, p.* 324.

PHYSALIS PUBESCENS, Downy winter-cherry, is a native of America cultivated in the East Indies. The whole plant is densely clothed with down. The corolla is yellow marked with five round brownish-violet spots at the throat. The berries are yellowish when ripe; they are called gooseberries, or Brazil gooseberries, and when preserved with sugar make an excellent jam. It is the Camara of Brazil.—*Eng. Cyc.*; *Genl. Med. Top., p.* 183; *Mason.*

PHYSALIS PERUVIANA, *Linn., Roxb.*

Tophlee,	Beng.	Tapuria,	Hind.
Teperiya,	„	Macao,	„
Tapureea,	„	Budda busara,	Tel.
Pung-ben,	Burm.	Budama,	„
Cape gooseberry,	Eng.	Busara kaya,	„
Peru winter cherry,	„	Pambudda,	„
Brazil gooseberry,	„		

The winter-cherry plant, commonly called Cape gooseberry or Brazil cherry, grows luxuriantly in a good soil. The seed should be sown at the commencement of the rains. The young plants when about six inches high should be set out in rows at least two feet apart from each other, sufficiently wide apart, in fact, to allow the gardener to pass easily between them. They may be grown either on sticks or on trellis, and should be carefully pruned. The young shoots bear the finest fruit, and if carefully attended to, will bear almost all the year round,—the excellence and abundance of the fruit well repaying for an extra care bestowed on the cultivation of the plant. Being of easy culture, it is hardly known to what a state of improvement this apparently worthless fruit may be brought. Produced under an improved method of cultivation, it is a most wholesome and useful fruit; none more so for tarts, or even for dessert, and for making jam or preserve. After seeing the common fruit, grown without care or attention, one would scarcely credit the size of that produced under proper and careful management. The bush should every now and then be carefully pruned, cutting out the old wood, as the new shoots provide the finest flavoured fruit.—*Riddell.*

PHYSALIS SOMNIFERA, *Nees. var.* P. Flexuosa, *Linn., Roxb., W. Ic., Rheede, Willde.*

Ashwagundha,	Beng., Sansc.	Pevetti,	Maleal.
		Amkalang,	Tam.
Asgandh,	Duk.	Amukanam	„
Flexuose winter-cherry,	Eng.	Amkalang kelangu,	„
		Penneru Aswagandhi,	Tel.
Usgand, Kaknuj,	Hind.	Pilli vendram,	„

A native of rocky places on the sea coast of the south of Europe and the East. Grows in Bengal and on the coasts of India. Is used in medicine. It has several shrubby branched stems, round and downy. The leaves are in lateral pairs, short-stalked, ovate, downy, and from two to four inches long. The flowers ar axillary, subsessile, small, crowded, and of greenish-yellow or white. The berry is re and smooth, and about the size of a pea. Thi plant is the Στρύχνοσὑπνωτικὸς of Theophrastus ('Hist. Plant,' 9, 12); and the Στρύχνο αλικάκαβον of Dioscorides (4, 72). It is reputed to be narcotic, diuretic and alexipharmic. The leaves steeped in oil are in Indi applied to inflammatory tumours, and they ar used in a similar way in Egypt. Kunth recognised this plant in Egyptian mummies.—*Eng Cyc.*; *O'Shaughnessy.*

PHYSETER GIBBUS, *Schreber*, P. bonnaterre and P. macrocephalus, *Linn.* Syns. Catodon macrocephalus.

PHYSIC-NUT TREE, Jatropha curcas. Th leaves warmed and rubbed with castor oil a used as a poultice to hasten suppuration; see excessively drastic. The milky juice boile with oxide of iron makes fine black varnis the juice dyes linen black, the embryo is sai to be the source of the purgative element, an that by removing the embryo the nut becom bland and alimentary; MM. Fee and Humboldt support this opinion. The physic nut a powerful cathartic, one seed, or three or fo drops of the expressed oil, being a sufficient do In the Dekhan, this plant is used as a hedg from its easy growth; it flowers in the rains.

Physic-nut oil.

Jangli erandi ka tel,	Hind.	Adavi-amada-poo Noon	
Kaat-amunak,	Tam.		T

A beautiful pale yellow oil is procured fro the seeds of the angular-leaved physic-nut, a it is used by the natives in medicine and as lamp oil. About 700 tons of this oil was i ported into Liverpool in 1850 from Lisbon, f the purpose of dressing cloth, burning, & It has been imported into England, as a su stitute for linseed oil. The colour is somewh paler than the best linseed oil. It can be o tained in some parts of the country where it plentiful, for little more than the cost of man facture. It is now chiefly used in lamps. the Madras Exhibition of 1855, a light stra coloured specimen was shown by Lieutena Hawkes and several good but rather hig coloured samples from the Tanjore and Trava core Local Committees and the Madras Tari —*Mason*; *O'Shaughnessy, p.* 558; *Simmond Riddell.*

PHYSIC-NUT, GLAUCOUS LEAVE Jatropha glauca.

PHYSIGNATHUS COCINCINENSIS. S Agama.

PHYSOLOBIUM, a genus of the Legum nosæ plants, natives of the Swan River, a take their name from Physa, a bladder, a lobos, a pod, alluding to the shape of the se vessels.—*Riddell.*

PHYSOSTOMI, an order of fishes of the sub-class Teleostei, as under:

Sub-Class, I.—Teleostei.

Order IV.—Physostomi.

Fam.—27 Symbranchidæ.

First Group,—*Amphipnoina.*

Amphipnous. *Mull.* | Cuchia, *Ham.*,*B.* Bengal.

Second Group,—*Symbranchina.*

Monopterus javanensis, *Lacep*, Siam to N. China Japan, E. Archipelago.
Symbranchus bengalensis, *McClell.*, Bengal, E. I. Archipelago, Dampiers Archipelago.
„ caligans, *Cant.*, Penang.

Third Group,—*Chilobranchina.*

Chilobranchus dorsalis, *Rich.*, Australia, Van Diemans Land.

Eighth Group,—*Ophichthyina.*

Liuranus semicinctus, *Benn.*, Indian Pacific ocean.
Ophichthys rostellatus, *Rich.*, W. Africa, Japan.
adspersus, *Gthr.*, China.
dicellurus, *Rich.*, China.
hyala, *H. B.*, Bengal.
pallens, *Rich.*, China.
brockmeyeri, *Blkr.*, Amboyna, Celebes.
rhytidodermatoides, *Blkr.*, Penang, Java.
rhytidoderma, *Blkr.*, Java.
maclellandi, *Blkr.*, Java.
marginatus, *Ptrs.*, Eastern Africa.
crocodilinus, *Benn.*, Mauritius, E. I. Archipelago, Japan, Pacific.
Achirophichthys typus, *Br.*, Celebes.
Opichthycirroehilus, *Blkr.*, Amboyna, Formosa.
serpens, *L.*, Mediterranean, E. Atlantic, Japan, Australia.
arnatissimus, *Kaup.*, Malabar.
versicolor, *Rich.*, E. I. Archipelago.
bonapartii, *Kaup.*, Amboyna.
cephalozona, *Blkr.*, E. I. Archipelago, Japan, N. Australia.
apicalis, *Benn.*, Indian seas, China seas.
grandoculis, *Cant.*, Penang.
singapurensis, *Blkr.*, Singapore.
macrochir, *Blkr.*, Java.
urolophus, *Schleg.*, Japan.
polyophthalmus, *Blkr.*, Amboyna.
altipinnis, *Kaup.*, Celebes, Amboyna.
calamus, *Gthr.*, Australia.
chinensis, *Kaup.*, China, Sumatra.
tapeinopterus, *Blkr.*, Java, Celebes.
chilopogon, *Blkr.*, Celebes.
playfairii, *Gthr.*, Zanzibar.
boro, *H. B.*, E. Indies, Sea and fresh waters.
cancrivorus, *Rich.*, Tropical America, Philippines, E. I. Archipelago, Australia.
hœvenii, *Blkr.*, Celebes.
hypselopterus, *Blkr.*, Banjarmassing.
colubrinus, *Boddaerf*, E. I. Archipelago, Pacific.
maculosus, *Cuv.*, Indian ocean.
anceps, *Cant.*, Penang sea.
moluccensis, *Blkr.*, Batian Ceram.
fuscus, *Zuiew.*, Madagascar.
polyophthalmus, *Blkr.*, Java, Sumatra, Batian.
kaupi, *Blkr.*, Celebes.
bicolor, *Kaup.*, Borneo.
timorensis, *Gthr.*, Timor.
orientalis, *McClell.*, Ceylon, S. India.
melanotænia, *Blkr.*, Amboyna.
marmoratus, *Blkr.*, Sumatra.
guichenoti, *Kaup.*, Taluti.
longipinnis, *Kner & St.*, Samia islands.
kirkii, *Gthr.*, E. Africa, Rovuma bay.
quadratus, *Rich.*, China.
acutirostris, *Barner*, Open sea under equator.
brachyurus, *Poey.*
magnifica, *Abbott.*
californiensis, *Garrett.*
rostratus, *Bl.*
cephalapeltis, *Blkr.*

Ninth Group.—*Ptyobranchina.*

Moringua raitaborna, *H. B.*, Bengal, Batu.
lumbricoidea, *Rich.*, Sumatra, Hooghly, Amboyna.
bicolor, *Kaup.*, Timor.
javanica, *Kaup.*, Java, Celebes, Ceram, Timor, Fiji, Japan.
abbreviata, *Blkr.*, E. I. Archipelago.
macrocephala, *Blkr.*, Timor.

Murænidæ Engyschistæ.

Tenth Group.—*Murænina.*

Muræna helena, *L.*, Mediterranean, Atlantic, Mauritius, Australia.
pavonina, *Rich.*, Southern seas.
pardalis, *Schleg.*, Mauritius, Cocos, Java, Japan.
lentiginosa, *Jen.*, Galapagos, Pacific coast of Central America.
meleagris, *Shaw*, Indian and Pacific oceans.
stellifera, *Rich.*, Madagascar.
margaritophorus, *Blkr.*, Amboyna.
punctata, *Bl.*, *Schn.*, S. India coast.
nudivomer, *Gthr.*, Zanzibar.
ruppellii, *McClell.*, Moluccas, E. I. Archipelago.
petelli, *Blkr.*, Red sea, Indian ocean, E. Archipelago, Mauritius.
reticularis, *Bl.*, China, Japan.
punctato-fasciata, *Blkr.*, E. Archipelago, Amboyna.
tessellata, *Rich.*, Indian Ocean, E. Archipelago.
reevesii, *Rich.*, China, Japan.
tigrina, *Rupp.*, Red Sea.
fimbriata, *Benn.*, E. Archipelago, Mauritius, Australia.
microspila, *Gthr.*, E. Archipelago.
melanospila, *Blkr.*, Sumatra, Bouro.
polyophthalmus, *Blkr.*, Celebes.
undulata, *Lacep.*, Indian and Pacific Oceans, Cocos.
blochii, *Blkr.*, Zanzibar, South Africa.
macassariensis, *Blkr.*, China, Celebes, N. Australia.
formosa, *Blkr.*, Ceram, Amboyna.
psendothyroidea, *Blkr.*, Celebes, Amboyna,
tile, *H. B.*, E. Indies, Calcutta, Indian Ocean.
thyrsoidea, *Rich.*, Penang, Archipelago, China, Tonga islands.
buroensis, *Blkr.*, Eastern Archipelago.
polyuranodon, *Blkr.*, E. Archipelago, fresh water.
duivenbodii, *Blkr.*, Ternate.
anatina, *Lome.*, Madeira.
picta, *Ahl.*, Indian and Pacific Oceans.
nubila, *Rich.*, E. Archipelago, Japan, Norfolk islands.
mulleri, *Kaup.*, Archipelago.
sagenodeta, *Rich.*
richardsoni, *Blkr.*, Indian Ocean, E. Archipelago.
tenebrosa, *Bich.*, Polynesia.
marmorea, *Val.*, Galapagos.
flavomarginata, *Rupp.*, Red Sea, Indian and Pacific Oceans.
callarhyncha, *Gthr.*, Freemantle, Australia.
hepatica, *Rupp.*, Red Sea, E. Archipelago, Japan.
euptera, *Gthr.*, Raoul island.
cinerascens, *Rupp.*, Red Sea.
afra, *Bl.*, Tropical Atlantic, Indian Ocean, Australia.
moluccensis, *Blkr.*, Amboyna.
sathete, *H. B.*, Bay of Bengal, Penang.
schismatorhynchus, *Blkr.*, E. Archipelago.
acutirostris, *Abbott*, Sandwich islands.
macrurus, *Blkr.*, Indian Ocean, E. Archipelago.

brummeri, *Blkr.*, Timor, Ceram.
polyodon, *Blkr.*, Amboyna.
zebra, *Shaw.*, Indian Archipelago, Pacific.
polyzona, *Rich.*, E. Archipelago.
nebulosa, *Ahl.*, Indian and Pacific Oceans.
scanthospila, *Blkr.*, E. Archipelago.
fascigula, *Ptrs.*, Mozambique.
ambliyodon, *Blkr.*, E. Archipelago.
rhodochilus, *Blkr.*, Rutts, Bouri.
auloptera, *DeFilippi*, Mauritius.
wilsoni, *Bl.*, *Schn.*
stellata, *Lacep.*
hauy, *Lacep.*
fulva, *Risso.*
marmorata, *Q. & G.*
lineata, *Less.*
flaveola, *Less.*
cerino-nigra, *Rich.*
blochii, *Kaup.*
micropœcilus, *Blkr.*
mauritiana, *Kaup.*
nigrolineata, *Kaup.*
flavimarginata, *Kaup.*
chrysops, *Kaup.*
multiocellata, *Poey.*
erebus, *Poey.*
appendiculata, *Guichen.*
porphyreus, *Guichen.*
kaupii, *Abbott.*
erosta, *Abbott.*
scriptus, *Bl.*, *Schn.*
canina, *Q. & G.*
mordax, *Ayres.*
Gymnomuræna tigrina, *Less.*, Indian Ocean, East Archipelago, W. Pacific.
marmorata, *Lacep.*, E. Archipelago, Oualan island.
concolor, *Rupp.*, Red Sea, Cape York, Australian Straits.
fusca, *Ptrs.*, Amboyna.
bennettii, *Gthr.*, Mauritius.
Enchelycore bleckeri, *Kaup.*, Pacific ?
Helmichthys oculus, *Peters*, Amboyna, Madagascar.
Leptocephalus acuticaudatus, *Kaup.*, Malabar.
hypelosoma, *Bleeker*, Celebes.
brevicaudus, *Peters*, Lucon Maybate.
dentex, *Cantor*, Zanzibar, Amboyna.
tænia, *Cuv.*, Indian Ocean, Cape of Good Hope, Australia.
ceramensis, *Bleeker*, Ceram.

FAM. 29,—*Pegasidæ.*

Pegasus, draconis, *L.*, volans, *L.*, natans, *L.*, lacifer, *Kaup.*

—*Gray's Cat. of Fishes*, *Vol.* viii, *pp.* 17-145.

PHYTELEPHAS MACROCARPA.

Palma de marfil, SP. | Marfil vegetal.
Ivory nut.

PHYTOLACCACEÆ, *Lindl.* The virginian Poke tribe of 4 gen., 5 sp., viz., 1 Phytolacca; 1 Rivina; 1 Gisekia; 2 Bosea.

PHYTOLACCA, a genus of plants, the type of the natural order Phytolaccaceæ. Phytolacca acinosa, Roxburgh describes as from Nepal, where the leaves are eaten after boiling, as is the case with the American species described below. It flowered in the Botanic Garden of Calcutta about the end of the cold season. Phytolacca decandra, is the poke weed of North America. Bigelow states that in emetic properties the root is very nearly equal to Ipecacuanah, its use is, however, sometimes attended with slight narcotic symptoms. It is also us as an external application in itch, and tin capitis. Phytolacca icosandra, is a herbaceo plant; leaves alternate, entire, without s pules; flowers racemose. A tincture from t ripe berries has the reputation of being remedy for chronic rheumatism and syphilit pain.—*Riddell; O'Shaughnessy*, *p.* 527.

PHYTOLOPSIS, see Hydridæ.

PIA BANS, HIND. Dendrocalamus tuld *Nees.*

PIACABA, BRAZ. Attalea funifera, most valuable palm, found in the native fore of the maritime provinces of Brazil, the fib of its leaf stalks and other parts furnish t best cordage of South America. A coar black fibre is obtained from the dilated base the petioles. It is collected by the nativ and partly used for home consumption, par exported to Europe, tied up in bundles several feet in length, and sold in London und this name at about £14 the ton. It is man factured into cordage in its native countri and as it is light, cables made of it do not si in the water.—*Seeman.*

PIADASI, a name of Sakya muni. See In scriptions, Buddha, Sakya.

PIAK, HIND. Alnus, *sp.*

PIAL, SANS. Pial, Pialu, Piar, HIND. Fr of Chirongia sapida, Buchanania latifolia.

PIALA, HIND. A cup. Amongst the R puts the cup for opium solution. Colonel T relates how a Rajput chief with courtesy i vited another to his castle, entertained hi and pledged his health and forgiveness in t "munwar piala:" they made merry, and in t cup agreed to extinguish the remembrance the feud. Munwar piala is a favourite expr sion, and a mode of indicating great friendshi "to eat of the same platter (thali), and dri of the same cup (piala.)"—*Tod's Rajasth* *Vol.* i, *p.* 183.

PIALA, a cup, a phial, the touch-hole o cannon.

PIALI, BENG., SANS. Buchanania latifol

PIAM PAYU, BHOT. Sciuropterus albo ger, *Hod.*, *Bly.*

PIANE, IT. Deals.

PIAPIS, see Waygiou.

PIAR CHERONJI, HIND. Buchanania tifolia.

PIARI, see Kelat.

PIA SAL, BENG. Terminalia tomento *W. & A.*

PIASTRE. The value of the Eyn pias varies from 2*s.* to 2*s.* 6*d.*—*Rich's residence* *Koordistan*, *Vol.* ii, *p.* 3.

PIAZ, HIND., PERS. Allium cepa, also ascalonicum, *Linn.*, also Iris kamaonensis, Bar ni piaz, and Chiri piaz, HIND., are Allium r bellum.

PIAZI, Hind. Asphodelus fistulosus.

PIAZZA, It. A verandah, a balcony.

PICA, a genus of birds. The Pica bactriana is acknowledged by Mr. Blyth to be a variety or race of the European magpie, also he considers the Chinese variety almost identical. The Bootan bird is at present shown to be the same as the P. megaloptera.—*Adams.*

Pica caudata, the Magpie of Europe, W. Asia, Siberia, N. E. America, China? Japan? Replaced in Affghanistan and W. Tibet by P. bactriana, in E. Tibet by P. bottanensis, in China and Japan (?) by P. media and Barbary by P. mauritanica.

PICA BANS, Beng. Bambusa tulda, *Roxb.*

PICE, corruption of pysa, a copper coin of which four go to the anna, precisely an inch in diameter, weighing 100 grains troy, which is a legal tender for one sixty-fourth of the Company's rupee, and the double pice weighing 200 grains for one thirty-second of the rupee. This name is applied to a weight, a variable division of the seer, ranging in different localities from 156¼ grains up to 276½ grains.—*Simmond's Dictionary.*

PICEA WEBBIANA, *Lamb.* Silver fir.

var. α Pindrow.
var. β Khutrow.

Tos,	Beas.	Himalayan spruce fir,	Eng.
Dhunnu,	Chenab, Ravi.	Webbian-pine,	„
Bag; Pe; Rail,	„	Silver fir,	„
Salle: Sara,	„	Re,	Ravi.
Pahudar,	Jhelum.	Moranda,	Panj.
Pahundar,	„	Krok,	Sutlej.
Rewari,	„	Spun,	„
Badar; Budar,	Kashmir	Pandrai kulre,	„
Spruce fir,	Eng.	Bajur,	Tr.-Ind.

This is a common plant of Hazara, Murree and Kaghan, and is found in the Sutlej valley between Rampur and Sungnam at an elevation of 8,000 to 11,000 feet. The timber is not so much valued as that of the other pines, but is used for shingles in roofing, being cleft. It is a fine straight tree, with short horizontal or drooping branches, and its leaves very variable in length. Dr. Stewart says the two varieties have by some been called species but they probably depend on climate, and seem not to be very constant or well marked. It frequently forms dense forests at or near the highest belt of arboreous vegetation up to the Indus. Griffith found it in Kaffiristan and Bellew collected it near the Sufed Koh, Trans-Indus. It attains a great height (though he had nowhere seen it up to the 200 feet mentioned by Hoffmeister). Hooker mentions a tree in Bhotan of 30, and Madden one of 32 feet girth. The fibres of the trunk are often twisted and the wood is white, soft, coarse-grained, and rots readily when there is much moisture, this is one of the least valued of Himalayan conifers. Even on the Beas, however, it is said to last as shingles for two or three and under cover for five or six years. In Kashmir, Vigne states that it is used for door frames, and in the drier climates of Kanawar and Lahoul it is a good deal used. And in Murree, where the rainfall is smaller than to the east, and where there is a dearth of the better timbers, this is frequently used for shingles and indoor work even in European buildings, and is found to last fairly well. In parts of the Jhelum basin the twigs and leaves are much used as fodder. To non-botanical eyes, says Mr. Powell, there is a kind of resemblance between this tree and Abies smithiana, in their straight growth and rugged style of foliage: but on closer inspection the difference is great—the A. smithiana has a tassel-like pendulous style of branch, unlike the crisp, rugged boughs of Webb's pine: the leaves of Smith's pine are green, those of Webb's besides being much shorter, are dark-green and white underneath.—*Cleghorn's Punjab Report p.* 63; *Lt.-Col. Lake's Jullundhur Report, quoting Balfour, p.* 189; *Mr. Barnes' Kangra Settlement Report, para.* 145; *Dr. Thompson's Travels in Western Himalaya and Tibet, p.* 271; *Dr. J. L. Stewart's Punjab Plants, p.* 224.

PICHAMA, or Peechengah, Luffa acutangula

PICHA PASJUM, Hind. Cucumis melo.

PICHAURA, one of the pair of drums, called 'tabla'—without the spot.

PICHCHIKA BURAGADDI, Pichchikabura gaddi, Tel., also Ambrosinia unilocularis, *L.*

PICHCHUKA KALU, Tel. Pharnaceum cerviana, *L.*

PICHHRA, Hind.? A tree of Chota-Nagpore, with a soft white wood.—*Cal. Cat. Ex.* 1862.

PICHINGAH, Maleal. Luffa acutangula, *Roxb.*

PICHKA, Hind. Odina wodier.

PICHKARI, a stomach-pump; syringe for injection.

PICHOOLEE, Uria? a large creeper very common in Ganjam and Gumsur, with a circumference of 1¼ feet. The bark is used medicinally for wounds and contusions.—*Captain Macdonald.*

PICIDÆ, a family of birds, of which there are six sub-families, many genera and species in the East Indies;

Fam.—Picidæ.

Sub-fam. Campephilenæ, 6 gen. 16 sp. 1. Campephilus, 2 Hemicercus, 4 Hemilophus, 3 Closocolaptes, 2 Brachypterus, Tiga.

Sub-fam. Gecininæ, 4 gen. 19 sp. viz., 12 Gecinus, 1 Gacinculus, 3 Meiglyptes, 3 Micropternus.

Sub-fam. Picinæ, 2 gen. 15 sp. viz., 1 Dryocophus, 14 Picus.

Sub-fam. Picumninæ, 2 gen. 3 sp. viz., 1 Picumnus, 2 Sasia.

Sub-fam. Yuncinæ, 1 gen. 1 sp. viz., 1 Yunx torquilla.

Sub-fam. Indicatorinæ, 1 gen. 1 sp. viz., 1 Inditor xanthonotus. See Birds.

PICKLES.

Achar, Hind.

Pickles are largely made and used by the natives of the East Indies and are largely imported for European consumption. The mango, and the tamarind, with capsicum, salt, spices and sugar, in vinegar, are the more common substances used. In an examination of the European pickles by Dr. Hassall, he found "Girkins," on close examination, often turn out to be but shrivelled or sliced cucumbers; the "young tender beans" to be old and tough; the "cauliflowers" to have run to seed, and the "red cabbage" to be nothing more than white cabbage turned into red by colouring matter, as a dyer would change the colour of a dress; further, that amongst the vegetables, not unfrequently employed for the purpose of pickle-making, were some which do not enter into the calculation of the epicure, as vegetable-marrows,—which, when cut into pieces, form a very respectable imitation of cucumbers,—and sliced turnips, the identification of which would be apt to puzzle even a botanist as well as certainly all those who are uninitiated in the secrets of a pickle-manufactory. The vinegar used for pickling is of a very weak description, the percentages of acetic acid ranging between 1·48 and 2·91. Vinegar of good quality ought to contain from four to five per cent. of pure acetic acid. Nineteen out of twenty of the vinegars submitted to analysis, poor as they were, yet owed a portion of their acidity to sulphuric acid, the amount of which varied, in the different samples, from 38 to 2·52 in the 1,000 grains; the largest quantity of this acid being detected in the vinegars in which the red cabbages were pickled. In sixteen different pickles analysed for copper, that poisonous metal was discovered in various amounts: two samples contained a small quantity; eight rather much, one, a considerable quantity; in one, copper was present in highly deleterious amount; and in two, in poisonous amounts. Pickles which contain the largest quantity of copper, are those which consist entirely of green vegetables, as girkins and beans. Another form of pickle is "chatni," of which there are many varieties, composed of mango, tamarind, with red pepper, sambhar salt, spices, sugar, vinegar, and a number of other ingredients, varied according to the taste of the maker, or according as he wishes to produce a hot, sweet acid, or pungent "chatni." All these articles are used as relishes by natives with their dhol and rice and chapatties. The native method of making pickles is very different from the European pickles of Crosse and Blackwell, but are prepared to last only a few days, and are consumed as soon as made. Pickles are prepared with vinegar, native vinegar being generally sugar-cane juice fermented till it turns acid.—*Hassel, Food and its adulterations, p.* 383; *Powell.*

PICKTHA, an Indian and Burmese weight of 140 tolas, about 3½ pounds.—*Simmond's Dictionary.*

PICRORRHIZA KURROOA, *Royle.*

Veronica lindleyana. *Wall., Cat.*

Tita,	Beng.	Kurrooa,	Panjab.
Bitter root,	Eng.	Hoon-ling,	Tib.

The root.

Karru,	Panjab.	Kali kootkee,	Hind.
Karwa,	Hind.	Kaur,	"
Pathan bed,	"		

This plant grows in Gosainthan, Kemaon, and Kedarkanta, on the hills of Hindostan, as also in the Cashmerian mountains. It is a fleshy rooted perennial. Flowers sessile, deep blue, in dense spikes. The root is intensely bitter, and used as a medicine in India. The root is much in use at Lahore; but more in veterinary than in human medicine. Tita or teeta is a general name given in Bengal to the roots of bitter herbs, but is given in East Nepaul and in the Yaloong valley, to the Picrorrhiza, which is used as a febrifuge: it is a plant allied to speedwell, and grows at from 12,000 to 15,000 feet elevation, and is a powerful bitter, the term kali kootki is applied also to black Hellebore, the Helleborus niger, an acrid purgative and poison. It is found in the Sutlej valley between Rampur and Sunguam at an elevation of 11,000 feet. The root is exported to the plains. Its root is one of the regular febrifuges, and is given for ascites and applied in plaster. Part of the karru sold is the root of Gentiana kurroo (q. v.,) and some of it is possibly produced by other plants.—*Hooker's Him. Jour., Vol.* i, *p.* 272; *Cleghorn's Punjab Report, p.* 67; *Powell's Hand-book, Vol.* i, *p.* 362; *J. L. Stewart, M.D.*; *O'Shaughnessy, p.* 478; *Dr. Honigberger, p.* 325.

PICTURE PLANT, Graptophyllum hortense, Justicia picta: variegated leaf: blood-red leaf. One variety has variegated leaves, and the other deep purple.

PICUL, a measure of weight in Batavia, it is 135 lbs., 10 oz.; in Japan, 131 lbs.; in Malta, 1¼ cwt. (140 lbs.), ordinarily in China, lbs. 133⅓.—*Simmond's Dict.*

PICUS, a genus of birds. In China there is the Picus cabanisi, and on the ranges of Nepaul, P. majoroides; P. ocellatus, P. shorei and P. squamatus, occur on the higher ranges of the Himalaya. P. tiga, *Horsf.*, occurs in the E. Archipelago. P. shoui is called the three-toed wood pecker, other species are, Picus gymnophthalmos, P. brunneifrons; P. cathpharius; P. himalaynus; P. macei; and P. mahrattensis. See Birds.

PIDDA, Tel. Great, large.

PIDDACALU Tel. Cow-dung bratties.

PIDDA NERUDI, TEL. See Pedda neeroodee.

PIDDA TAPASI, TEL. See Pedda tapasee.

PIDDA JANI, TEL. See Pedda jany.

PIDDINGTON, Henry, long Coroner in Calcutta, well known for his numerous contributions to the literature of storms. He was one of the few who escaped from the massacre of Amboyna. During the latter years of his life, his attention was turned to subjects connected with Economic Geology, on which he published various scientific papers ; and still more recently to researches on the Law of Storms, the latter requiring an amount of patience and industry which can only be correctly estimated and appreciated by those engaged in pursuits of a similar nature. As the most arduous, so these are likely to prove the most useful of his labours. In the earlier days of his residence in India he was engaged in the culture of coffee and indigo, and the manufacture of sugar, and during that period he contributed various notices on agricultural subjects to the transactions of the Agricultural and Horticultural Society. Among these may be enumerated his papers on the soils best suited for the cultivation of tobacco, coffee, sugar, cotton, and the tea plant ; on the manufacture of indigo ; the artificial production of new varieties of cotton ; on the mode of preparing Manilla hemp ; on the prevention of contagious diseases amongst cattle ; and on the disease called Bosonto, which attacks the cattle of Bengal. He also published, as a part of Prinsep's Useful Tables, a tabular view of the generic characters of Roxburgh's Flora Indica, a work requiring a considerable amount of labour and care in the compilation, and causing a saving of time to the botanical student. But, perhaps, the most useful of his labours in this department was his English Index to the plants of India. This useful manual, was published about A.D. 1830. In 1839 he printed, for private circulation, a treatise on the scientific principles of agriculture considered as a branch of public education in India, which was published in 1854.

PIDGIN or Pigeon, an Anglo-Chinese corruption for the word business, *Colld.*

PIE, HIND., a small money of British India the third part of a pice, and 12 of which go to one anna, of value 1½*d*.—*Simmond's Dict.*

PIE, or Magpie, the genus Dendrocitta, *Gould*, called also tree crows, are of strictly arboreal habits ; the species are :

D. rufa, *Scopoli*, the common Indian magpie, all India.

D. pallida, *Blyth*, the pale magpie, N. W. Himalaya, Cashmere, Affghanistan.

D. sinensis, *Latham*, the Himalayan magpie, all British India.

D. frontalis, *McLelland*, the black-browned magpie, all India.

D. leucogastra, *Gould*, the long-tailed magpie.

D. rufigastra, *Gould*, South Asia.

D. occipitalis, *Mull.* Sumatra.

The wandering pies (Dendrocitta vagabunda) and (Dendrocitta rufa) its ally the red-vented pie (D. sinensis) affect the same situations, and although D. rufa is not so domestic in habits, and less often met with in the neighbourhood of dwellings, is plentiful in copses and jungles, the black-throated jay is (Garrulus lanceolatus, *Vig.*)—*Adams.*

PIEDRAIS, SP. Opal.

PIEDRA POMEZ, SP. Pumice stone.

PIELES, SP. Skins.

PIELLES DE CORDEROS, SP. Lambskins.

PIENCHE, TAM. A Ceylon tree with wood of a dark colour and very heavy and close-grained. It grows to about twelve inches in diameter, and fourteen feet in height. From this tree the native carpenters make the frames of vessels, it being considered durable : it produces a fruit which is of no use.—*Edye, Ceylon.*

PIENIE-MARAM, TAM. Vateria indica.

PIEN-MAH-NE, BURM. A Tavoy tree, yields very strong red, knee-timber.—*Dr. Wallich.*

PIEN-MAH-PEU, BURM. A white Tavoy, wood.—*Dr. Wallich.*

PIEN-TAU, CHIN. Lablab vulgare, *Savi, DC.*

PIERALU, BOMBAY. Randia dumetorum, *Lam.*

PIERARDIA, *Roxb.*, a genus of plants, belonging to the natural order Sapindaceæ, but now transferred to the genus Baccaurea, *Lam.* Of this genus, Wight gives P. Courtallensis and P. marcrostachys. P. sapida, *Roxb.*, affords an edible fruit in Tipperah to the east of Calcutta, in Ava and Cochin-China, and P. dulcis, *Wall.*, in the Malayan Peninsula, Penang and Sumatra would appear also to be cultivated in China, as Dr. R. was informed by his Chinese gardeners, that P. sapida is the lutco of the hindus.—*Royle Ill. Him. Botany*, *p.* 136.

PIERARDIA, *Species.*

Kunna,	BURM.	Kuzzo.	BURM.

A timber tree of Tavoy.—*Dr. Wallich.*

PIERARDIA DULCIS, *Jack.*

Baccaurea dulcis, *Wall.*

A tree of Sumatra and Penang.

PIERARDIA SAPIDA, *Royle*, *Roxb.*, ii, 254.

Baccaurea pierardi. *Buch.*

Ka-na-oo,	BENG.	Lutco.	CAN.
Ka-na-yoe, Ka-na-zo,	BURM.		

A small tree of Tipperah, Burmah and Cochin-China, with small yellow flowers and an edible fruit. A cubic foot weighs lbs. 61, in a full grown tree on good soil, the average length of the trunk to the first branch is 15 feet and average girth measured at 6 feet from the ground is 4 feet. Dr. Brandis says that the wood is not used, but Dr. McClelland notices the tree as plentiful in the Pegu and Tounghoo forests, as well as about Rangoon and with a wood dark-brown in colour, and the Moulmein Committee sent to the Exhibition of 1862, a specimen of the wood as of a tree of Moulmein with a very hard wood; used for wheel axles. —*Dr. Brandis*; *Dr. McClelland*; *Cal. Cat. Ex.*, 1862; *Royle's Ill.*

PIERARDIA SAPOTA, *McClelland.*

Ka-na-yoe, BURM.

Plentiful in the Pegu and Tounghoo forests, as well as about Rangoon. Dark-brown wood. —*McClelland.*

PIERRE A FUSIL, FR. Flints.

PIERRE POUCE, FR. Pumice stone.

PIERRES MEULIERES, FR. Mill stones.

PIETRA POMICE, IT. Pummice stone.

PIETRO DE LA VALLE, visited Cambay in A. D. 1623. See Kasr.

PIETRO PARIETARIA, IT. Pellitory.

PIG, the ordinary name for the wild and domesticated species of swine. There are many domesticated varieties. The hunt of the wild boar called pig sticking, is a favourite amusement of the British officers in India. They hunt on horse-back and use spears. In northern India with short spears, which are jobbed down on the boar, in the Dekhan with long spears which are held firm in the armpit.

PIGAFETTA. Antonio Pigafetta, the companion of Ferdinando de Magaglianes.

PIG-DEER. The wild boar of Celebes is peculiar, but the Babirussa or Pig-deer, there, has long and slender legs and the male curved upper tusks turned back so as to resemble horns. It feeds on fallen fruits, it is found in the Celebes, in the Sulu islands and in Borneo. There are also 5 species of squirrels, 2 species of Cuscus or eastern opossums.

PIGEON.

Kabootar, HIND.

The pigeons are classed by naturalists in the order Gemitores, the Columbæ of Latham. Dr. Jerdon thus arranges the Gemitores or pigeons.

Fam. Treronidæ.

Sub-fam. Treroninæ, Green pigeons, viz., 2 Treron; 2 Crocopus; 4 Osmotreron; 2 Sphenocerus.

Sub-fam. Carpophaginæ, Fruit pigeons, viz., 2 Carpophaga.

Fam. Columbidæ.

Sub-fam. Palumbinæ, Wood pigeons, viz., 2 Alsocomus; 3 Palumbus; 1 Palumbæna; 3 Columba.

Sub-fam. Macropyginæ, Cuckoo doves, viz., 1 Macropygia.

Sub-fam. Turturinæ, Turtle doves, viz., 6 Turtur

Sub-fam. Gouridæ, Ground doves.

Sub-fam. Phapinæ, Ground doves, viz., 1 Calcophas indicus.

Of these sub-families the numbers are in the E. Indies.

Sub-fam. Treroninæ, 5 gen. 3 sub-gen. 23 sp. viz. 2 Toria; 8 Treron; 3 Sphenocerus; 4 Ptilinophaga.

Sub-fam. Columbinæ, 7 gen. 21 sp. viz., 2 Al comus; 3 Palumbus; 2 Columba; 4 Macropygi 2 Geopilia; 7 Turtur; 1 Chalcophaps.

Sub-fam. Gourinæ; 1 gen. 1 sp. viz., 1 Calæn nicobarica.

Pigeons, doves and turtles are abundant southern Asia and the Indian Archipelag Jerdon names C. intermedia, C. rupestris: leuconota as occurring in India, and C. arom tica, C. coronata, and C. carpophaga are n referred to other genera. The most comm in India of the genus is the Columba intermed Of pigeons and doves, there are at least Ceylon a dozen species. Some live entirely trees, never alighting on the ground; othe notwithstanding the abundance of food a warmth, are migratory, allured, as the Singh lese allege, by the ripening of the cinnam berries, and one species is known in t southern provinces as the "Cinnamon dov A very beautiful pigeon, peculiar to the mou tain range, discovered in the lofty trees Newera-ellia, has in compliment to the Viscou ess Torrington, been named Carpophaga torrin toniæ.

Columba intermedia,—Blue pigeon.

C. livia *var*, *Blyth.*

Pagoda pigeon,	ENG.	Kovil pora	T
Kabutar,	HIND.	Gudi-purai,	T
Parivi,	MAHR.		

The blue pigeon is the most common India, of all the pigeons. They congregate large numbers and breed wherever they c find suitable spots, on pagodas, mosques a tombs. The common blue pigeon differs fr the C. livia of Europe, only in having an s coloured, instead of a pure white rump. T C. livia of Europe or rock pigeon with its su species is the parent form of all domesticat pigeons. Of these, there are at least 150 vari ties.

They are four groups, consisting of,

Poulters.

First. The German, Dutch, and English.

A second group, includes the Kali-par, M rassa, Bussorah, Dragon and English carri the Bagadotten, Scanderoon Pigeon, Cyg Rients, the Tronfo and the Bank.

The third group, includes the Java a English fantail, the Turbit and African ow the Persian Lotan, common and short fac tumblers; the Indian frill back and Jacobin.

The fourth group, includes the Dove-cot p geon, swallow, spot, nun, English frill bac Laugher and Trumpeter.

Columba livia, is the Rock dove of Europ North Asia to Japan, N. Africa; abundant replaced in India by the barely separable intermedia.

Columba aromatica of Latham, the Vinag aromatica, is of a mild and timorous dispositio and is generally seen in flocks or societies ex cept during the period of reproduction when they pair, and retire to the recesses of the forest. The nest is simple, and composed of a few twigs loosely put together, and the eggs are two.

Carpophaga forsteni, a fruit pigeon of N. Celebes.

Carpophaga oceancia, one of the nutmeg pigeons; many of both sexes are furnished with a large, round, fleshy caruncle on the bill, at the base of the forehead: this is said to be present during the breeding season only.

Carpophaga oceanica, Selby, is the Columba oceanica of Lesson, and according to Lesson is the Moulouesse, or Mouleux, of the natives of Oualan, it approaches the Nutmeg pigeon, Columba (Carpophaga) onea, very nearly, but differs from it in size, being one-third less, and in the distribution of some of its colours. "The Nutmeg pigeon lives more particularly in the eastern Moluccas, and especially at New Guinea and Waigiou, while the Oceanic fruit-pigeon is abundant in the little isle of Oualan, in the midst of the great archipelago of the Carolines, and seems to exist in the Pelew islands, it may possibly spread over the Philippines and at Magindanao."

Geophilus nicobaricus, is the Columba nicobarica of Latham, the C. gallus of Wagler. It inhabits the Nicobar islands, Java, Sumatra, and many of the Moluccas. Mr. Bennett, who saw them in Mr. Beale's aviary at Macao, says that they were usually seen perched upon the trees, even upon the loftiest branches, and adds, that they build their rude nests and rear their young upon trees similar to all the pigeon tribe.

Turtur humilis, the Asiatic pigeon, is somewhat common in the Punjab.

Lophyrus coronatus, is the Columba coronata of Latham; Phasianus cristatus Indicus of Brisson; Columbi Hocco, Le Vaill.; Colombe Galline Goura, *Temm.*, Great-crowned Pigeon, *Edw.*, and is a species surpassing in size all tbe other Columbidæ. Total length from 27 to 28 inches. This bird is found in many of the islands of the great Indian group. Not rare in Java and Banda, abundant in New Guinea and in most of the Moluccas. Nest built in trees; eggs two; cooing of the male hoarse, accompanied by a noise somewhat like that of a turkey-cock when strutting. Its food consists of berries, seed, grain, &c. Flavour of the flesh said to be excellent.

The hindoo pandits assert that Siva and his spouse, under the forms and names of Kapot-Eswara (pigeon god) and Kapotesi, dwelt at Meccah. The dove was the device of the old Assyrian empire, because, it is supposed, Semiramis was preserved by that bird. The Meccan pigeons—large blue rocks—are held sacred probably in consequence of the traditions of the Arabs about Noah's dove. Some authors declare that, in Mohamed's time, among the idols of the Meccan pantheon, was a pigeon carved in wood, and above it another, which Ali mounting upon the Prophet's shoulder, pulled down. This might have been a hindoo, a Jewish, or a christian symbol. The moslems connect the pigeon on two occasions with their faith; when that bird appeared to whisper in Mohamed's ear, and, secondly, during the flight to El Medinah. Moreover, in many countries they are called "Allah's proclaimers," because their movement when cooing resembles prostration. Almost everywhere the pigeon has entered into the history of religion; which probably induced Mr. Lascelles to incur the derision of our grandfathers by pronouncing it a "holy bird." At Meccah they are called the doves of the Kaabah, and never appear at table. They are remarkable for propriety when sitting upon the holy building. This may be a minor miracle.—*Eng. Cyc., p.* 70-91; *Jerdon's Birds of India*; *Catalogue of Birds Beng. As. Soc.*; *Cat. Birds, India House Museum*; *Burton's pilgrimage to Mecca, Vol.* iii, *p.* 218.

PIGEON ISLAND, lying 12 miles off the coast of Canara, in lat. 14° 1′ N., long. 74° 18′, E., is small but high, and visible for 24 miles.

PIGEON-PEA, Cajanus indicus, is the seed of the plant called by Linnæus Cytisus cajan, and by DeCandolle Cajanus bicolor, Cajanus flavus and C. indicus. It is a pulse highly esteemed by all classes of the natives of India. —*Spreng*; *Eng. Cyc.* See Cajanus indicus, Dholl, Toor-ka Dhal.

PIGER, Bal., Jav. Borax.

PIG-IRON. The following is an estimate of the whole production of pig-iron in the world in 1871, in tons of 2,000 pounds. Great Britain, 6,500,000 tons; German Zollverein, 1,350,000 tons; Belgium, 896,000 tons; Austria, 450,000 tons; Norway and Sweden, 280,000 tons; Russia, 330,000 tons; Italy 75,000 tons; Spain, 72,000; other countries 200,000 tons; total, 13,315,000 tons. It will be observed that Great Britain produced about one-half of the pig-iron used in the world.—*Madras Times, July* 16, 1872.

PIG ISLAND. Several of the Megapodius duperreyi were seen by Mr. Macgillivray in the Lousiade Archipelago. The natives are dark copper coloured. The hair is nearly all frizzled out into a mop, in some instances of prodigious size. The physiognomy varied much; the nose was narrower and more prominent, the mouth smaller, the lips thinner, the eyes more distant, the eyebrows less overhanging, the forehead higher, but not broader than in the Australian, one man, whose head was shaven had his forehead narrow and receding, appearing as if artificially flattened, thereby giving great prominence and width to the hinder part of the skull, and he often observed the same configuration of head combined with dark coloured skin and diminutive stature. None had the artificial prominent scars on the body peculiar to the Australians, or wanted any of the front teeth, but the septum of the nose was perforated to admit an ornament of polished shell, pointed and slightly turned up at each end. The lobe of the ear was slit, the hole being either kept distended by a large plug of rolled up leaf, apparently of the banana, or hung with thin circular earrings made of the ground down end of a cone-shell (Conus millepunctatus) one and a half inches in diameter, with a central hole and a slit leading to the edge. A piece of cloth-like substance, the dried leaf of the Pandanus or some palm was used by all passed between the legs and secured in front and behind to a narrow waistband.—*Macgillivray's Voyage, Vol.* i, *pp.* 189-195.

PIGMY DEER. The Chevrotin or pigmy deer are not much larger than hares.

PIGMY HOG, Eng. Porculia salvania, *Hodgs., Hors.*

PIGMENTS. In illustration of the variety of indigenous pigments, says Dr. Cleghorn, I may state that finding my colour-box becoming exhausted, I have been enabled to supply, on more than one occasion, all its deficiencies without difficulty from the natural products of the surrounding forests of the Malabar ghauts, including yellow from the Garcinia, blue from various species of indigofera, red and purple from Oldenlandia umbellata, Pupplay chukkay (Ventillago?) and Vatica laccifera.

PIGNON D' INDE, Fr. Jatropha curcas.

PIGOT DIAMOND, see Diamond.

PIG'S TUBERS.

Chu-ling, Chin.

These tuberiform bodies are of irregular size and are compared by the Chinese to pig's dung; they are produced as an excrescence on the liquidamber tree and used by the Chinese in fevers, fluxes and urinary disorders.—*Smith's Mat. Med., China.*

PIG-TAILED MONKEY, Eng. Macacus nemestrinus, *Linn.*

PIH, Pers. Tallow.

PIJUR, Kashm. Nemorhædus goral, *Jerd.*

PIKA BANS, Hind. Bambusa tulda.

PI KAJONI, Maleal. Wedelia calendulacea, *Nees.*

PIKU, an apparatus used in Hazara for rice cleaning, &c.

PIKUNI Female buddhist mendicants. See Buddha, Sakya muni.

PIKUN KAI, Tam. Luffa acutangula, *Roxb.*

PIKROS, Ar. Aloes.

PIKSHA, Sans. Ursus labiatus, *Blain, Bly., Ell.*

PIL, Hind. Salvadora oleoides.

PIL, Pushtu. Elephant.

PILABHUNGRA, Duk. Wedelia calendulacea, *Nees*, also Verbena triphylla, *Leher.*

PILA CHAMPA, Mahr. Michelia niligirica, *W. Ic.*, and M. champaca.

PILA JAU, Hind. Artemisia elegans.

PILAK, Hind. Solanum nigrum, also Solanum gracilipes and S. Xanthocarpum.

PILAK, Hind. The bridge of a "sarangi."

PILAK, Hind. The Mango bird or Oriole.

PILAKA SARE or Chatarasikura, Tel. Mollugo spergula, *L.*

PILAMA, Singh. Statue of the buddhist deity.

PILA MARAM, Tam. Artocarpus integrifolia, *Linn.*

PILA MOORGH KES, Hind. Celosia cristata, *Linn.* Yellow cock's-comb.

PILANG, is a very hard wood of Java, and employed in the eastern districts, instead of lignum vita, for the construction of ships, blocks, &c. Pung is equally hard with pilang, and uniformly employed by the natives for pegs in constructing their prahus.

PILAVATA, in the Malayalam country, a cloth permitted to be worn over the shoulders by people of high caste alone.

PILAVUH, Tam. Artocarpus integrifolia.

PILCHARDS.

Sardynen,	Duk.	Sardinæ,	Lat
Sardines,	Fr.	Sardelii,	Rus.
Sardellan,	Ger.	Sardinas,	Sp.
Sardine,	It.		

Clupea pilchardus, the Pilchard, is said to frequent the coast of Japan, in the latter part of the month of June, and commencement of July. They are taken by the seine nets. When fresh, they are sweet and nutritious, but they are chiefly valued for their oil, to obtain which they are piled up in heaps for 24 hours, are then boiled for some time in sufficient water to prevent their burning, then ladled into strong square presses, and the lever action of a li presses out the oil. The oil after cleaning is used for lamps and the refuse for manure.—*McCulloch's Com. Dic., p.* 902.

PILCHI, Hind. Tamarix gallica, Syn. of T. indica, also Tamarix dioica, the tamarisk or Jhau.

PILEOPSIS, a genus of molluscs.

PILEOLUS, a genus of molluscs. See Ner tidæ.

PILGRIMAGES are made by hindoos ver extensively and regarded as very meritoriou Of all the holy cities of the hindoos, Benare takes the first place, but the shrines at Hard war, in the Himalaya, Dwaraka in Guzera Jaganath in Orissa, Panderpoor on the Kis nah, Tripati in N. Arcot, Sri-rangam nea

Trichinopoly, and on the island of Ramisseram are all holy places to which many hindoos resort. Of rivers, the Ganges takes the first place, but hindoos reckon five Ganga, viz., the Ganges proper, the Godavery, Kistnah, Cauvery and Tumbudra. The objects of the hindoos in making their pilgrimages are as varied as the human motives, passions and desires, chiefly perhaps to fulfil a vow or to implore benefits, or in penance. Amongst hindoos whom Capt. Burton met, he had seen men who have proceeded upon a pilgrimage to Dwarka, and yet would not receive the brand of the god, because lying would then be forbidden to them. The bulk of the hindoos who make pilgrimages are usually in poverty, and beg from place to place. Many die on the roads, exhausted by the prolonged exertions.

Amongst mahomedans, the principal places for minor pilgrimages are the tomb of Ali called Mash'hid-i-Ali at Nej'f near Cufa; the shrine of Imam Hosein at Kerbela, and that of Imam Raza at Mash'hid in Khorasan, but the tombs of all the numerous imam-zadeh and tombs of holy characters, throughout the country, are visited. The minor pilgrimage of the mahomedan saints of India, is termed a ziyarat, as distinguished from the haj or great pilgrimage to Mecca in Arabia but no mahomedan except the Maliki is bound to pilgrimage without a sum sufficient to support himself and his family. The streets of Mecca, however, abound in pathetic Indian beggars, who affect lank bodies, shrinking frames, whining voices, and all the circumstance of misery, because it supports them in idleness. There are no less than 1,500 Indians at Mecca and Jedda, besides 700 or 800 in Yemen.

Amongst the Christians, Jerusalem in western Asia, and St. Thomé or Mylapore on the Coromandel coast, an outskirt of Madras, are the chief places of resort. An immense concourse of people visit every year, on the 29th Sept. the fountain of St. Michael near Ballynaskellig on the coast of Kerry. Then the feast of St. Michael coincides with the autumnal equinox, and consequently with the sacrifices and the Baal-tinnes of the Druids which also took place at this period. It is related that Arthga son of Cathal, king of Connaught, took the pilgrims staff, and set out for Hiona dia ailithre, on a rock or upright stone, and itriallum, going round. Ailathre used by the ancient Irish is still employed to designate the pilgrimages to Iona, Jerusalem or Rome.

The buddhist pilgrims of Burmah, visit the great Shooay dagon pagoda at Rangoon and the pagoda at Prome. With all of these races, and religionists, hindoos, hebrews, mahomedans, buddhists and christians, the circumambulation of the shrine forms part of the pilgrims' duty. This was a Jewish practice, it is often mentioned, "walk about Zion, and go round about her, tell the towers thereof."

PILGRIMS, a group of islands about 30 miles from Junkseylon off the Malay coast.

PILGRIMS-TREE, also called Rag-tree, these may be observed throughout Asia, in Egypt and in Africa. They are trees on which rags are suspended, and buddhists, hindoos and mahomedans alike form them. In the peninsula of India, it is usually an Acacia, the common babool tree, A. arabica. Burton says that some believe that Mahomed permitted the practice, and explain the peculiar name of the expedition called Zat el Rikaa, (place of shreds of cloth,) by supposing it to be a term for a tree to which his followers hung their ex-voto rags. Huc in his travels mentions that the Tartars worship mountain-spirits by raising an 'obo,' dry branches hung with bones and strips of cloth, and planted in enormous heaps of stones. Park, also, in Western Africa, conformed to the example of his companions, in adding a charm or shred of cloth on a tree (at the entrance of the wilderness), which was completely covered with these guardian symbols. The Tarikh-i-Tabari mentions it as a practice of the Pagan Arabs, and talks of evil-spirits residing in the date-tree.—*Burton's Pilgrimage to Mecca, Vol.* i, *p.* 227. See Trees.

PILI, Rus. File.

PILI BUTI, Hind. Abutilon indicum.

PILIDION MONTANUM. Above bluish-black, yellow on the sides, with a black spot on each of the 3 lower scales; abdomen banded black and white. Scutæ? Scutellæ 15·15 rows of scales, 15 inches long. Found only on the Neilgherries.

PILI JARRI, Hind. Thalictrum foliolosum, also Cissampelos pareira.

PILI-MATTI, Hind. Yellow ochre.

PILI SAYND, Duk. Euphorbia tortilis, *Rottl.*, *W. Ic.*

PILIYA, Tel. Urena lobata, *Roxb.*

PILIYA-MANKENA, Tel. Urena sinuata, *L.*; *R.*, iii, 182; *W. & A.* 168; *Rheede*, x, 2.

PILIKARBIR, Hind. Cerbera manghas.

PILKHAN, Hind. Ficus cordifolia, also F. venosa.

PILKONTA CHURHAI, 12,620 feet.

PIL-KOLU, Tel. Rhinacanthus communis, *Nees.*

PILLA-DUGU KAILU, Tel. Cowhage.

PILLAH-MURDOO, Tam. ? Terminalia chebula.

PILLAI, the Tamil race styled Pillai, call themselves Yadava or Idaan, also Go-vansa, or shepherds. They are darker and more slender and are less engaged in cultivation. These also are of the brahminist religion; they are intelligent men. See Pilly

PILLAIYAR, the most common name of Vighnesvara in the Tamil country. Pillaiyar chaturtti, or Pillaiyar-nonbu, a fast on the fourth day of the new or full moon in honour of Vighnesvara, and more especially in the month Avani, (August—September.)

PILLA MARDA MARAM, Tam., Can. Terminalia chebula, *Retz.*, *W. Ic.*

PILLA PALLAM, Tam. Fruit of Artocarpus integrifolia.

PILLE, Tam., Tel. Cat. Felis catus, also Felis tigris, *Linn.* Tiger,

PILLI AGNELLINE, It. Lamb skins.

PILLI DUMPA, Tel. Urtica tuberosa, *R.*, iii, 583 ; *W. Ic.*, 697.

PILLI MARAM, Tam. Artocarpus integrifolia.

PILLI PESARA, Tel. Phaseolus trilobus, *Ait.*, *R.*, iii, 298, *W. Ic.*, 94.

PILLI PICHARA, or Pilli tega, or Challa gaddalu, Asparagus racemosus, *Willd.*, *R.*, ii, 151. The same name is also applied by the Konda Doralu to Urtica tuberosa.

PILLI VATTA CHETTU, Tel. Crotolaria biflora, *L.*, *W. & A.*, 590, C. nummularia, *R.*, iii, 271.

PILLI VELLA KANDA, Tel. A jungle root, *Br.* 1262.

PILLI VENDRAM, or Penneru, Tel. Physalis somnifera, *Nees.*

PILLOW.

Gadi ; Takiya,	Hind.	Talla-kada,	Tel.
Talla kani,	Tam.		

The only seats used by Asiatics of rank, even in the present day, are carpets, or cloths and pillows spread on the ground, which is elsewhere uncovered. The Mogul emperors used a sort of throne, but their courtiers sat on the ground. The hindoo rajahs, the Peshwa, and others, sat upon a cloth supporting themselves by pillows. The nawab or nabob of Hyderabad in the Dekhan and all his nobles sit on small carpets with pillows at the back against the wall.

PILLY, among the Tamulian people is an honorific suffix to the shepherd race, equivalent to son and master.—*Wilson's Glossary.* See Pillai.

PILOSHANA, an ancient district in the Gangetic-Doab, identified with Atranji Khera.

PILOT FISH, Gasterosteus ductor, is of a beautiful azure colour. There are always some of the pilot fish to be seen near the shark.

PILPAY, the Bed-pai of the ancient hindoo. See Bed-pai.

PILRU, Hind. Lonicera angustifolia.

PILSA, Hind. Ribes grossularia.

PILU, Beng., Hind. Duk. Careya arborea.

PILU, Mahr., Sans., also Pilu kurjal, also Jhal, Hind. Salvadora persica, also Salvadora oleoides, also the berries of the tree, &c.

PI MARM, Tam. Sterculia guttata, *Roxb.*

PIMELEA. A species of this genus of plants is abundant in the Wynaad, where its fibre is made into sewing thread by the natives. The plant is common all over the Neilgherries.—*McIvor ; M. E. J. R.*

PIMELEA SPECTABILIS, one of the Thymelaceæ, beautiful shrubby plants, growing to the height of two or three feet, they require a rich soil, and if carefully watered, produce numerous heads of flowers, the colours are white, red, rose and yellow, readily cultivated from seed.—*Riddell.*

PIMELODUS ARIUS, Beng., Hind. Syn. of Arius arius, *Buch.*, *Ham.*

PIMENTA, Port., Sp. Black pepper.

PIMENTA LARGA, Sp. Long pepper.

PIMENTA VULGARIS, *Lindley.*

Eugenia pimenta, *DC.*, *var. a.* longifolia.
Myrtus pimenta, *Linn.*, *var. a.* longifolia.

Pimento tree,	Eng.	Allspice tree,	Eng.

This Mexican and West Indian tree has been introduced into the East Indies. There are several large trees at Madras, but the climate of the Carnatic does not seem to suit them. It flourishes spontaneously and in great abundance on the north side of the island of Jamaica ; its numerous white blossoms mixing with the dark-green foliage, and with the slightest breeze diffusing around the most delicious fragrance, give a beauty and a charm to nature rarely equalled, and of which he who has not visited the shady arbors and perfumed groves of the tropics can have little conception. Every leaf when bruised emits a fine aromatic odour, nearly as powerful as that of the spice itself. The tree has been known to grow to the height of from 30 to 40 feet, exceedingly straight. A single tree has frequently produced 50 lbs. of the raw, or 10 lbs. of the dried fruit. The fruit has an aromatic odour, and its taste combines that of cinnamon, nutmeg, and cloves ; hence its common name of allspice. The leaves yield by distillation a delicate odoriferous oil, which is said to be sometimes passed off for oil of cloves. The berries are gathered before they are ripe, and spread on a terrace, exposed to the sun for about a week, during which time they lose their green colour, and acquire that reddish-brown tint which renders them marketable. Some planter's kiln dry them. Like many of the minor productions of the tropics, pimento is exceedingly uncertain, and perhaps a very plenteous crop occurs but once in five years.—*Poole's Statistics of Commerce ; Simmond's Commercial products ; Catalogue of Madras Agri-Horticultural Gardens ; Madras Exhibition Juries Report ; Voigt's Hort. Sub., Calcutta, p.* 47.

PIMENTO, Allspice, or Jamaica pepper, Fr.

Poivre de Jamaique,	Fr.
Nelkenpfeffer,	Ger.
Pimenti,	It.

—*McCulloch's Com. Dic.*, *p.* 916. See Pimenta vulgaris.

PIMENTO TREE, Allspice, Bayberry tree, Eugenia pimento, *Linn.* A tree of S. America and West Indies, *W. & A.*

PIMPINELLA, a genus of plants of the natural order Apiaceæ, of which are known P. anisum; P. candolleana; P. involucrata and P. lechenaultii.—*Wight's Icones.*

PIMPINELLA ANISUM, *Linn.*

Anisum,	Ar.
Mahooree,	Beng.
Tsa-mountsa-bah,	Burm.
Sonf,	Duk.
Aniseed; Anise,	Eng.
Common Aniseed,	„
Anison, Gr. of Dioscorides.	
Anisa,	Guz.
Aneesoon; Sonf,	Hind.
Jira manis,	Malay.
Adis manis,	„
Rezan-i-Rumi,	Pers.
Awak pushpi; Karava, sataphuspha,	Sans.
Sinhala-asamodagan,	Singh.
Somboo,	Tam.
Kuppi chettu,	Tel.

This plant grows in Egypt, Scio, and the Levant, and it is cultivated in Europe for its seed. Aniseed in various forms is much employed in medicine as a stomachic, especially in the diseases of children, and is also used as a condiment among all eastern nations. The seeds are often fraudulently mixed with clay, are liable to spoil by spontaneous fermentation in the packages. They are much richer in essential oil than the majority of the Apiaceæ, 8 lbs. having given 3½ ounces of the oil. Essential oil of aniseed is white, yellowish, a little lighter than water, congealing at 78° Faht. into a soft mass, sp. gr. 0·985. It is liable to adulteration with spermaceti and several fixed oils, some of which may be detected by alcohol, all by leaving a greasy stain on paper evaporated over a lamp. This oil contains nitrogen according to the analysis of Saussure. It only exists in the pericarp, the interior of the seed yielding a tasteless and inodorous fixed oil. This is often mixed with the essential oil, and is as much an adulteration as if castor or olive oil had been employed. The pure essential oil can only be obtained by distilling the seeds with water. The oil is a good and safe stimulant, and is much used in prescriptions for children suffering from flatulence and colic. *O'Shaughnessy*, *pp.* 358-59. See Oils.

PIMPINELLA CRINITA, *Bois.*

Bal ajuain, Sutlej, Ravi.

A small plant, common in the Salt Range up to about 2,000 feet, and in several of the more arid tracts of the Punjab, Cis and Trans-Indus. —*Dr. J. L. Stewart*, M. D.

PIMPINELLA INVOLUCRATA, *W. & A.*

Apium involucratum, *Roxb.*
Ptychotis roxburghianum, *DC.*
Radhunee, Beng.

Cultivated all over Bengal, at Singapore, Prome, &c., native place? Flower small, white, in February, March and April. Seeds used by the native for culinary and medicinal purposes. The leaves, though of an unpleasant smell, are now and then used as a substitute for parsley by Europeans.—*Voigt*, *p.* 21.

PIN, Hind. Leptopus cordifolius.

PINACEÆ, *Lindl.* The Fir tribe of 7 genera, 19 sp., viz., 7 Pinus; 1 Abies; 1 Dammara; 1 Thuja; 3 Cupressus; 1 Taxodium; 5 Juniperus.

Pinus deodara, *Roxb.*, Kumaon, Simla, Nepal.
P. longifolia, *Lamb.* Nepal, Kheree Pass.
P. massoniana, *Lamb.* China.
P. occidentalis, *Swz, Linn.*, West Indies.
P. sinensis, *Lamb.*, China.
Cunninghamia sinensis, *Rich.*, China.
Dammara orientalis, *Lamb.*, Amboyna.
Araucaria cunninghami—? New Holland.
A. excelsa, *R. Br.*, New Holland, N. Calidonia.
Thuja occidentalis, *L.*, North America, Siberia.
T. orientalis, *L.*, Nepal, China, Japan.
T. sphœroidea, *Rich.*, North America.
T. articulata, *Vahl.*, Barbary.
Cupressus australis, *Pers.*, New Holland.
C. sempervirens, *Linn.*, Europe, Himalaya.
C. fastigiata, *Wall.*, MSS.——?
C. torulosa, *Lamb.*, Bhutan, Niti Pass.
C. glauca, *Lamb.* Goa cedar, cultivated.
Callitris cupressiformis, *Vent.*, New Holland.
Taxodium nuciferum, *Brogn.*, *Kæmpf.*, *Wall.*, Nepal, Japan.
Juniperus aquatica, *Roxb.*, China.
J. cernua *Roxb.*, China.
J. communis, *Linn.*, Europe, mid-Asia, Himalaya
J. chinensis, *Linn.*, China.
J. sabina, *Linn.*, Siberia.
J. cæsia, *Roxb.*, China.
J. dimorpha, *Roxb.*, China.
J. patens, *Roxb.*, China.

See Abies, Coniferæ, Pinus, *L. P.*

PINA, Philippine. Ananassa sativus, *Schult.*

PINA-CLOTH, an expensive fabric made by the natives of the Philippines from the fibres of the pine-apple leaf, the Ananassa sativa; the texture is very delicate, soft, and transparent, and generally has a very slight tinge of pale yellow. It is made into shawls, scarfs, handkerchiefs, dresses, &c., and is most beautifully embroidered by the needle. The process of extracting and bleaching the fibres is exceedingly simple. The first step is to remove the fleshy or succulent side of the leaf. A Chinese, astride on a narrow stool, extends on it, in front of him, a pine-apple leaf, one end of which is kept firm being placed beneath a small bundle of cloth on which he sits. He then with a kind of two-handled plane made of bamboo removes the succulent matter. Another man receives the leaves as they are planed, and with his thumb nail loosens and gathers the fibres about the middle of the leaf, which enables him by one effort to detach the whole of them from the outer skin. The fibres are next steeped in water for sometime, after which they are washed in order to free them from the matter that still adheres and binds them together. They are now laid out to dry and bleach on rude frames of split bamboo. The process of steeping, washing, and exposing to the sun is repeated for some days until the fibres are considered to be properly bleached. Without further preparation they are sent into town for exportation to China. Nearly all the islands near Singapore are more or less planted with pine-apples, which, at a rough estimate, cover an extent of two thousand acres. The enormous quantity of leaves that are annually suffered to putrify on the ground would supply fibre for a large manufactory of valuable pina-cloth. Fibres should be cleaned on the spot. Fortunately the pine-apple planters are not Malays but industrious and thrifty Bugis, most of whom have families. These men could be readily induced to prepare the fibres, if any merchant offer an adequate price. An elaborate pina-dress embroidered, is often priced at £300 and upwards.—*Simmond's Dictionary*; *Journal of the Indian Archipelago, No.* viii, *August* 1848, *p.* 528; *Oliphant.*

PINAKOTTE, Tam. Calophyllum calaba.

PINANG, Malay. Areca catechu.

PINANG—? Bach—? A Penang wood of a brown colour. A large tree, wood used for beams.—*Colonel Frith.*

PINANG. About four hundred miles to the north of Malacca, at the head of the Straits, and separated from the mainland by a channel two miles broad, which forms the harbour, is the island of Pinang, called Pulo-Pinang or Prince of Wales' Island. As seen from a distance out in the Straits, here nearly 200 miles wide, it appears very rugged and mountainous. The highest peak, not far west of the town, is about 2,700 feet high. Government hill adjoining it is about 2,500 feet, and the other hills from 1,000 to 2,000 feet high. They run in chains in every part of the island save the east. It is at the northern extremity of this eastern plain that George Town or Pinang as it is called by Europeans, or Tanjong (Cape) by the Malays, is situated. The island is fourteen miles long by eight broad; it was obtained for a yearly payment of 6,000 dollars from the neighbouring Malay sultan of Queda through the influence of Captain Light, who is said to have married his daughter, and who was appointed the first Governor in 1786. The island then was wild and uncultivated, with only some 20 or 30 inhabitants. It was not till long after, that, for the protection of the harbour, the opposite coast, some 30 miles long by 15 broad, was taken from the same prince for another annual payment of 4,000 dollars. The inhabitants may be divided as at Singapore into Chinese, Kling or Indian races, Europeans, Portuguese and Malays. There are, besides, a few Burmese. The Klings and Chinese are pretty well provided with wives, but the Chinese, whether married or unmarried, are steeped in vice. There are numerous Joss houses and Chinese guild-halls all over the town. The English Church is an ugly, yellow building, situated but a short distance from the jetty. The Romanist and Scotch Churches adjoin. There is another Roman Catholic Church for the Portuguese and for Chinese converts. The trade after having risen to something considerable in the earlier part of this century, began to decline with the increase of Singapore. Of late years, however, it has shown a tendency to rise again, and while in 1859 it amounted to £3,000,000, in 1860 it was very nearly £4,000,000. The revenue receipts for 1859-60 were Rupees 598,111 as follows:—

Land............	Rs. 37,749	Judicial ....Rs.	21,3
Excise	,, 237,233	Miscellaneous... ,,	301,7

The expenditure during the same period was as follows, Rupees 254,256.

Local charges..Rs. 212,706	Straits' charges, Rs. 41,55

The surplus of Rs. 343,855 was absorbed in paying the charges for convicts, amounting to Rs. 77,330, and for disbursements on account of the military stationed at Pinang. The imports into Pinang during 1859-60 were estimated at Rupees 15,800,000, and the exports during the same period at Rupees 19,500,000.

By a census of Pinang and province Wellesley, taken in January 1860, the population amounted to 194,772.

Europeans & Eurasians..................	2,071	Bengalese............	1,0
Malays..................	71,723	Chinese...	36,2
Klings	13,034	Siamese...............	6

Of the above 59,956 resided in Pinang, and 64,816 in province Wellesley. On the opposite coast, the height of Gunong Jerai (Kedah peak, in Malacca) is about 3,894 feet; Gunong Ledang (Mount Ophir) is about 4,320 feet high at least 1,300 feet lower than the height given by Captain Newbold. The height of the most southern mountain, Gunong Pulai is 2,152 feet. The chief timber trees on Pinang hill are

Pulai.
Bahkoh.
Champada.
Bayor.
Bayang Bada.
Jurai.
Nangka.
Brangan.
Gaham Bada.
Tumusu.
Mungkudu (Morinda umbellata.)
Bia-babi.
Ahtow.
Kampas.
Tumpang.
Rungas.
Juntang-malah.
Champada Ayer.
Tampineh.
Nangka-pipet.
Klat.
Jelutong.
Jong-purlis.
Jermalang.
Kumpas.
Jelatoh.
Dammer-laut.
Gading-gading.
Koolin.
Pisang-pisang.
Murbow.
Bintaling.
Madang-serai.
Sittola.

—*Cal. Rev. No.* 73, *Sept.* 1861, *pp.* 59, 61, 63; *Cat. Ex.* 1861.

PINAZA, a fine Indian fabric.

PINARI MARM, Tam. Sterculia fœtida, *Lin.*

PINATHA, Burm.? In Amherst, Tavoy and Mergui, a tree of maximum girth 5 cubits and maximum girth 25 feet. Very abundant all over the Tenasserim provinces particularly in the old deserted towns. When seasoned it floats in water. It is a light wood with a yellow hue which darkens on exposure. Useful from the yellow dye which boiling extracts from it and which is permanent in cloth, and not affected even by boiling water. It is used by Phoongees. This wood has a fine tone when struck, and is used for musical instruments by the Burmese, it is used by English brush makers for the backs of hair brushes, being a handsome wood which takes a good polish.—*Captain Dance.*

PINCEAUX, Fr. Pencils.

PINCELES, Sp. Pencils.

PINCHBECK.

Tombak,	Dut.	Wellaety-Suna, Guz., Hind.	
Similor, Tambac,	Fr.	Tombacco,	It.
Tomback.	Ger.	Tambac, Tumbaga,	Sp.

A yellow gold coloured alloy of zinc, copper and brass, in imitation of gold.—*McCulloch's Com. Dic., p.* 917.

PINCHO, Hind. Missiessya hypoleuca.

PIND, Hind. An aphorism.

PIND, Hind., of the upper Panjab, a village; as Pind Bhattian, Pindi Ghaib, Rawal pindi.

PIND, Hind. In the Multan division and Derajat, dried dates of Phœnix dactylifera.

PINDA. The Pindapata vela, explained to signify the hour of going round to collect the Pinda, which is the name given to the food collected by the Saugata, or Buddha mendicant. The word means a lump or ball of any viands, usually of rice or meal. The seventh gharri, which will be one hour afternoon.—*Hind. Th., Vol.* ii, *p.* 38.

PIND-ALOO, Hind., the root of a tree resembling Ricinus communis. This is boiled and eaten by common people.

PINDARA, plunderers who ravaged India from the middle of the 18th to the earlier part of the 19th century. They were of every origin, but the term was taken from the Beder, or Veddur race, who extend southwards into the Mysore country, where they hold lands. A small body of them dwell on the platform of Raman malay, thirty-seven miles west of Bellary, and there are two small principalities of the Beder race at Zorapore, on the north bank of the river Kistnah. It is from this race, the Baidara Wanloo of the Tiling, that the word Pindarah comes. They are in various stages of civilization, but those in Mysore are perhaps most advanced. The small chiefship at Zorapore was given by Aurungzeb to Pid Naek for aid given at the siege of Bejapore. The descendants of Pid Naek are tall handsome men. The town of Zorapur is in the centre of a rocky amphitheatre, admirably suited for a predatory band. The race eat every creature, even the crocodile and other animals which most nations loathe. They are fond of the chase, and hunt the wild boar with large dogs. In the tract lying between the Mysore and Hyderabad and Mahratta territories, are several petty sovereignties, such as that of the nabob of Banganapilly, a syud family, in the east of the Ceded Districts. Until 1839, the Pathan nabobs of Kurnool ruled on the right bank of the Tumbudra river; further west, the Reddi chief of Gadwal; the Mahratta chief of Sundoor, one of the Ghorpara family; the kshetria rajah Narapati of Anagoondah, the descendant of the great king Rama of Vijianaggur, who was overthrown by the combination of the mahomedan kings of Golcondah, Kalburgah, Bijapore and Ahmednuggur; the Pathan nabobs of Shahnoor, the Ghorpara chieftains of Gujundurgurh and Akalkot; and, at Ghoorgontah and Beder Shorapore, are descendants of that Beder soldier, Pid Naek, to whom Aurungzeb, for aid given at the siege of Bejapore, granted a small territory in the Raichore doab. The Beder race have only these two small sovereignties. The Beder race in parts of Mysore form a considerable part of the population and have polygarships, and Ceylon has a fragment of a prior stock, called Veddah. Their name is variously pronounced, Beder, Baida, Baidara, Waida, Vedda, Vedar, Veddar, Vedan and Bedan. But they seem to be the race who gave their name to the Pindara plunderers who harassed Central India for nearly 70 years. The Baidar of Beder Shorapore, drink spirits, eat the hog, crocodile, porcupine (Sarsal) manis, (Ali) Iguana, bullock, cow, buffalo, cat, rat, bandicoot, (Mus giganteus) and Jerboa rat. The Baidera Wanloo, Tel., of Bellary, are mahomedans, and keep numerous little horses which they use for carriage. They are great carriers and have been of use in several military operations. The Pindari are mentioned in Indian history as early as the commencement of the eighteenth century; several bands followed the Mahratta armies in their early wars in Hindustan. Coleman tells us that they were divided into durrha, or tribes, commanded by sirdars, or chiefs, and people of every country and of every religion were indiscriminately enrolled in this heterogeneous community, a horse and sword being deemed sufficient qualifications for admission. A common interest kept them united: some of the chiefs acquired wealth and renown in the Mahratta wars; they seized upon lands which they were afterwards tacitly permitted to retain, and transmitted, with their estates, the services of their adherents to their descendants. The Pindara were a sort of roving cavalry, coeval with the earliest invasions of Hindustan by the Mahrattas, rendering services similar to that of the Cossacks to Russia. When the Peshwa ceased to interfere personally in northern affairs, and that part of the Mahratta affairs became transferred to Sindhia and Holkar, the Pindaras ranged into two parties, the Sindhia Shahi and Holkar

Shahi. The horde was called a Luhbur, and out of a thousand about 400 might be well mounted. Their favourite weapon was a spear with a light bamboo shaft and from 12 to 18 feet long. They had no baggage and could therefore move with a speed which no regular troops could accomplish. They were guilty of every outrage that barbarity could suggest on the villages through which they passed. The Pindara or Pindareh, attached themselves as a distinct class to native armies, which they followed, without receiving pay, or being actuated by patriotism and so far from wishing to be distinguished for their prowess as fighting men, they never sought even for plunder, their sole occupation, but where it could be obtained without danger. The Chandpur Sakumbari of Tantia, are described by Colonel Tod as desperate robbers. He saw this place fired and levelled in 1807, when the noted Karim, Pindara, was made prisoner by Sindia. It afterwards cost some British blood in 1817. Though now desolate, the walls of this fortress attest its antiquity, and it is a work that could not now be undertaken. The remains of it bring to mind those of Volterra or Cortana, and other ancient cities of Tuscany: enormous squared masses of stone, without any cement. —*H. T. Prinsep*; *Cole's Myth. Hind.*, *p.* 298; *Malcolm's Central Asia*, *Vol.* i, *p.* 33; *Lake's Sieges of the Madras Army*, *p.* 22; *Tod's Rajasthan*, *Vol.* i, *p.* 100.

PINDAR NUT, Eng. Ground-nut, earth-nut.

PIND DADAN KHAN, on the Jilam, is in lat. 32° 34′ 53″.

PINDEE ALEE MOMUND, see Khyber.

PINDI BANDA, Tel. Anisochilos carnosus, *Wall.* Plectranthus strobiliferus, *R.* iii, 23, also, Coleus spicatus, *Benth.*, *W. Ic.*, 1431, *Rheede*, x, 90.

PINDI CHETTU, or Karasa, Tel. Ficus ampelos, *Burm.*

PINDI DONDA, or Pindi konda, Tel. Ærua lanata, *Juss.*, *W. Ic.*, 723. Achyranthes lanata, *L.*, *R.*, i, 676, *Rheede*, x, 29. The same name is applied to Gendarussa orixensis by Piddington Index, p. 196. Br. 602, writes it Pindidonda, but donda is a sp. of Bryonia, *Heyne*, 54.

PINDI PARIMI BADDU, Tel. Dioscorea, *sp.*

PINDI LUKA, Sans. Vangueria spinosa, *R.*

PINDING, Singapore. A gold ornament worn by Malayan women of rank as a fastening for the waist belt.

PIND KHAJUR, Hind. Phœnix acaulis.

PINDROW, Hind. Picea webbiana, Picea pindrow, also Abies thunbergii.

PINDUR and Kuphinee, two rivers in the Kumaon Himalaya, remarkable for the glaciers which occur in them.

PINEAL GLAND, the Brahma-randhra of the hindoos. See Yug-byasa.

PINE APPLE.

Ananassa sativa.		Bromelia ananas.	
Nanat,	Burm.	Koida chika,	Maleal.
Nannah-thi,	„	Pina,	of Philippines.
Pandang,	Celebes.	Nay,	Sgau.
Annanas,	Guz.	Separat,	Siam.
Annanas,	Hind.	Anasi,	Singh.
Annasso,	It.	Anasia pallam,	Tam.
Nanas,	Malay.	Ananas pundu,	Tel.

This is the fruit of a plant indigenous to America, and the East and West Indies, and now reared in hot houses in Europe. In its wild state, it is inferior to the carefully cultivated. Pine apples of Pegu require so little care, that they are brought into market in Rangoon in vast quantities of the finest quality, from the end of April until the middle of August. About Prome and Toungboo, they are scarce. It is one of the most abundant fruits in the Tenasserim provinces. Nanas is said to be the name it had among the Peruvians where it was originally found, and the Burman name is nanat; which the Sgau have abbreviated to nay. Its long and rigid leaves, thorny at the edges and point, abound in fine white fibres, which are, in some countries, woven into the finest fabrics, netted or twisted into lines for fishing and into ropes possessed of considerable strength. These are said not to be injured by constant immersion in water—a property which the natives increase by tanning them. The plant is said to have been introduced into India by the Portuguese, in the year 1594. It has, in some parts, become so naturalised, as to appear indigenous. Capt. Turner, in his journey to Teghooloomboo, mentions it as very abundant at the foot of the Himalayas. It flourishes in Assam, and forms thickets near Rangoon. Dr. Wallich, in the year 1836, presented to the Agricultural Society, a bag made on the Khassya hills, of pine-apple fibre, having purchased it for a trifle at Cherapoonjee. He mentions the enormous quantity of pines grown on that range, and Dr. Oxley writes that thousands of acres of pine-apple plant, cover the Malay islands, so that the supply might be considered inexhaustible, of a fibre remarkable as well for fineness as for strength. Dr. Helfer describes the pine-apple as so abundant in the Tenasserim provinces as to be sold in Amherst town in the months of June and July at the rate of one rupee for a boat-load. It chiefly abounds in low grounds, though it is also to be found in the hills amongst the Karens; being a native of the moist forests of South America, from the level of the sea to elevations of about 1,800 feet, requires, for its successful culture as a fruit, a warm and moist climate; but, like others of the family, the species are capable of existing in a warm, dry air. The pine-apple is described as growing in great abundance in the Philippine Islands, but as producing only a small, rather dry fruit. But we require some precise information to enable us to judge whether this is actually the plant escaped from cultivation. M. Perrotet considers it a distinct species, and has named it Bromelia pigna, from the Spanish name Pigna or Pina, signifying a cone. There, this wild plant is valued on account of the fine hair-like fibres which are separated from out of the leaves. Of these fibres, the celebrated pine-apple cloth of the Philippines, sometimes called "batiste d'ananas," and resembling the finest muslin-like fabric, is woven. This is embroidered by the nuns of the convents in Manilla, with great skill and taste. Some beautiful specimens of these, under the name of Pina muslin, were to be seen in the Exhibition of 1851. This is sometimes called grass-cloth, but erroneously. With a magnifier the fibres may be seen to be very numerous and fine, but not twisted at all, as in grass-cloth or the finest muslins and cambrics. Mr. Bennett, in his 'Wanderings,' observes that one of the coarser fibres may be subdivided into threads of such fineness as to be barely perceptible, yet sufficiently strong for any purpose. Mr. Bennett mentions visiting a plantation near Singapore, made by a Chinaman, for the preparation of the fibres of the ananas or wild pine-apple, which are exported to China, being used there "in the manufacture of linens." The Chinese said he got 1½ rupees the catty, for the fibre. The leaves recently gathered—and the largest are preferred—are laid upon a board and the epidermis is removed with a broad knife. Upon its removal from the upper surface of the leaf, the long and beautiful fibres were seen lying upon the lower and denser epidermis, running in a longitudinal direction; the fasciculi of fibres were then readily detached by the hand, on being raised with the broad knife. The separation of the fibre of the ananas is practised in other places besides the Philippine Islands. The Singapore Committee forwarded specimens (Talinanas) from Malacca, as well as some of three different qualities prepared at Singapore, and a portion as ready for weaving, that is, with the ends gummed, or joined together by some adhesive substance; thus forming the "invisible knots" of an old author. Specimens were also sent from Java and the island of Celebes. Dr. Roxburgh does not appear to have paid much attention to the separation of the ananas fibre; but in the year 1839, Miss Davy sent specimens of a thread prepared from the wild pine-apple plant of Assam, of various degrees of fineness, observing that the thread must be prepared when the leaves are green, as nothing can be done with them in a dry state. Miss Davy subsequently sent specimens of cloth manufactured from this thread to the Agricultural Society of Calcutta, observing that she had had much difficulty in getting it woven, as the principal manufacturers in Dacca positively refused to undertake making it into cloth. A weaver in the jungles near Dacca, afterwards undertook to do so, and wove the cloth which was sent. Of this, Miss Davy had some embroidered in silver,—a style of work in which the natives of that part of the country excel. The specimens of the fibre were shown by Mr. E. Solly to spinners in England, but they did not consider it would be substituted for flax in the manufacture of textile fabrics. A patent was, however, taken out by Mr. Zincke, for the manufacture of thread from this fibre, because, when bleached, it could be spun in the same way as flax. The process of bleaching, by destroying the adhesion between the bundles of fibres, renders it much finer; and hence enables it to be extended between the rolls in the process of spinning. He considers that from its beautiful silky lustre, combined with considerable strength, it is well adapted to form a substitute for linen. Pine-apple fibres (anasa nara), and the tow or oakum from them, were also sent to the London Exhibition of 1851; from Madras and Travancore, showing that the art of separating these fibres is extensively diffused. Dr. Hunter received some very fine, strong, and silky fibres from Porto Novo, prepared by Mr. Lima. Besides the fibre, some twine and cord made with it was also sent from Madras and from the Eastward. Mr. Bennett says, that at Singapore, from the cost of labour, the pine-apple fibre could not be prepared under thirty-eight or forty dollars the pecul; but in Penang, or other places where labour is cheap, and women and children could be employed upon it, the expense would hardly exceed ten dollars per pecul. In the experiments which Dr. Royle made with these various fibres, a certain quantity of those prepared at Madras bore 260 lbs., while a similar quantity from Singapore bore 350 lbs. before they broke; but of New Zealand flax the same proportions bore only 260 lbs. In a report from the Arsenal of Fort William, dated June 3rd, 1853, the results are given of some experiments made by Conductor Wilkins on several kinds of rope manufactured by Messrs. W. H. Horton and Co., of Calcutta; and among these there is one of pine-apple fibre, of three inches and a quarter in circumference. The government proof is that a rope of this size should bear a weight of 42 cwt., but it bore no less than 15 cwt. more, that is, it broke with a weight of 57 cwt., proving incontestably that pine-apple possesses strength for cordage, as well as fineness for textile fabrics. In the process of extracting and bleaching the fibres the first step, is to remove the fleshy or succulent side of the leaf. A Chinese, astride on a narrow stool, extends on it, in front of him, a pine-apple leaf, one end of which is kept firm by being placed beneath a small bundle of cloth on which he sits. He then with a kind of two-handled plane made of bamboo removes the succulent matter. Another man receives the leaves as they are planed, and with his thumb-nail loosens and gathers the fibres about the middle of the leaf, which enables him by one effort to detach the whole of them from the outer skin. The fibres are next steeped in water for some time, after which they are washed in order to free them from the matter that still adheres and binds them together. They are now laid out to dry and bleach on rude frames of split bamboo. The process of steeping, washing and exposing to the sun is repeated for some days until the fibres are considered to be properly bleached. Without further preparation they are sent into town for exportation to China. Nearly all the islands near Singapore are more or less planted with pine-apples, which, at a rough estimate, cover an extent of two thousand acres. The enormous quantity of leaves that are annually suffered to putrify on the ground would supply fibre for a large manufactory of valuable pina cloth. The fibres should be cleaned on the spot. Fortunately the pine-apple planters are not Malays but industrious and thrifty Bugis, most of whom have families. These men could be readily induced to prepare the fibres. Let any merchant offer an adequate price and a steady annual supply will soon be obtained.—*Journal of the Indian Archipelago, Vol.* ii, *No.* viii, *August* 1848, *p.* 523; *McClelland*; *Mason*; *Royle's Fib.Pl.,p.*377; *Journ. of Agric. Soc. of India, Vol.* viii, *p.* 182.

PINELLIA TUBERIFERA.

Pwan-hia,	CHIN.	Fan-pwan-hia,	CHIN.
Sang-pwan-hia,	„	Midsummer root,	ENG.

In China, the tubers of two or three Aroid plants are gathered in the middle of summer and used medicinally. Of these Pinellia tuberifera, Arisœma ternatum; Arum macrorum and others, are soaked and dried frequently until the poison is exhausted, and then cut into slices or made into a powder. In Hankow, they are met with in the form of white or yellowish white spherical balls, the interior is beautifully white dense and amylaceous when fresh, they are emetic and diaphoretic. When dried or in powder, they are given in fever, rheumatism, apoplexy and renal diseases.—*Smith's Mat. Med., p.* 149.

PINE NUTS, Neoza chilghoza, from N. W. India, Cabul, &c. See Pinus gerardiana.

PINE TREES, of the genus Pinus, belong to the natural order Pinaceæ of Lindley, the Coniferæ of Jussieu, the fir tribe of plants. Many species occur in Japan, in China and in the Himalaya. Of useful plants, the edible pine, Pinus gerardiana, occurs abundantly. The pine forests of the hills yield tar, resin, and might yield turpentine, except that, by the native process of preparation, this most valuable product of the crude resin is allowed to evaporate. The pines of New Zealand are the Dammara australis, Dacrydium cupressinum, Podocarpus totara, P. dacrydioides, P. spicata and P. ferruginea and Phyllocladus trichomanoides. The San or Sha-muh pine tree, of the Chinese is the Cunninghamia sinensis, a tree of Japan and of the South, Central and W. provinces of China, at a distance from the sea coast. All parts of the tree are used medicinally, as stimulant, tonic, and sedative remedies: it yields a good timber, used for coffins, flooring, furniture, house frames and for piles, but these latter must not be alternately exposed to the air and water.—*Smith, p.* 172. See Coniferæ; Pinaceæ, Pinus.

PINE MARTEN, Martes abietum does not apparently affect the Western Himalaya, but its skins are brought to India from Affghanistan.

PINE RESIN, see Colophane.

PINE TOP OIL, Oil of Pinus abies.

PINE TREE ISLAND, in lat. 10° 20′ N. and long. 98° 20′ E.

PINEY TREE.

Vateria indica, *L.* | Elæocarpus copalliferus, *Retz.*

The Piney tree is a lofty tree of Malabar, which produces the piney varnish, the piney resin or white dammar, Indian copal or gum anime, and the piney tallow or Doopada oil. The resin is nearly equal to copal, and the timber is an excellent building wood, which grows plentifully in the jungles of the Western coast. The tree grows from cuttings and is found planted by the roadside in Malabar. The resin resembles copal, and the finer specimens are as transparent as amber and nearly colourless. It is procured by the very simple process of cutting a notch in the tree, sloping inwards and downwards. This is soon filled with the juice, which in a short time hardens by exposure to the air. When used as a varnish the usual practice is to apply the balsam before it has become hard, applied while in its fluid state, it makes a good varnish. The Peiny varnish tree, or Peiny maram, is mentioned by Dr. Buchanan in his Journey through Mysore, Canara and Malabar. In Vol. 2, p. 476, he says some men of the Panchala tribe, which here is called Peninglan, paint and varnish by the following process. They take buttermilk and boil it with a small quantity of quick lime until strings form in the decoction, and separate from the watery parts, which they decant. The stringy matter is then mixed with the paint, which has been well powdered: with these the wooden work is first painted, it is then allowed to dry for one day, and afterwards receives a coat of Pundum, which is the fresh juice of a tree called Peiny marum. The Pundam must be used while it is fresh and will not keep for more than two or three days after the first coat of paint is given, and that is followed by another of varnish. In the same manner leather may be painted and varnished. The varnish effectually resists the action of water, but when that is not procurable the resin melted by a slow heat and mixed with boiling linseed oil forms a varnish which answers equally well for most purposes. As this varnish is one of the finest description, the following formula for its preparation may prove useful to some who are unacquainted with the process. Into a new and perfectly clean earthen vessel (a chatty) put one part of the Piney dammer, in coarse powder, cover closely, and apply a very gentle heat until the whole is melted; then add about two parts of linseed oil, nearly boiling hot, and mix well with a wooden spatula. Should the varnish prove too thick it can at any time be reduced by the addition of more oil, or, if required, may be made thicker in the first instance. It is essential to the success of the process that the piney be melted in a covered vessel over a very slow fire, and the whole of it reduced to a fluid before the addition of the oil, which must, to ensure an equal mixture, be nearly boiling hot. This varnish is used for carriages and other fine furniture requiring to have their paint well protected, or to which it is desirable to impart a fine gloss. A spirit varnish is prepared by reducing to powder about six parts of Piney and one of camphor, and then adding hot alcohol sufficient to dissolve the mixed powder. Alcohol does not dissolve Piney without the aid of the camphor, but once dissolved will retain it in solution. The varnish thus prepared is employed for varnishing pictures, &c., but before being used requires to be gently heated to evaporate the camphor, which otherwise will produce by its after-evaporation a roughness and inequality on the surface of the picture and spoil its appearance.

Piney tallow or Dupada oil.

Solid oil of Vateria indica, Eng.
Piney yenne, Tam.
Dupada nuna, Tel.

This oil remains perfectly solid even in hot climates. It is prepared by cleaning the seeds, then roasting and grinding them into a mass. To 5 seers of seed, add 12 seers of water, and boil until the oil rises to the surface. Remove the oil, stir the contents of the vessel, and allow it to stand until the following day, when more oil will be observed on the surface, which may be collected and the process repeated. The oil is principally used for lamps, but is very suitable for soaps and candle-making.—*M. E. J. R.*; *O'Shaughnessy*, *p.* 755.

PINEY TREE, or Poon tree of Pinang, is the Calophyllum angustifolium, *Roxb.* It occurs in Pinang, also in Coorg, Mysore, Canara, and along the Ghats, northwards to Sawuntwarree, but rarely of any great size beyond the line of the Neelgoond ghat. It is a magnificent tree when growing in the ravines of the southern ghats of Canara. According to Drs. Gibson and Cleghorn, Poon spars are obtained from this tree, but on the western side of India the trees are becoming scarce, and are perhaps more valuable than teak, Dr. Gibson says that, to the best of his knowledge, the Poon spars are furnished by Calophyllum angustifolium, which is a magnificent tree in the ravines of the southern ghats. In habit and appearance, it is totally distinct from C. inophyllum. These spars are found along the ghats, from the Sawuntwarree border southward, but rarely of any great size till the line of the Neelgoond ghat is passed. At another place he says that the Poon spars of the first class were not procurable in the jungles nearest to the coast, and probably, owing to the continued extension of cultivation. It is rather from the inland forests of Canara, backed as these are by those of Coorg to the east, that the supply of Poon spars is principally drawn. On his way from the Mysore border to Sircee, he saw, in more than one place, immense spars of Poon standing as trees, but scorched, burned up, and rendered useless. Dr. Cleghorn tells us that young trees, especially such as are in accessible places, are most carefully preserved in Coorg, Mysore and Canara. In one case which came within his observation, several valuable spars were found in a bridge, the total estimate of which was 250 rupees. But Poon spars, although highly prized for ship-building, are ill suited for making bridges. This incident he remarks, illustrates the importance of officers in the Department of Public Works, Telegraph, &c., making themselves acquainted with the description of timber available and suitable for their wants. He also mentions that the Superintendent of Coorg had received several tenders for the supply of Poon spars and other timber at the distance of at least three miles from the Soolia river, showing the scarcity of such wood and the readiness of the Mangalore contractors to carry it several miles to the nearest water carriage. These opinions of Drs. Gibson and Cleghorn, that the Poon spars of commerce are obtained from the Calophyllum angustifolium are of great value. But in 1850, in the Proceedings of the Madras Central Committee for the Exhibition of 1851, the Poon of commerce was supposed by Dr. Wight to be from the Dillenia pentagynia, "Rowaden," Tel., a large timber tree. The wood of Dillenia pentagynia is said to be exceedingly strong and very durable, even when buried under ground, and is a stately forest tree, common on the face of the W. Ghats. It is also a native of the Northern Circars and flowers in March and April. The similarity of native names between this and Calophyllum inophyllum, led Dr. Wight to suspect some confusion. Dr. Wight was satisfied that D. pentagynia is the tree which furnishes Poon spars, being a tall, and Calophyllum inophyllum a short stunted tree. Dr. Cleghorn commends the strict conserving of C. angustifolium, in Coorg and Canara.—*Drs. Gibson, Cleghorn, Wight and Roxburgh*; *Mr. Rohde's MSS.*; *Markham, p.* 452. See Poon.

PINGI-NACHHI, Beng. Panicum helvolum.

PINGO, Singh., the cowri or cavadi of the peninsula, is an elastic stick loaded at both ends, poised on the shoulder, used in Ceylon for carrying burthens.—*Simmond's Dictionary.*

PINGUICULACEÆ, *Lindl.* 22 species.

PINGULU or pingala, Sans. Variegated.

PINGULU-NAGA, Sans., from pingala, brownish-yellow, and naga, a serpent.

PINJAN, Hind., a large sort of bow, used in carding and cleaning cotton.

PINGYAT, or Pinyat of Chenab, Ravi. Crataegus oxyacantha.

PINIC ACID and Sylvic acids, see Gums and Resins.

PINISH, Anglo-Beng. Spinacia tetrandra.

PINITES SUCCINIFER.

The Resin.

Inkatriyoon,	Ar.	Namboo,	Japan.
Karn-ul-bahr,	„	Ambar,	Malay.
Amber,	Eng.	Jantar,	Rus.
Karooba,	Hind., Pers.	Umbar.	Tam.
Kapoor,	„		

Found on the coasts of Japan, in the Baltic, Cape Kobin, Sicily and Maryland.

PINJAL. About the beginning of May the monsoon clouds collect on the tops of the Pinjal, and continue depositing their contents for the three succeeding months. The S. W. monsoon becomes expended by the time it has emptied its contents on the northern Pinjal, which also accounts for the verdure of these ranges compared with the more northern chains of Ladakh and Tibet. On the northern Pinjal they drop more of their moisture in the shape of snow and rain, and then pass over into the thirsty lands beyond, with scarcely enough vapour in them to make even a cloud.—*Adams* ; *Maury's Physical Geography of Sea.* See Pir Pinjal.

PINJARA, Hind, a cotton cleaner. He uses in his trade the following apparatus.

Tatti,	2 annas.	Goolel,	¼ anna.
Dastah,	8 „	Tarazoo,	1 „
Kunar,	40 „	Total....Rs.	3 3 3

A Pinjara can clean 72 lbs. of cotton in a day and earn about eight annas daily.

The cotton wool after being separated from the seed, is beaten to open out the fibre and fit it for spinning.

The *Rahat* of Dharwar is the cotton spinning-wheel.

The *Tanwul,* is the rack, on which the thread is wound to form into hanks for sale.

The *Foot-roller of Dharwar,* for cleaning cotton, is worked with two feet on a stone by a woman sitting, or rather balancing herself on a low stool. The seeds are rolled out in front, and the cotton drawn away as fast as it is freed from the seed, and piled up behind under the stool.

The *Ratee,* or roller of Dharwar, is sometimes used for separating the seed from the cotton.

PINJI, Hind. Pennisetum italicum.

PINJRAPOL, Hind. In India, a hospital for sick animals. The account given by Pietro de la Valle, who visited India in 1623, shows how very ancient this custom is. The same day of our "arrival," says he, 'after we had 'dined, and rested a while, we caused ourselves 'to be conducted to see a famous hospital of 'birds, of all sorts. The next morning,' adds he, "we saw another hospital of goats, kids, sheep, and wethers, either sick or lame." The Jains are the great protectors of animal life. They, together with the buddhists, are pre-eminently tender on this point, not only on the score of humanity, but from their belief in the doctrine of metempsychosis which teaches them to regard the brutes as of their own kin, the tenements not improbably of the souls of their ancestors. The celebrated king Asoka, who flourished about 250 years before Christ, was the first hindoo sovereign known to have favoured the tenets of the Jains. His capital was Palibothra, at the junction of the Soane and Ganges. The inscription on the palaces of Delhi and Allahabad, on the rocks in Affghanistan and Girnar in Cutch, refer to the events of his reign. On one of these tablets, Asoka proclaims, that though, until then, hundreds of thousands of animals had been killed daily for the Royal kitchen, from thenceforth the practice should be discontinued, as he had become religious. On another it is proclaimed that throughout his dominions, trees for the shade and shelter of men and animals, and wholesome and nutritious vegetables for their consumption shall be cultivated. It is considered probable that the Jains and buddhists set their faces against animals suffering, as a contrast to the cruelties at the time practised by the brahmins, and that they to some extent succeeded in shaming them down. It appears from the Ramayana that the brahmins of those days made offerings not only of flowers and plants but of slaughtered horses, hogs and sheep; the sacred cow herself being occasionally offered on the altar. At their feasts both butcher meat and intoxicating liquors were freely indulged in. The brahmin hermit Bharadwaja gave a magnificent entertainment at Allahabad to Charat and his army, where venison, the flesh of the wild boar, mutton, peacocks and partridges with abundance of strong drink, furnished forth the repast. Menu considers the feast in honour of a dead relation incomplete unless where animal food is present: we have no authoritative information as to when the present protective system crept in: that it is not countenanced by the sacred books of the hindoos or the customs of antiquity and is a matter comparatively of yesterday is apparent. We are still more in the dark as to the introduction of hospitals for aged and diseased animals. The first we find described is that at Surat of which Ovington gives an account as he saw it in 1689, Hamilton describes it as he saw it in 1772, Heber speaks of that at Broach in 1824. There is nothing that can be adduced in their support either from the sacred works of the hindoos, the Asoka inscriptions or the institutes of Menu, more than may be inferred from the proverbs of Solomon that "the merciful man is merciful to his own beast." The homage to brute animals originally confined to the Jains and buddhists, and not even making its appearance amongst them until a comparatively recent period of their history slowly extended itself amongst the brahmins, and in the early part of the 19th century had infected the Parsees. This comparatively enterprising and enlightened race, so far from being exempt from the degrading superstitions of the hindoos as has been asserted, seem to have picked up some rags from the superstition of every sect and denomination with which they have come in contact, and patched it on to their own comparatively simple creed. The superstition of the banians, like themselves a great trading community, seems to have been peculiarly attractive to them, and the Pinjrapol being their pet institution, speedily secured the sympathies of the Zoroastrians. It is said that in the reign of the emperor Akbar, a pious married pair from the Malabar Coast resolved on making a pilgrimage to Benares. When their journey was near an end, the wife was taken in travail, and a man-child was born to her; unable to carry him on, they left him one evening behind them on the moor. Next day the grass was found blazing everywhere around, but the infant was lively and unburnt, the blaze refused to approach him. He was taken charge of by the priests and pronounced at once a child from heaven, the offspring of the deity. The boy waxed and grew, and shewed an early aptitude for knowledge and when he reached the age of manhood visited the various shrines, castles, and courts around, preaching a form of faith altogether new, specially inculcating tenderness to, and care of animal life. He was the first Maharaja of the Banians. There are about two hundred now alive who claim direct descent from him and are believed by their worshippers, incarnations of the deity. They exercise the most absolute authority both spiritual and temporal over their votaries, who bow with the most abject submission to their behests. If there be any truth in a pamphlet lately published regarding them, their lives and conversation are scarcely such as becomes the heaven descended.

The Bombay Pinjrapol owes its origin as much to the Parsee worship of sacred dogs as to the superstitions of the Jains. In 1813, the dogs running wild and masterless in the street had become so intolerable a nuisance that an order was issued for killing them, and the result of this was a succession of street rows and disturbances betwixt the dog-destroyers and dog-worshippers, which led the latter to offer a sum of money for each mangy cur that was released from durance and made over to them. Some 30,000 or 40,000, of these canine incarnations of the deity, were in this way annually packed off, the bulk of them were sent to an island near the mouth of the Taptee to starve, or to worry or infect each other. So cruel are the tender mercies of the wicked and superstitious. Great expense was incurred on this account, and as the funds began to diminish from failing zeal, Motichund Amerchund, the great Jain merchant, and partner of Sir Jamsetjee Jejeeboy exerted himself and obtained an agreement on the 18th October 1834 from Shree Gosainjee Maharaja, and setts of the hindoos, Parsees, and others, by which they bound themselves to raise taxes on opium, cotton, sugar, bills of exchange, and pearls "that the lives of a great many animals may be saved, which is an act of great charity," the shrawuks, or Jains agreed to raise a fund amongst themselves for the required ground and building, the rates were collected and sent yearly to the mangers appointed, namely, Bomaujee Hormusjee Wadiajee, Sir Jamsetjee Jejeebhoy, Motichund Amerchund, Vukutchund Khooshalchund. The agreement signed by about 450 merchants, contains a clause stating that any excess of the funds may be applied to such charitable objects as may be approved of by the trustees. At one time there were about seven lacs of rupees (£ 70,000). Whilst the Bombay pinjrapol was under the vigilant superintendence of our Parsee Baronet, the funds poured amply in and the institution was most carefully conducted. Since 1851, the place has become a sink of animal and moral corruption. When seen by the Editor in 1866, it was filled with wretched filthy sick animals. Prices on commodities, like other prices, fall all ultimately on the consumers. The Lancashire Cotton-spinners are not perhaps aware that from their pockets are drawn the means of supporting one of the most filthy and disgusting establishments for the torture of brute beasts mind of man or fiend can conceive. It is chiefly from the date of its wealth that the Bombay institution became a nuisance, and though people were disposed to overlook all and everything in the great Parsee Baronet, in consideration of the darkness and ignorance of the age in which he was brought up, it will never do for his kinsmen, still less for his descendants, to be presented to royalty, or to the baronetage of England, as worshippers of unclean brute beasts, the keepers of knackers' yards or mangy dog kennels. The existence of the pinjrapol is of itself enough to show the immeasurable distance that intervenes between those who delight in the self-assumed designation of the "Saxons of the East" and their rulers, the Saxons of the West.

It fearfully fails to fulfil any one of the ends it professes to aspire after. To the horse, the ox, the goat, the sheep and the dog, more especially the first and the last, fresh air and exercise are indispensable, not only to health and enjoyment, but to existence. As to the horse "he is a hunter of the hills, to him confinement is a curse, and followed by the worst of ills." The noble beast who probably has never once within his life been tied up for forty-eight hours on end, whose master daily even and morn, when there was no work for him to do, saw that he had air and exercise—is, from the day that he enters the pinjrapole, to that when his dead carcase is dragged out of it, pinned down to one spot as firmly and irrecoverably as is the insect in the cabinet of the entomologist. Better die a hundred deaths at once than thus be tortured and slain by inches. The cattle, sheep and goats fare but little better; the dogs are infinitely worse off than the horses: it not unfrequently happens: that animals which have been sent there by mistake are recovered by their owners, a single hour in the kennels sends them back covered with vermin, and infected with the most loathsome diseases. Lions, tigers, panthers, and other carnivora are occasionally kept in the pinjrapol; it is forgotten that for every day that one of these is kept alive, one sheep or goat must die to feed it. A butcher sometimes receives a large sum for abstaining from the slaughter of sheep or kine. The man pockets the money and keeps his bargain. As the market must be supplied the number spared at one shop or house is made up next door. The precept outwardly attended to in the letter is violated at every turn we take in spirit.

We trust these things will be taken into consideration by the natives who worship the pigeon, the cow and the dog, and that they will cease endangering the lives of their fellow-creatures. —*Bombay Standard*, 1858; *Bombay Times.*

PINJU, Hind. Capparis aphylla.

PINJUNG, Hind. Potentilla Inglisii.

PINJUR, Hind. See Pilu.

PINKNEYA, see Cinchona.

PINK WATER LILY, Nymphæa rosacea.

PINLAY-JALLAT, Burm. A tree of maximum girth 2½ to 3 cubits and maximum length 15 feet. Tolerably plentiful by the sea-side and very near to the water's edge, in the Tenasserim provinces. When seasoned, it floats in water. Its wood is strongly recommended for fuzes, it is free from oil, and acid, and light, yet strong; it is much used. for rockets of enormous dimensions and for wooden guns, and is used for the burning of the dead Phoongyes and on other occasions.—*Captain Dance.*

PIN-LAY-KA-NA-ZO, Heritiera, *sp.*

PIN-LAY-OONG, Xylocarpus granatum, *Kœn.*

PINNA, Tel. Bassia longifolia, *Willde.*

PINNA, a genus of molluscs.

PINNA BURUGA, Tel. Salmalia malabarica, *Sch.* and *Endl.*—Bombax mal., *DC.*

PINNACOTTA, Tam. Calophyllum inophyllum. Pinnacotay oil or Poon-seed oil, its oil.

PINNACE, one of the Ganges conveyances; generally a private boat rigged like a brigantine, and used for family pleasure trips or short journies rather than for any lengthy travel. They can be hired, but this is costly, are generally from twelve to twenty tons burthen, and from forty to fifty feet in length, with a crew of twelve or fifteen men.

PINNA GORANTA, Tel. Barleria, *sp.?* B. ciliata?—*R.* iii, 38.

PINNA IPPA or Ippa, Tel. Bassia, *sp.?* B. longifolia? *R.* iii, 523.

PINNAI, Burm.? In Amherst, said to be a fruit tree; the wood affords a yellow dye, and is a compact, handsome, yellow wood, suitable for common cabinet purposes. It is probably an Artocarpus. Indeed, under the same Burmese name, Mr. Blundell describes an Artocarpus of Tavoy with a strong, close-grained, yellow wood.—*Cat. Ex.* 1851; *Mr. Blundell.*

PINNA MULAKA or Nela mulaka, Tel. Solanum jacquini, *Willd.*, *Br.* 1862.

PINNA MULLANGI, Tel. Raphanus, *sp*

PINNA NELLI, Tel. Premna hircina *Buch. MSS.* P. integrifolia, *R.* iii, 81.—*W. Ic* 1469.—*Rheede*, i, 53. Sans. syn., Tejomanyah *W.* 385, rendered Premna spinosa, *R.* iii, 77

PINNA PALA, or Dudi pala, Tel. Oxystelma esculentum, *R.*

PINNA PAPRA; Tel. Cucumis ascerlea, *Br.* 1262.

PINNA VARAGOGU, Tel. Salvadora, *sp.* —S. persica, *L.*—*W. Ic.* 161.

PINNA YELAKI CHETTU, or Bokkudu chettu, Tel. Hydrocotyle asiatica? *L*—*R.* ii, 88.—*W.* and *A.* 1130.—*W. Ic.* 565.

PINNAY, Maleal., Tam., Tel. Calophyllum inophyllum and C. calaba.

PINN AYEIN-PA, Chikrassia tabularis.

PINNAY YENNAI, Tam. Pinnay noona, Tel. Oil of Calophyllum inophyllum. See oil.

PINNAY PU, Maleal., Tam. Calophyllum inophyllum flower.

PINNOTHERIDÆ, a family of the Brachyurous crustacea called Pinnotherans by Milne Edwards, known by the common name of Pea-Crabs; of these Elamena (M. Edwards) is founded on Hymenosoma mathæi, figured by M. Ruppell, is his work on the 'Crustacea of the Red Sea' and separated from that genus by Milne Edwards, who thinks that it seems to establish the passage between the Hymenosomata, the Oxystomes, and the Oxyrhyycnhi. *Elamena mathæi*, (Ruppell, 'Krabben,' pl. v, f. 1), is found in the island of Mauritius and the Red Sea.—*Eng. Cyc.*

PINNEH, Maleal? Dillenia pentagyna.

PINS.

Epingles,	Fr.	Piniti,	Malay.
Stecknadeln,	Ger.	Gundu vusi,	Tam.
Tankni,	Guz.	Gundu sudi,	Tel.
Alfin,	Hind.		

PINNUS, Duk. The fruit Artocarpus integrifolia, *Linn.*

PINSEELEN, Dut. Pencils.

PINSEL, Ger. Pencil.

PIN-TAILED GROUSE, see Tetraonidæ.

PINTO, FERDINAND, the first European who visited Japan. He landed at Cape Bungo towards the end of 1542, in lat. 33° 32′ N. and 132° 2′ E. long. He was either shipwrecked there or landed intentionally.

PINUS, a genus of trees belonging to the Pinaceæ or Coniferæ. Cone-bearing pines with long leaves, like the common Scotch fir, are found in Asia, and as far south as the equator (in Borneo) also inhabit Arracan, the Malay peninsula, Sumatra and South China. It is a very remarkable fact that no Gymnospermos tree inhabits the Peninsula of India; not even the genus Podocarpus, which includes most of the tropical Gymnosperms, and is technically coniferous and has glandular woody fibre though like the yew it bears berries. Two species of this genus are found in the Khasia, and one advances as far west as Nepaul. The absence of oaks and of the above genera (Podocarpus and Pinus) is one of the most characteristic differences between the botany of the east and west shores of the Bay of Bengal. At Churra there is but one pine (Pinus khasiana) besides the yew, (and two Podocarpi) and that is only found in the drier regions. Singular to say, it is a species not seen in the Himalaya or elsewhere, but very nearly allied to Pinus longifolia, though more closely resembling the Scotch fir than that tree does. The Pine tree genus consists, for the most part, of timber trees, many of which are of great beauty and of much value on account of their timber. Many of them are growing along with fir trees (Abies), yew trees, and the larch (Larix) in the northern Himalaya, in China and Japan, and one or two in Burmah, one? in Cochin-China and one in Arabia. These have been noticed by Drs. Wallich, Royle, O'Shaughnessy, Hooker, Mason and Brandis, and Thunberg described others in Japan.—*Hooker's Him. Jour., Vol.* ii, *p.* 282. See Coniferæ, Pinaceæ, Pine-trees.

PINUS ABIES, see Frankincense.

PINUS BRUNONIANA, *Wall.*

Pinus dumosa, *Lamb.*
Abies brunoniana, *Siebold, Hooker.*

Silver fir, Eng. | Semadoong.

A tree of Nepaul, Bhootan and Gossain Than, growing occasionally in dense and gigantic forests, 70 to 80 feet high, with a clear trunk of from 15 to 20 feet, and a spreading branching head. Dr. Hooker measured one 28 feet in girth.—*Eng. Cyc.*; *Hooker's Him. Journal.*

PINUS CEDRUS, *Linn., Lamb.* Syn. of Abies cedrus. See Cedar.

PINUS DAMMARA, *Linn., Burm., Wall.*

Agathis loranthifolia, *Salisb.*

This grows on the lofty mountains of Amboyna, and according to Dr. Wallich, in Tavoy, a very large tree, used in building.

White Dammar, a product of this tree, occurs in fragments of variable size, marked with reddish streaks, transparent, amber-like, brittle, with brilliant fracture, very inflammable, inodorous, and tasteless. It hangs from the branches, and resembles stalactites, the prices being sometimes as large as the hand, and 4 to 8 inches long; some pieces are like animi resin.—*Dr. Wallich.*

PINUS DEODARA, *Lambert.*

Cedrus deodara, *Lambert.* | Abies deodara.

Sacred Indian fir,	Eng.	Kelon ?	Hind.
Deva-dara,	Hind.		

The most celebrated of the Himalayan pines, noticed by Avicenna, found in Nepaul, Kemaon, Kashmir, at 7,000 to 12,000 feet. Leaves and twigs used in native medicine. Produces a turpentine called Kelon ka tel, used as a stimulant to foul ulcers. It is a tree of great size, a native of the mountains north of Rohilcund. It differs from P. larix in many respects, but most conspicuously in being destitute of the bractes which project beyond the scales of the strobile or cone. The tree is so exceedingly replete with resin, as to yield a very large proportion of tar. A manufactory of that article was formerly begun, by Mr. Gott, near the skirts of the Almora mountains. —*O'Shaughnessy, p.* 612; *Roxburgh's Fl. In., Vol.* iii, *p.* 653; *Cleghorn's Punjab Report, p.* 1.

PINUS DUMOSA, *Lambert.* Syn. of Abies brunoniana, *Siebold., Hooker.*

PINUS EXCELSA, *Wall., Pl. Rar. t.* 201.

P. peuce, **Macedonia.**

Kail,	Beas, Sutlej, Sirmoor, Gharwal.	Biar,	Jhelum.
Chir ; Kachir ; Darchir,	Chenab.	Kaiar ; Yero, yari ; Tser,	Kash.
Keuri,	„	Sam ; Palsam,	Piti.
Shim ; Som-shing,	„	Biar,	Panjab.
Tongschi,	Chin.	Chil,	Ravi.

A tree of Narambetty, Nepal, Simla, Bootan, Sirmoor and Gurhwal, a plant of Kaghan ; scarce at Murree. It grows in West Nepal, not in East Nepal and Sikkim, but is common in Bhootan. It is found with the Deodar, at Narambetty, Theog. Resembles the Weymouth pine, and is remarkable for its drooping branches. Dr. J. L. Stewart says it has recently been identified with P. peuce which grows only in a confined locality in Macedonia at from 2,400 to 5,800 feet. It is common in many parts of the Punjab Himalaya, generally growing in mixed forests, from 5,000 to perhaps 11,000 feet, the 13,000 feet given as a maximum by Aitchison, is probably a mistake. It also grows sparingly in western Tibet at 8,000 to 10,000 feet: Trans-Indus. Griffith found it in Kafiristan, and Bellew near the Sufed Koh at 9,000 to 10,000 feet. Trees of 8 and 9 feet girth are not unfrequent, but it rarely reaches 100 feet in height, although trees of 150 feet occur at times. It furnishes the best wood for most purposes of all the Himalaya conifers next to deodar, and where the latter is scarce or dear, this is used for all the ordinary purposes of construction. In Kullu as shingles, it is said to last 7 or 8, and inside 15 years. And at Murree, where it is the best wood procurable for shingles and ordinary purposes, the supply in A. D. 1860, was rapidly getting exhausted. The wood is so resinous as to be used for flambeaux and candles.—*O'Shaughnessy, p.* 612; *Dr. J. L. Stewart's Punjab Plants, p.* 225; *Hooker's Him. Jour., Vol.* ii, *p.* 45; *mentioned at p.* 189 *of Balfour, and in para.* 146 *of Mr. Barnes' Kangra Settlement Report*; *Lt. Col. Lake, Commissioner of Jhullender Division.*

PINUS GERARDIANA, *Wall.*

Neoza chilghoza, *Elphinstone.*

Chilgoza,	Affghan.	Neoza,	Hind.
Chiri, Prita, Mirri,	Chenab	Julgozah,	Pushtu.
Galboja,	„	Kashti,	Ravi.
Neoza pine,	Eng.	Ri,	Kunawar.
Edible „	„	Miri,	Panj.
Gunobur,	Hind.	Galgojal,	„
Rhee, Newr.	„		

A tree with a lofty. trunk, a native of the coldest forests of the Himalaya, confined to the northern and drier face beyond the range of periodical rains far among the hills, and its presence is indicative of a dry climate. It grows in one or two small clusters on a ridge with a northern exposure, near Walassa, but does not generally ripen its fruits ; is found in the Sutlej valley between Rampur and Sungnam at an elevation of 5,000 to 10,500 feet. The neoza or chilgoza pine, is first seen on the Miru ridge, and above Chini becomes a principal tree of the forest, produces a very large cone, containing, like the stone-pine of Europe, eatable nuts, of an elongated oblong form, which, when roasted like chesnuts, are agreeable to the taste, though with a little flavour of turpentine. The seeds are collected and stored for winter use, being a regular article of food, the price asked in spring was two annas per seer. Its nuts are eaten in Tibet and Affghanistan. This tree has been repeatedly tried in the rainy districts of the Himalaya, but will not succeed, a dry climate being essential to it. It is said to be found below the Niti Pass, high in Kumaon, but the dried specimens at Saharanpur hardly agree. It is common in a part of the Upper Sutlej basin, at one spot on the Ravi, and on a short portion of the Upper Chenab and its tributary, the Marru. It is also reported by Falconer and Winterbottom, as growing near Astor and Gilghit, not far from the Indus; is found near the Sufed Koh (Bellew) and in Kafiristan, &c., north of Kabul (Griffith). Its range in the Punjab-Himalaya may be put at from 5,800 to 8,800 feet. Dr. Stewart believes there is some mistake in Cleghorn's 10,500 feet on the Sutlej. It does not, as a rule, exceed 6 or 7 feet in girth, although he had seen it up to 12 feet, and its height does not generally range over 50 or 60 feet. It is a short trunked tree and the boughs and often the stem are much curved. The timber is but little used for construction, but must be considered tough, for Dr. Stewart had seen it used for the sticks on which the passenger by the swing-bridge sits, and on which his life depends. It is very resinous and is generally reckoned the best of all for torches and fuel, but on account of the value of its fruit is not often taken for these purposes. Major Longden says that the Kanawaris do not use its resin as it "gets too hard," but he extracted excellent tar from the wood by destructive distillation. On the Sutlej, a rude baske is formed from a piece of the bark having its corners fastened together by wooden pins. The chief product of the tree consists of the seeds, of which there are more than a hundred in a full-sized cone. In the Himalaya they ripen about October and are extracted from the nuopened cones by beating. They are largely consumed by the inhabitants, which, as above noted, has probably caused the wood of the tree to be less used than it would otherwise have been. On the Sutlej they are said to be partly stored for winter use, and partly exported towards the plains. They are oily and difficult of digestion, but have not a pleasant flavour. They are stimulant and an oil extracted from them is said to be applied externally in diseases of the head.—*Dr. J. L. Stewart's Punjab Plants, p.* 226; *Eng. Cyc.*; *Dr. O'Shaughnessy, p.* 613; *Royle's Illust., p.* 350; *Dr. Thomson's Travels in Western Himalaya and Tibet, p.* 73; *Cleghorn's Punjab Report, pp.* 63, 65.

PINUS KÆMPFERI, *Lambert.*

Abies Kæmpferi.

A native of Japan, found wild on the mountains of Fako.

PINUS KHASYANA.

Tin-yoo-ben, Burm.

Found on the hills in British Burmah, between the Sitang and the Salween rivers at an elevation exceeding 3,000 feet. It is a stately tree, sometimes as high as 200 feet to the top but owing to the difficulties of transport from these hills no timber of this species had up to 1862, been brought to Moulmein. The wood is very rich in resin. In a full grown tree on good soil the average length of the trunk to the first branch is 80 feet and average girth measured at 6 feet from the ground is 9 feet.—*Dr. Brandis*; *Cal. Cat. Ex.* 1862.

PINUS LATTERI, *Mason.*

Hten-roo, Burm.

A tree of Amherst province, on the banks of the Thoungyeen river, 50 to 60 feet high, or more, and 4½ to 8 feet in girth. It is believed that Captain Latter was the first European to visit the locality where the tree is indigenous. Specimens of its wood that had been brought contain more resinous matter than any other species of the coniferæ Mr. Mason ever saw. It appears like woody fibre immersed in resin. The Karens make tar from the wood, by a very simple process; and large quantities of both tar and pitch might be manufactured in the forests, if a remunerative price could be obtained for the article. The tree is not found west of the Donaw mountains, a part of an unbroken granite range that runs down from the falls of the Salwen to the old city of Tenasserim, and which here separates the valley of the Thoungyeen from the region watered by the Gyaing and its tributaries. This pine is not among the twenty-four species described by Loudon as the denizens of Great Britain, nor among the twelve species described, and figured by Michaux in his "North American Sylva"; yet it may after all, prove to be a variety of P. longifolia, which it more closely resembles than any other species, but from which it differs, among other things, in having only two leaves to each sheath in the specimens Mr. Mason examined, while that has three. Previous to publishing the above communication, Mr. Laidlay the Secretary of the Asiatic Society, submitted it to Dr. M'Clelland, while he was in charge of the Botanical Garden, and that gentleman, with P. longifolia growing in the garden before him, gave it as his opinion that the Tenasserim tree was a new species.—*Dr. Mason, As. Soc. Journ., Jan.* 1849.

PINUS LONGIFOLIA.

Tea-dong,	Bhot.	Cheer; Chir, sullah, surul, thausa,	Hind.
Long-leaved pine,	Eng.	Guiet-Koong,	Lepcha.
„ fir,	„	Nashtar: Nakhtar,	Pusht.
Scotch fir,	„		

Its resin.

Gunda-biroza,	Hind.	Birozeh-tur,	Pers.
Birje; Chir ka gond,	„		

Its turpentine.

Birija.	Ganda biroza.

Trunk erect, with a coarse rugged bark, and whorled branches. A plant of Kaghan, grows in the Himalaya, in the entrance to Nepal, in the Cheree pass, along the Tonse and Jumna rivers, and at elevations of 5,000 and 6,000 feet within the Himalaya, found in the Sutlej valley between Rampur and Sungnam at elevations of 1,500 to 7,000 feet. In Kamaon it grows at 2,500 to 5,500 feet on all the higher ranges. The valley and lower hills of Nepal, also the entrance to Nepal in the Kheree pass, along the Tonse and Jumna rivers, at elevations of 5,000 and 6,000 feet, in Sikkim only, it grows in low valleys, where better timber is abundant. Growing at the lowest of the pine tree elevations, it is the most readily obtainable from the plains, and, as the wood is light, it is often employed as a substitute for English deal. It is full of resinous matter like the wood of the deodar, and both these are frequently employed in the hills for making torches. The scenery of the Nyong valley in East Nepal is the most beautiful in the lower Himalaya: the Cheer Pine (P. longifolia) is abundant, cresting the hills, which are loosely clothed with clumps of oaks and other trees, bamboos and bracken (Pteris.) It attains full size in 80 years; grows to a great height, the trunk to the first branch being 20 feet, and girth 8 feet. Its wood is light yellow, easily worked, and light, used for timber for building purposes and for boats. Its timber is used in building and for making tea boxes. Its resin "Berja" is collected, turpentine is distilled from its wood, in several towns. Of this species there are two varieties in the Himalayas, one with twisted the other with straight fibres, and thus the former is called cutcha, its wood being fit only for burning, and the latter pucka by natives. The wood of the latter is admirably fitted for building purposes, but if exposed to the action of the weather and water is quickly destroyed. Lathing made of it is named "dadur." This pine exudes naturally or yields to incisions a very fine turpentine, which is called gunda baroza in the bazaars, birje andcheer ke gond, Pers., Birozehtur. But Ganda-barozah is a name also given to Indian olibanum. Wood is light-yellow, easily worked, and light; used for timber for building purposes and for boats. The resin is used for coating timber to prevent decay from the action of water, and also as a medicine; it also forms a material in the manufacture of glass bangles or rings worn by native women. The heart-wood, which is very oily, is used for making torches. The natives of the outer Himalaya prepare tar in a simple way from fragments of the wood. The dry chips are put into a large earthen pot, with a narrow neck, containing about 10 seers, and in the bottom four or five small holes (1–5th inch) are drilled. The pot so filled, is luted over with stiff wet mud on the top and sides. A hole being dug in the ground, a smaller pot, holding ¾ seer, is placed in it, and the larger one on the top: the joint being luted, and the surrounding space filled up with earth, a heap of cow-dung bratties (15 seers) is piled over the whole, and as much more as is required to keep up the fire for 8 or 9 hours. The residue of each pot gives 5 chitaks of tar and one seer of charcoal; four men will easily make 2¼ maunds, or nine large pots full of tar in the month, and the cost will be Rupees 21, viz., four men at 5 Rupees=20 Rupees; purchase of pots, 1 Rupee; on 2⅓ maunds = 3 annas 8 pie per seer. The value of the charcoal, near the railway or a large town will reduce the cost of tar to 3 annas per seer, or probably less. The product appears to be equal to the tar imported from Europe which is prepared on a larger scale. Mr. J. D. Smithe, Civil Engineer, adopted a modification of this plan at the Madhopore workshops. On the large pot, holding 12 seers and filled with chips he placed a smaller one inverted, luting the joint and upper surface with stiff mud, 5 inches thick; these vessels thus prepared, are put on the top of a third which we may call the receiver, and as in the former method, the joint being luted, the whole is covered with fuel and a fire lighted. Four to eight hours are necessary to extract all the tar. After the fire has been extinguished and the vessels have cooled, the ashes should be raked out, until the under vessel or receiver is visible; the large pot should then be carefully lifted off with a thick cloth in the hands. As the layer of mud is essential for the preservation of the vessels, time and fuel will be saved, if by careful management, the coating is not broken; each time it is renewed, a considerable expenditure of fuel takes place. Care is necessary in lifting the large pot to prevent lute or ashes falling into the receiver which contains the tar. The charcoal should then be taken out of the large vessel and the tar out of the receiver, when they are ready to be charged again, as at first. Common bazaar pots may be used, and with good management, they may be fired 10 or 12 times: the economical working of the tar factory very much depends upon care and attention. The pots may be worked in a row 1⅓ foot apart—by this arrangement there will be a great saving of fuel. The average produce according to Mr. Smithe is as follows:—"One seer of wood yields 2-6th chitaks of tar, and 4-3rd chitaks of charcoal, giving 6-9th chitaks as the produce of each seer of wood put into the pot, or 43·1 per cent. To procure a seer of tar, 6 seers, 4 chitaks of fresh chips are required for charging a pot, and 2 maunds, 6 seers and 9 chitaks of chips for fuel." The estimated cost is about one anna per seer, which, however, seems to be too low. The preparation of tar will be found useful for clearing the timber yard of chips which accumulate rapidly and are usually unsaleable. The pots should be charged with chips about 1 or 2 inches thick and 3 to 5 inches long. The tar produced by the above process, from the chips of Deodar, (Cedrus deodara), Chil, (Pinus longifolia), or Kail, (Pinus excelsa), is of a superior description, equal to Swedish tar. It is a mixture of resin and oil of turpentine, more or less blackened by the admixture of empyreumatic products: it thickens after exposure to the atmosphere, and may be used for coating boats; it is valuable as a preservative for all the wood-work of dams, regulating bridges and railway sleepers, also for telegraph posts and wooden fencing.—*Royle's Ill., pp.* 349, 351; *Cleghorn's Punjab Report, p.* 63; *Eng. Cyc.*; *Hooker's Himalayan Journ., Vol.* i, *p.* 182; *Vol.* ii, *p.* 45; *O'Shaughnessy, p.* 612; *Balfour, p.* 189; *Mr. Barnes' Kangra Settlement Report, para.* 143; *Lieutenant Colonel Lake, Commissioner, Jhullender Division*; *Selections from the Public Correspondence of the Punjab Administration, Vol.* ii, *p.* 251.

PINUS MASSONIANA, *Lamb.*, *Abel?*

Tinyooben, Burm.

A moderate sized tree found in the forest of Dipterocarpus grandiflora (Eng. forest), east of the Salween river. Spars of this species have occasionally been brought down to Moulmein. In a full grown tree on good soil the average length of the trunk to the first branch is 50 feet and average girth measured at 6 feet from the ground is 6 feet.—*Dr. Brandis, Cal. Cat, Ex.* 1862.

PINUS MORINDA, *Royle*. Grows in the Himalaya, and yields a very fine resin.

PINUS PALUSTRIS, *Lamb*. Swamp pine.

PINUS PINASTER. Penaster or Cluster pine. Kebar, HIND.

PINUS PINDROW, *Royle?*

Abies pindrow, *Royle*.

Pindrow,	HIND.?	Morinda,	HIND.

A magnificent species, even to the limits of the forests, and growing in Kemaon along with the deodar. It comes near P. Webbiana. It grows like the "Reh," which it closely resembles, and its uses are the same.—*Royle's Illus.*; *Balfour, p.* 189; *Mr. Barnes' Kangra Settlement Report, para* 145; *Lieut. Colonel Lake, Comr. Jullr. Division.*

PINUS PINEA, *Wall.*

Stone pine,	ENG.	Chilgoja,	HIND.
Chilghoza,	PERS.		

PINUS ROYLEANA. Deodar of Nepal.

PINUS SINENSIS, the Chinese pine, a large tree, is repeatedly noticed by Mr. Fortune. He says, Pinus sinensis, is met with on the sides of every barren hill, both in the south and north of China, and is generally badly used by the natives. It is grouped about in all directions, and attains to a great size. Many of these hills are well-wooded. He remarked as he went along good forests of Chinese pine (Pinus sinensis), the Japan cedar (Cryptomeria japonica), and the lance-leaved fir (Cunninghamia lanceolata). The forests of the Japan cedar and the lance-leaved fir were extremely picturesque and beautiful. The trees generally were young and not remarkable for size but were growing vigorously, and likely, if allowed to stand for a few years, to make valuable timber. In addition to this consideration, there was a symmetry and grace in the general appearance of these forests which one rarely sees in temperate climates, if we except perhaps the Himalaya mountains.—*Eng. Cyc.*; *Fortune's Tea plants, p.* 7; *Fortune's Res. p.* 189. See Cunninghamia.

PINUS SMITHIANA, *Wall.*

Abies khutrow—?		Abies smithiana, *Hooker*.	
Indian silver fir,	ENG.	Seh,	HIND.

A spruce fir tree of enormous size on the slopes of the Himalaya. It has a dark and sombre appearance, but is peculiarly graceful owing to its symmetrical form and somewhat pendulous habit. Its wood is white but considered indifferent though readily split into planks, and is used for beams and posts.—*Hooker's Him. Jour.*, *Royle's Illust. Him. Bot.*, *p.* 350.

PINUS SPECTABILIS, *Lamb.* Syn. of Abies webbiana, *Hooker*.

PINUS STROBILUS.

Sundbur,	HIND.	Serar,	HIND.

—*Jameson's Saharunpore Report.*

PINUS SUCCINIFER.

Sung-shih, CHIN.

In China, it is obtained in Chu-Chau-fu in Chehkiang: the Chinese medical works associate the fossil conifer with asbestus and amber.

PINUS SYLVESTRIS, *Linn.* Scotch pine.

PINUS TÆDA, *Lamb.* Frankincense pine, See Gums and Resins.

PINUS THUNBERGII, *Lamb.* Syn. of Abies thunbergii.

PINUS WEBBIANA, *Wall. & Lamb.*

Pinus spectabilis, *Lamb.*		Abies webbiana.	
Webb's fir,	ENG.	Gobrea,	HIND.
Purple coned fir,	„	Sallur,	„
Chilrow of northern Himalaya.		Ocnum,	„

Grows at great elevations in the Himalaya, where it is one of the principal ornaments of the forests. It attains a height of 30 to 90 feet with a girth near the ground of 9 to 35 feet, and is unbranched at Choongthan for 40 feet. Its wood is white, soft, splits well, and is highly prized for its durability. It grows like the Keloo, which it resembles in appearance, except that its leaves grow droopingly. Wood white, soft, light, unsound. Not valuable as building timber, but in Boongahal, the people use the wood as shingles to cover their houses. —*Mr. Barnes Kangra Settlement Report, para.* 145; *Balfour, p.* 189; *Commr. Jullr. Division*; *Hooker's Him. Journ.*; *Royle's Illustr., p.* 350.

PIOMBAGINE, IT. Blacklead.

PIOMBO, IT. Lead.

PIOPPA, IT. Poplar.

PIORI, BENG. Ipomæa turpethum, *R. Brown*.

PIPAL, SANS. Ficus religiosa; Urostigma religiosum, *Mig*.

Gaz Pipal, is Plantago major, also Abies smithiana.

Paras pipal, is Thespesia populnea.

Besides the pipal, Urostigma religiosum, *Mig.*, among the boughs of which the natives say the gods sit and listen to the wind playing among the leaves, there are the mango, banyan, and holy champa. The peasant women often wear the yellow flowers of the champa in their hair. The fragrance of the champa is so very strong, that bees refuse to extract honey from it,—a circumstance that could not escape the keen eye of the hindoo poets; and they accordingly feign the champa to be sadly mortified by this neglect. They have, however, afforded it consolation by dedicating it to Krishna.—*Asiatic Miscellany.*

PIPAL, or Pippul, Pilpul, HIND. Chavica roxburghii, *Mig*.

PIPALA, see Narayana.

PIPAL KA-GOND, HIND. A kind of red gum.

PIPAL TREE, Anglo-Hind. Urostigma religiosum, *Miq.*

PIPAL WATRA, jewellery.

PIPAT BUTI, Hind. Heliotropium ramosissimum.

PIPE-CLAY.

Khurra,	Duk.	Namum,	Tam

This is of a greyish white colour, with an earthy fracture, and a smooth greasy feel; it adheres to the tongue, and is very plastic, tenacious and infusible. When burnt it is of a cream colour, and is used for tobacco-pipes and white pottery. It is found in abundance in several parts of India and is used for the same purposes that it is in Europe. Some of the castes of hindoos, too, employ it for making the distinguishing marks on their foreheads, and (moistened with water) it is often applied round the eye, in certain cases of ophthalmia, as well as to parts of the body that are bruised.

PIPER BETLE.

Chavica betel.

Tanbool,	Ar.	Barg-i-tambol,	Pers.
Pan,	Duk.	Tambooli,	Sans.
Betel: Betel Vine,	Eng.	Vettilay,	Tam.
Pan,	Hind.	Tamalapakoo,	Tel.

The leaves of this vine and of P. siriboa are extensively used by the natives of the East and West Indies to chew along with the nut of the Areca catechu and quicklime, as a restorative of the powers of the stomach and promoter of digestion. It is capable however of producing, like some other species of Piper, intoxicating effects, and should be used in moderation. Piper betle is largely cultivated throughout the peninsula of India and in Ceylon. In Pegu it grows wild in the Pegu forests, on the Cadoojway Choung.—*Hogg's Vegetable Kingdom*; *Eng. Cyc.*; *McClelland.* See Betle.

PIPER CARICUM, see Cubebs.

PIPER CUBEBA.

Cubeba officinalis, *Miguel.*

Kababeh,	Ar.	Lada barekor, Komoon koos,	Malay.
Dumki mirchie,	Duk.	Suganda marichi,	Sans.
Cubebs, Cubeb pepper, Tailed pepper,	Eng.	Val mellaghoo,	Tam.
Koobab-chini,	Hind.	Salava mirialoo,	Tel.

A plant of the Archipelago, its fruit is largely used in medicine.—*Hogg's Vegetable Kingdom.*

PIPERI, Hind. of Sutlej valley, Tulipa stellata has edible bullis.

PIPER INEBRIANS a plant of the S. Sea islands where it is used as an intoxicating substance.

PIPER LONGUM, *Linn.*, *Roxb.*, *Rh.*

Chavica roxburghii, *Miq.*

Dar filfil,	Ar.	Gaz pipal,	Hind.
Pipool,	Beng.	Chabai jawa: Tabi,	Malay.
Peik khy-en	Burm.	Pipal; maghz-pipal,	Pers.
Pipilie,	Duk.	Pilpil: Filfil-i-daraz,	„
Long pepper,	Eng.	Dar-filfil,	„
Piperi,	Gr.	Pippalu, also Krishna,	Sans.
Pipel,	Hind.	Pipilie,	Tam.
Pipula-mool,	„	Pippalli Katte,	Tel.

A native of the south-east of Asia growing wild in India, along water-courses, towards the Circar mountains, but is much cultivated. The female spike having attached to it the dried half-ripe berries (resembling the catkin, of the birch), is used in medicine. It has nearly the same chemical composition and properties as black pepper, though feebler. It is said to contain piperin. The root (Granthicka, *Sans.*) sliced and dried, constitutes the Pippula moola of the native druggists, a substance much used as a stimulant remedy and spice by the hindoos, but it is still weaker than the fruit. The analysis of the fruits of the long pepper corresponds closely in results with those of the Piper nigrum. Long pepper is a creeper of easy culture and should be trained on poles, or have strong sticks to grow upon. It is common in all parts of India, is extensively cultivated in the Northern Circars; its use is rather limited, but as, in the commercial returns, it is always included with black pepper, the quantity cannot be ascertained. Long pepper is readily propagated by cuttings. The stems are annual, and the roots live for several years; and when cultivated, usually yield three or four crops, after which they seem to become exhausted, and require to be renewed by fresh planting. Its berries are lodged in a pulpy matter like those of P. nigrum. They are first green, becoming red when ripe. Being hotter when unripe, they are then gathered and dried in the sun, when they change to a dark grey colour. The spikes are imported entire. The taste of the berries is pungent though rather faint.—*O'Shaughnessy*, *p.* 575; *Jaffrey*; *M. E. J. R.*

PIPER METHYSTICUM, Ava pepper, a native of the Society, Friendly, and Sandwich islands, where it is called "Ava"; used in a tincture in chronic rheumatism, and in infusion as an intoxicating beverage, which is also deemed antisyphilitic. To cure venereal, the patient drinks an infusion until he becomes drunk, after which copious perspiration ensues. —*O'Shaughnessy*, *p.* 575. See Dracæna.

PIPER NIGRUM, *Linn.*

Filfil aswad,	Ar.	Filfil-siah,	Pers.
Maricha, Gol mirich,	Beng.	Pilpil,	„
Nga-yok-koung,	Burm.	Kolukung,	Sans.
Choka, Kala march,	Duk.	Marchu,	„
Black pepper vine,	Eng.	Mareechang,	„
Piperi,	Gr. of Hippoc.	Vellajung,	„
Kali marchi,	Hind.	Gammiris,	Singh.
Kala march,	„	Babaree,	Syrian.
Gol march,	„	Molago valli,	Tam.
Choca march,	„	Mellaghoo,	„
Lada,	Malay.	Merialoo,	Tel.
Molago-kodi,	Maleal.	Moluvu kodi,	„
Filfil gird,	Pers.		

A climbing plant, native of Malacca, Java and Sumatra, cultivated all along the Malabar Coast, but found wild among the hills of the Rajahmundry district, and very extensively cultivated from 96° to 115° E. long. 5° S. lat. to 12° N. lat. which limits comprise Sumatra, Borneo, the Malay Peninsula, and all countries to the east of the Gulf of Siam. The best pepper comes from Malabar, the least esteemed from Java and Sumatra. The plant is allowed to grow, trained to the stem of the Areca catechu and other trees, especially the Jack (Artocarpus) and Hyperanthera moringa (or horse radish tree), four years before the fruit can be collected. The berries are gathered when yet green, before they are perfectly ripe, and quickly dried on mats, by which they turn black. When plucked too young, they speedily fall into a state of powder. These are separated from the others by sieves and winnowing. In this condition it is termed black pepper. White pepper is the same fruit freed from the outer rind: for this purpose, the ripe berries are allowed to macerate in water, and the husk is removed. These are smaller, smooth, of a greyish-white colour, varying to yellow, with a less powerful odour and taste than the black. The root is a tonic and cordial. Both black pepper (Piper nigrum) and long pepper (Piper longum) grow wild in considerable quantities in the hilly tracts of Goodem, and probably along the whole of the pestiferous range of the Eastern Ghats. The latter finds its way in small quantities down to the bazaars on the coast, but the black pepper is entirely neglected, and does not appear to be gathered even for local use. Black pepper and long pepper appear to have been used as febrifuges in the east from the earliest periods. The powder and the root of long pepper have been much employed in hindoo medicine. The root is said to be bitter and dry, it is a stimulant tonic, is employed for coughs and indigestion also fever. The black pepper vine is indigenous to the forests of Malabar and Travancore, and for centuries has been an article of exportation to European countries from that coast. Malabar pepper is considered to be the best. Its cultivation is very simple, and is effected by cuttings or suckers put down before the commencement of the rains in June. The soil should be rich, but if too much moisture be allowed to accumulate near the roots, the young plants are apt to rot. In three years the vine begins to bear. They are planted chiefly in hilly districts, but thrive well enough in the low country in the moist climate of Malabar. They are usually planted at the base of trees which have rough or prickly bark, such as the Jack, the Erythrina, Cashew nut, Mango tree and others of similar description. They will climb about 20 or 30 feet but are purposely kept lower than that. During their growth it is requisite to remove all suckers, and the vine should be pruned, thinned and kept clear of weeds. After the berries have been gathered they are dried on mats in the sun, turning from red to black. They must be plucked before quite ripe, but if too early they will spoil. The pepper vine is very common in the hilly districts of Travancore, especially in Cottayam, Meenachel and Chenganacherry districts, where at an average calculation about 5,000 candies are produced annually.—*Ainslie, p.* 265; *O'Shaughnessy, p.* 571; *Eng. Cyc.*; *Riddell*; *M. C. C.*; *Ind. Ann. Med. Science for April, p.* 394; *Powell's Hand-book, Vol.* i, *p.* 376.

PIPER PSITTACORUM, the Norfolk Island spice, attains the height of ten feet, and has cane-like joints, and heart-shaped leaves. It produces a yellow, pulpy, pendant, cylindrical fruit of a spicy, sweetish taste, which is an excellent preserve, and, if gathered green, it is equally good pickled. The leaf bears great resemblance to that of the Pan, or Piper betel creeper of the East Indies.—*Keppel's Ind. Arch., Vol.* ii, *pp.* 284-5.

PIPER RIBESOIDES, *Wall.*

Tau kwou, BURM.

PIPER SYLVATICUM, the Pahari pipul, of the mountains of Bengal, used while green, and ripe also, as long pepper.—*Roxb. Fl. Ind., Vol.* i, *p.* 156; *O'Shaughnessy, p.* 575.

PIPER TRIOECUM. *Roxb., V.* i, *p.* 154.

Mirial tiga, TEL.

Circar mountains, in shady places, with rich soil, fruit succulent, small, round, red, excessively pungent, an article of important commerce from Madras.—*O'Shaughnessy, p.* 575.

PIPILI, DUK., SANS., TAM. Piper longum. Long pepper. See Pepper.

PIPINGYA, SINGH. Cucumis sativus, *Linn.*

PIPIRI-SARA, BENG. Ponzobzia pentandra.

PIPISTRELLI and Nottoli, see Cheiroptera.

PIPIT. The Himalayan pipit (Heterura sylvana) frequents verdant spots, usually at high elevations, and in appearance, as in habits, is a true pipit. It is one of the first ornithological objects to be met with on ascending the grassy sides of the mountains.—*Adams.*

PIPLIANAGAR a town in Bhopal from which was obtained a copper plate inscription in Sanscrit. Date A.D. 1210. Character Deva Nagari. Instead of the usual hindoo invocation, it is to virtue. The snake Shesha, Parasurama, Rama, Sita, Yudhishthira, Bhima, Kansa, Indra, Saraswati, Sambhu, raja Bhoja Deva, son, Udayaditya, Naravarma, Yashovarma, 1137 A.D. Ajayavarma, 1143 A.D. Vindhayavarma son Amushyavarma, Subhatavarma, son, Arjuna, living. It gives away the revenues of a village to a brahman family by the young raja Arjuna. It is remarkable for the frequent reference to the heroes of the poems, and the absence of the usual reverential notices of the now popular hindooo gods. Fire-arms in the thirteenth century could not have been used, for the success in war of the princes are owing to flights of arrows. Subhatavarma appears to have destroyed Patna in Gujarat. The term Pergannah being used, the mahomedans must have previously arranged the districts. The capital of the princes was Mandu or Oojein.—*Vol.* v, *p.* 377.

PIPPALLY CATTY, the dried long pepper vine.

PIPPALYANG, Hind. Croton sebiferum.

PIPPA, also Pippu, Hind. Boucerosia edulis.

PIPPALAVANA, or the Pippala forest, the site of the Charcoal tower. See Topes.

PIPPILI, or Pipuli, or Pippul, Dek. Chavica roxburghii, *Miq.*

PIPPU, Jhang, Sittu, Hind., of Muzaffargarh, q. v.

PIPPULA, Sans. Urostigma religiosum, *Miq.*

PIPPULI, Sans. Chavica roxburghii, *Miq.*

PIPRINÆ, a sub-family of birds, 1 gen., 1 sp., viz., 1 Calyptomena viridis.

PIPSA, a troublesome dipterous insect which swarms on the banks of the streams, in Sikkim; it is very small, floating like a speck before the eye. The bite of the Pipsa leaves a small spot of extravasated blood under the cuticle, very irritating if not opened. It resembles a flea, and is found on the banks of the Rungeet river, in Sikkim.

PIPTANTHUS NEPALENSIS. A plant on the Tendong in Sikkim, conspicuous is the beautiful laburnum-like Piptanthus nepalensis, with golden blossoms.—*Hooker's Him. Journ.*, *Vol.* ii, *p.* 5.

PIPUL, Beng. Pipulu, Tel. Chavica roxburghii, *Miq.* Long pepper, Piper longum.

PIPPALI KATTE, Tel., Piper longum, *L.*, *R.*, i, 154, *Rheede*, vii, 14.

PIR, Hind. A mahomedan saint, a religious instructor. Pir zadah, son or descendant of a pir. Amongst the Kurds of Persia, pir is a title, though it means, literally, an old man.—*Layard's Nineveh*, *Vol.* i, *p.* 302. See Khajah.

PIRA, also Piri, Hind. A low bed-stead used as a seat; also a seat fixed to a vaili or ekka, also a stand used by dyers.

PIRACY is described in the earliest Malay romances and is spoken of in glorifying the brave deeds of their ancestors. Piracy has always been frequent along the coasts of China. Pirates continue to infest the Sulu sea and the southern port of the Philippines. They come in the middle of the western monsoon and return in the beginning of the eastern monsoon. They seem to come mostly from Lanun Bay on the S. coast of Mindanao. Dampier, in 1686, calls them the Hilanoones, living in the heart of the country of Mindanao. They are bold, but rarely attack European ships, generally the trading schooners manned by Malays. Their prahus, are open boats, about fifty feet long, twelve wide and four deep. They have a swivel throwing a one-pound ball, but their plan of attack is to throw themselves in overpowering numbers on board of their prey. The Dutch and the British have done something towards suppressing piracy, but the Spaniards nothing. In the Persian gulf, up to the present day, and on the western coast of India until the beginning of the nineteenth century, piracy had prevailed and about the year 1770 an extensive system of piracy prevailed on the Arakan coasts and in the delta of the Ganges. Magindano pirates every year with their long prahus, well-manned, visit some part of the Archipelago, robbing, destroying, killing making captive all they meet with.—*Bikmore*, *pp.* 318, 320; *Wallace*, *Vol.* ii, *p.* 29. See Joasmi, Piratania.

PIRAGU, Maleal. Clerodendron viscosum, *Vent.*

PIRAHI, Tam. Epicarpus orientalis, *Blum*

PIR-ALOO, Beng. Randia uliginosa.

PIRAMBU, Tam. Ratan.

PIRANGI CHEKKA, Tel. Smilax chin *L.*, *Ains.*, 10. The rhizomes are sold in th bazaar. The Sans. syns. are Rasna and S *gandhamula*, both signifying a 'fragrant roo Rasuna, *Royle Ill.*, ii, 319, is applied to leav of Salvadora indica.

PIRATANIA, a name proposed for Nort eastern Indonesia, Formosa to the Sulu A chipelago and Mindanao, all included a embracing the Philippine and Basayan group Its southern part throughout is the great s of piracy in the Indian Archipelago and i cludes Mindanao, Sulu, and the crowd of oth islands extending from Mindanao to the N. coast of Borneo, and separating the Mind from the Sulu sea. See Piracy.

PIRENA, a genus of molluscs.

PIRHI, Hind. Desmodium tiliæfolium.

PIRI, Tam., a Ceylon tree which grows about twenty feet in height, and two feet i diameter. Its wood is very close in its grai and is used by the natives for the frames vessels and in house work. It produces fruit which is of no use.—*Edye on the Timb of Ceylon.*

PIRING, Beng. Trigonella corniculata.

PIROGUA, also Pirogue? a canoe formed two trees united.

PIROPU KIRE, Tam. Portulaca oleracea.

PIR PANJAL RANGE, the name of the western mid Himalayas. The mass of this range, according to Vigne, is basaltic. Panjal is a Persian word signifying a range of mountains. Pansal, Kash., is a water station. The

Pir Panjal pass, from Tibet to Kashmir, called also the Sona Gulli, is open for foot-travellers from the 20th April, and for horses about 20th May. It is shut for 3¼ months in the year. Hodgson, Herbert and the Gerards state 11,500 feet as the height up to which forest trees grow in Alpine India, east of the Sutlej. The Pir Panjal range of hills is visible from the Shalimar Gardens in Kashmir: their average height is about 15,000 feet. Mahomedans say the range derives its name from Panj, five, and Pir, saints, five pious brothers, having settled on it and performed several wondrous feats around; but the name seems to be Pansal, which, in the Kashmirian language, signifies a pass, and Pir, a devotee. Europeans and Persians call the whole mountain Pir Panjal, but the natives restrict the name to the pass. To them mountain chains offer nothing remarkable, while the passes leading through them are of some importance. So also are isolated mountains, when they serve as land-marks, or are deemed holy as places of pilgrimage. In general they give no name to any other.—*Baron Hugel's Travels in Kashmir and the Punjab, p.* 114. See Pinjal.

PIRTHIRAJ, a hindoo ruler of great celebrity, who amalgamated the Somara andChohan races in one body and perpetuated the two lines in one prince. He was born in the year 1154 and was sixteen years of age when he succeeded his maternal grandfather and sat himself on the throne of the Anangos. The first princess married by Pirthiraj was the daughter of the Dahima of Biana, a city, the castle of which was built on the topmost peak of Druinadaher, to resemble the Kilasa of Siva. He enlarged the circle of his alliances, till there gathered round his throne one hundred and eight chiefs of the highest rank in India, and his sway became the most powerful in the land. In the height of his power, Pirthiraj celebrated the Aswamedha, the most magnificent of all the regal rites enjoined to the hindoo by his shastras. By one account it was on the occasion of this ceremony that Pirthiraj forcibly carried off the princess Sanjogata in open day from the capital of Jhy Chand, a feat, the heroism of which forms the subject of the Kanouj Khand of the Pirthiviraj Chohan Rasa of the poet Chand. The princess of Kanouj was not only remarkable for her personal charms but formed the most perfect model of Rajput female character in her day. No sooner did Pirthiraj arrive with her at Delhi, than he abandoned himself to her influence. The seductive charms of the enchantress lulled the monarch for a time into a neglect of every princely duty. The date of this abduction is A. D. 1175. Pirthiraj afterwards undertook the conquest of Mahoba,or the present Bundlecund. Mahomed Ghori had penetrated as far as Lahore, and in 1191 he set out to attack the raja of Delhi, the outwork and bulwark of Indian sovereignty. The hostile armies met at Silouri between Thanesur and Kurnal on the great plain, where most of the contests for the possession of India have been decided. The hindoo raja was well prepared for defence, and defeated the mahomedan forces. Within two years, however, the Ghorian again encamped on the bank of the Caggar. The brave Samarsi, fell, together with his son and all his household troops. Chaond Rai, the gallant Dahima, perished with the whole chivalry of Delhi. Pirthiraj himself was taken prisoner, and put to death in cold blood. Then followed scenes of devastation, plunder and massacre, that have too often been enacted in Delhi. None survived excepting the bard Chand who alone remained to sing the requiem of his nation's fall. Chand, the last heroic hindoo poet of India, was the author of the Pirthivi Raj Chohan Rasa, containing an account of Pirthivi raja, a Chouhon Rajput, the last hindoo prince of Delhi. It has many books, of which the Kanouj Khand contains the history of Sanjogata Jye Chand who celebrated the Aswamedha sacrifice in token of assumption of empire.—*Tr. of Hind., Vol.* ii, *pp.* 164 *to* 169. See Inscriptions, Jye Chand, Pirthivi, Sanjogata.

PIRUNDEI KODI, TAM. Vitis quadrangularis, *Wall.*

PIRZUD, PERS. Galbanum, ENG., FR., LAT.

PIRUZ of Istakhri, is the Kannazbur of Ibn Haukal, and the Firabuz of Edrisi. According to Istakhri, Piruz was 4 days journey from Debal, and 2 days from Mehabari, which was itself on the western bank of the Indus, at 2 days journey from Debal.—*Cunningham's Ancient Geog. of India, p.* 286.

PIS, HIND. Chamærops ritchiana.

PISACHA, SANS. An evil spirit, a devil, a ghost, one haunting burning or burying places. The Pisacha is mentioned several times by Manu (i, 37, 43; v. 50; xii, 44.) He is classed with Rakshasa and Yaksha, who are described as eating flesh-meat and unclean food. Pisacha, is the Sanscrit word for Peygal.—*Williams' Story of Nala*, p. 177. See Pei, Peisacha.

PISANG, MALAY. Musa paradisiaca, the plantain.

PISAR PISHKAN, HIND. Astragalus multiceps.

PISCES, LAT. Fishes.

PISCIDIA, see Daubentonia.

PISELLI, IT. Pease.

PISHANNA, TEL. Maba buxifolia, *Pers.*

PISHING, or Pisheen, a valley to the west of Baluchistan, separated from the valley of Kanhee by a range of mountains. It is to the west of Sewistan.—*Ritchie, The British world in the East, Vol.* ii, *p.* 13. See Kelat.

PISHON of Genesis, supposed to be the river Indus.

PISHOR, HIND. Fothergillia involucrata, *Falconer*, also Parrotia jacquemontiana. See Paser, Paseri.

PISIDIUM, a genus of molluscs.

PISINI, TAM. Gum arabic, any gum.

PISONIA, a genus of plants of the marvel of Peru tribe, of the order Nyctaginaceæ.

PISONIA GRANDIS, *Riddell.*

Bag achura, DUK.

A straggling shrub, armed with strong axillary recurved thorns; flowers small, in axillary terminal panicles. Forms an excellent hedge.

PISONIA INERMIS.

Kongi-putri, DUK.

Without thorns.

PISONIA MORINDIFOLIA.

Lettuce tree.		Lutchee-kottay-ellay,	TAM.

The leaves of this pretty tree are used in various ways; sometimes by Europeans; they make tolerable greens cooked with cocoanut, chillies, &c., &c., to be found only in gardens, leaves of a light green colour, turning nearly white during the hot months.—*Jaffrey.*

PISONIA VILLOSA, *Poir.*

Pisonia aculeata, *Linn? Roxb., W. Ic.*

Bag-achura.	BENG.	Kouki; Kanki putra,	TEL.
Embudi chettu.	TEL.		

A plant of Bengal and the peninsula of India seen growing everywhere. Prickly Pisonia, makes impenetrable hedges. Konki in Telugu means a hook, and has reference to the thorns which are aculeate backwards and very pretensile.

PISSANG UTAN, MALAY. The wild plantain Musa, textilis.

PISTA, HIND.

Pista,	PERS.	Post biruni pista,	PERS.

Pistacia vera, Pistachio nut.

PISTA RANG, HIND. Pistachio green colour.

PISTACH, GUZ., HIND. Pistachio nuts.

PISTACHES, FR. Pistachio nuts.

PISTACCHI, IT. Pistachio nuts.

PISTACHIO NUTS, or Pistachia nuts.

Pistasjes,	DUT.	Pistacchi, Fastucchi,	IT.
Pistaches,	FR.	Pistaciæ,	LAT.
Pistaschen,	GER.	Alfocigos,	SP.
Pistach,	GUZ., HIND.		

An oily small seed, the produce of Pistacia vera, which grows abundantly in Arabia, Persia, Turkestan, Syria and Sicily. The seeds are oblong and pointed, about the size of a filbert, inclosing a kernel of a pale greenish-colour, covered with a yellowish or reddish skin. They have a pleasant, sweetish, unctuous taste, and are chiefly served up at the dessert. Pistachio nuts are imported into Bombay from the Persian gulf. They are also imported into N. W. India, through the Bolan pass. They ar eaten with relish by natives.—*Faulkner.*

PISTACIA, a genus of plants belonging t the natural order Anacardiaceæ. Seeds solitary, each without albumen. The species are:

P. atlantica, *Desf.*—?
P. cambulica, *Stocks.*, Sind.
P. integerrima, *H. f. et T.*, N. W. Himalaya.
P. lentiscus, *L.*, S. Europe, N. Africa.
P. terebinthus, *L.*, S. Europe, N. Africa, *Voigt.*

PISTACIA ATLANTICA, *Desf.*

Tagho, PUSHTU.

This yields the Roomi mastiqi, or Koond roomi, of the bazars of the Punjab, which i imported via Peshawur, and is used in asthm also mixed in ointments.

PISTACIA CABULICA, *Stocks.*

Khinjak, PUSHTU.

A tree of Sind, yields a resin similar t mastic.

PISTACIA INTEGERRIMA, *H. & T.*

Rhus integerrima, *Wall.*

Kakrein,	BEAS.	Kakra-Singhi,	R
Kakra, Kakrei, Tanhari,	CHENAB.	Kakaangche,	SUT
Zebra wood tree,	ENG.	Kakla,	,,
Khhakkar, kangar,	JHELUM.	Khrngar	,,
Drek, Goorgoo,	KAGHAN.	Sarawan,	TRANS-IN
Kakkeran, Toongoo,	RAVI.	Shne, Masna,	,,

This ornamental tree grows in many plac in the Panjab Himalaya from 1,500 to 5,5 feet, also in Hazara and Affghanistan. I zebra coloured wood is in great dema amongst Europeans for chairs and cabinets: is also made into oil mills. The leaves a young shoots are browsed. The excrescence given in coughs and the fruit in indigestio The kakra-singhi is a large hollow, horn-li curved gall, with a tawny brown rough exter It is considered hot, dry and astringent, and used by natives in coughs and asthma, fev piles and dysentery. It is also said to all vomiting, thirst, and difficulty of breathing.—*Dr. Cleghorn*; *Dr. Stewart*; *Mr. Powell's Ha book*, *Vol.* i, *p* 338.

PISTACIA LENTISCUS, *Linn.*

Mastika,	AR.	Roomi mastiki,	H
Uluk-bagh-danu,	,,	Koondoor roomi,	
Kinnah,	,,?	Kinnah,	P
Mastich tree,	ENG.	Kinnoli,	

A native of the south of Europe and north of Africa and of Asia Minor, introduc into the Calcutta Garden in 1806. The b bark, leaves, and fruit have all been used i medicine, but have been laid aside in mode times. The bush is found on the coasts of t Mediterranean. The leaves are evergreen, frui very small, pea-shaped, reddish when ripe.

The resin.

Roomi mastik,	ARAB.	Manna of Lebanon,	E
Sakes,	,,	Koondur roomi,	P
Gum mastic,	ENG.	Ulmastiga,	S
Mastic resin,	,,	Kinnoli,	Te
Turkish olibanum,	,,		

The sweet fragrant stimulant resin, called mastich, is obtained from the trunk by incisions made in the month of August. It is used to strengthen and preserve the teeth and in diarrhœa. It occurs in oval tears of variable size, smooth, diaphanous, brittle, breaking with plane, brilliant, glassy, and pale yellow surface, and owing to its brittleness being usually covered with its own dust. Its odour is agreeable; flavour weakly balsamic; it softens in the mouth, and becomes ductile like white wax. It melts at a moderate heat, and then exhales a sweet odour. Mastic is quite insoluble in water, it yields to alcohol 80 per 100 of soluble matter, leaving a substance resembling caoutchouc, which is slowly dissolved by ether. This resin gives its name to the process of mastication, being universally chewed in the East; it is much used by dentists for filling up carious teeth; it is burned as incense; and in some parts of Greece it is added to bread in small quantities to give it an agreeable flavour. Mastic is extensively employed as a transparent varnish, dissolved in turpentine or alcohol, with other resinous bodies. A species of mastic called gum is obtained in Africa from the Pistacia atlantica. The true resin is sold in all the bazaars for about three rupees the seer. It is used by hakims in diseases of the stomach or liver; also as a masticatory. It comes from Cabul, but the best is said to come from Turkey and the Levant, hence called "rumi."—*Roxburgh*; *O'Shaughnessy*, *p.* 278; *Powell's Hand-book*, *Vol.* i, *p.* 338.

PISTACIA TEREBINTHUS.

Terebinthus vulgaris.

tinge roomi,	ARAB.	Zungbari,	PERS.
tum,	"	Sukhur,	" (Royle.)

A native of Barbary, Greece, and the south of France. A resinous juice of much value is afforded by this tree.—*O'Shaughnessy*, *p.* 276.

PISTACIA VERA, *Linn.* Pistachio tree.

Pistak,	HIND.	Pista,	HIND.

A plant of Persia, Syria, N. Turkistan, S. of Europe and Koh-i-kush, Bokhara, Cabul, mid-Asia. It yields the pista or pistachio nut, and the gall known as Gool-i-pista, Baz-ghanj or Bazaganj used as an astringent or dye for silk.

Galls.

Gul-i-pista	Pista-ka-phul.

The galls are imported into Bombay from the Persian Gulf, and are used in medicine by the natives of India. By the hindoo physicians the fruit is considered a warm and moist remedy, the kernel contains much oil and acts as a demulcent and restorative. It is principally used in special diseases. The bark is employed as a tonic in indigestion. The galls act as astringents and are used in diarrhœa. According to Mr. Elphinstone it grows wild in the Hindu-Kush. The almond and the pericarp are imported into India from Cabul, with a kind of gall termed Gool-i-pista and a resin called Alook-ul-imbat.—*O'Shaughnessy*, *p.* 276; *Royle's Ill. Him. Bot.*, *p.* 178; *Faulkner*; *Birdwood*; *Powell's Hand-book*, *Vol.* i, *pp.* 337, 338. See Gulpista.

PISTACIÆ, LAT. Pistachio nuts.

PISTASCHEN, GER. Pistachio nuts.

PISTASJES, DUT. Pistachio nuts.

PISTAN-SUG, PERS. Cordia latifolia, *Roxb.*

PISTIA STRATIOTIS, *Linn.*, *Roxb.*, *Rh.*

Unter ghunga,	DUK.	Agasa-tamare,	TAM.
Toka pana,	HIND.	Antara tamara,	TEL.
Taka pana,	"	Akasa tamara,	"
Kodda pail,	MALEAL.	Niru budiki,	"

An aquatic, stemless, plant, growing in all tanks and ditches. Its juice is given medicinally. It is said to occasion dysentery to those who drink the water. The natives of several districts of Southern India were in the habit of using the fresh living plants of the Pistia stratiotes or Agasi-tamaray for attracting and stupifying bugs, but large quantities of this plant were collected and tried in several hospitals and public institutions and found useless.

PISU, HIND. Flea.

PISUM ARVENSE, *Wight.*

Keia,	BENG.	Mattar rewari,	HIND.
Bisillah,	EGYPT.	Kala mattar	KAGHAN.
Field pea,	ENG.	Karani,	KASHM.
Mattar,	HIND.	Kulawan,	SIMLA.

Cultivated throughout India, sown after the rains in drills, and varies in price according to the quality; when green, they are tolerable as a vegetable, but are best in soup. Procurable in December and January.—*Riddell.*

PISUM SATIVUM, *Linn.*

var. α macrocarpum, *Ser.*, Sugar pea.
var. β quadratum, *L.*, Chota-mutur, Grey pea.
var. γ agreste, Patna pea, common field pea.

Khandoo; Sen,	BEAS	Watana,	MAHR.
Burra-mutur,	BENG.	Kachang,	MALAY.
Common pea,	ENG.	Harenso,	SANS.
Pea,	"	Rata-gora-dya,	SINGH.
Patana,	GUZ.	Vella putani.	TAM.
Mutur,	HIND.	Pattani,	"
Batanah,	"	Patanlu,	TEL.
Batani,	"	Goondoo sanigheloo,	"
Shanma; Ahandil,	LADAK.		

This is the common pea of our fields and gardens. Cultivated throughout the plains of India, but grows in the N. W. Himalaya up to 14,000. At the latter height it does not ripen its seed. It is found in the Sutlej valley between Rampur and Sungnam at an elevation of 8,000 to 14,000 feet. Cultivated in Kunawar and Spiti. 100 parts of the pea from Benares, yielded:

Moisture	12·70	12·60
Nitrogenous matter	25·20	21·80
Starchy matter	58·38	62·19
Fatty or oily matter ..	1·10	1·12
Mineral constituents (ash) ..	2·53	2·29

—*Ainslie*, *p.* 244; *Eng. Cyc.*; *Cleghorn's Punjab Report*, *p.* 66.

PISURI, Pisora, Pisai, Hind., Mahr. Memimna indica, *Jerd.*

PIT, Hind. Bile.

PITA, Tam. Aloe or Agave fibre.

Cantala, Banskeora, Hind. | Petha kalabuntha, Tam.

The species of Agave, commonly called aloe plants, are natives of America, which have become so naturalised in many parts as to appear to be indigenous in Africa, parts of India, and in the south of Spain. The Agave plants, to which the name of American aloe is so frequently applied, resemble the true aloe in their sword-shaped leaves with parallel veins, which, however, grow to a gigantic size—that is, from eight to ten feet in length—in a cluster from the root, with their margins usually armed with short thorns, and their points with a hard and sharp thorn, which makes them useful hedge plants, the leaves abound in fibres of great length of considerable strength, also tough and durable. The Mexicans made their paper of the fibres of agave leaves laid in layers. The expressed juice of the leaves evaporated, is stated by Long, in his 'History of Jamaica,' to be also useful as a substitute for soap.—*Royle, Illustrations of Himalayan Botany, p.* 375; *Humboldt, in his Political History of New Spain, (book* iv, c. 9,) *quoted in Royle Fib. Plants, p.* 4.

PITA CHANDANAM, Tel. Santalum ——? In the original, this word is accompanied by the following note 'yellow sandal' produced in the mountains of Malabar, *W.*,

PITAK, see Indus.

PITAL, Hind. Brass.

PITALEE-JAMAI-POOLISHIM, Beng. Lablab cultratus.

PITALI, Tam. Brass colour.

PITAMBAR, Hind. A yellow amber coloured cloth, or soft silk dhotee, ten yards long, forming both a skirt and a body covering or worn by men as a dhotee. Its name is said to be from Pit, bile and ambar, amber. The silk sarees and 'pitambars' or men's silk waistcloths, are worn by hindoos at entertainments and festivals, as also in religious worship. Sarees are nearly universal for hindoo women's wear, and soussee, made into petticoats and trousers, is as universal for mahomedan women and men also, and it has this advantage over sarees, that the colours and patterns differ very little anywhere within the confines of India: whereas sarees, dhotees and loongees must be made to suit particular localities, and the patterns of one locality would inevitably be rejected in another.

PI-TANDALA KOTTI, Maleal. Crotalaria verrucosa, *Linn.*

PITAR. Father, is derived from a root Pa, which means, not to beget, but to protect, to support, to nourish. The father as genitor, was called in Sanscrit ganitar, but as protector and supporter of his offspring he was called pitar; hence, in the Veda, these two names are used together, in order to express the full idea of father. Thus the poet says:—

> Dyaus me petâ ganitâ,
> Jovis mei pater genitor,
> *Ζευς ἐμου πατηργε νετηρ.*

In similar manner, matar, mother, is joined with ganitu, genitrix, which shows that the word matar must soon have lost its etymological meaning, and have become an expression of respect and endearment. For, among the early Arians, matar had the sense of maker, from ma, to fashion. In the Non-Aryan nations of Europe and Asia, the terms are,

Language.	*Father.*	*Mother.*
Turkish	Baba	Ana.
Georgian	Mama	Deda.
Mantshu	Ama	Eme.
Javanese	Baba	Ibu.
Malay	Baba	Ibu.
Syami (Tibet)	Dhada	Ma.
Tibetan	Pha	Ama.
Serpa (Nepaul)	Aba	Ama.
Murmi („)	Apa	Amma.
Pakhya („)	Babai	Ama.
Lepcha (Sikkim)	Abo	Amo.
Bhutani	Appa	Ai.
Dhimal (N. E. Bengal)	Aba	Ama.
Kocch („)	Bap	Ma.
Garo („)	Aba	Ama.
Burman (Burmah)	Ahpa	Ami.
Mru („)	Pa	Au.
Sak	Aba	Anu.
Talain (Siam)	Ma	Ya.
Ho (Central India)	Appu	Enga.
Santhali („)	Baba	Ayo.
Uraon („)	Babe	Ayyo.
Gayeti („)	Baba	Dai.
Khond	Abba	Ayya.
Tuluva (Southern India)	Amme	Appe.
Badaga („)	Appa	Avve.
Irula („)	Amma	Avve.
Singhalese	Appa	Amma.
Chinese	Fu	Mu.
Tamul	Uppa	Umma.
Telugu	Tandri	Thullee.

—*Lubbock's Origin of Civil, p.* 284.

PITU-MUHU, Sans., from pitree, fathe and mahat, great.

PITAR SALERI, Hind. Petroselinum tivum. Parsley.

PITA VRIKSHAMU, or V. ambalachett Tel. Spondias mangifera, *Pers.*

PITA VULA, Tam. Feronia elephantu *Cor.*

PITCH.

Sung-shu-kau,	Chin.	Pece,
Brai; Poix,	Fr.	Smola-gust aja,
Pech,	Ger.	Pez,
Pitch,	Guz., Hind.	

Pitch is the residuum of tar, inspissated heat or boiled down to dryness. In Chin black dammar and impure elemi are used substitutes for pitch. In British India the bla dammar is used similarly.—*McCulloch.*

PITCHA, Tel. Cucurbita citrullus.

PITCHA GHADI, Singh. Cucurbita citrullus, *Linn.*

PITCHA PUSJHUM YENNAI, Tam. Melon seed oil.

PITCHA SHAKARA KOMATI, also Pitcha kai, also Pitchi pallam, Tam. Cucurbita citrullus, *Linn.*

PITCH BLENDE, a ponderous metalliferous ore, of a blackish colour, much valued by porcelain painters, found in Saxony, Bohemia, Hungary and Cornwall.—*Waterston*; *Faulkner*.

PITCHER PLANTS, of the Pitcher plant tribe, are of the natural order Nepanthaceæ. Of these there are several species in Ceylon, the Khassya, the Malay peninsula, Sumatra, Java and Borneo. Pitcher plants are quite common near Mount Ophir in Malacca. The pitchers of those in Malacca, contain about half a pint, beautifully ciliated with large ciliæ, the broad pitcher—for this, like the Rafflesiana, produces two kinds—is generally crimson; the long pitcher differs from the other in its trumpet shape and green colour, which is spotted with crimson. The leaves, are moderately large and broad—at least those of them which produce the broad pitcher, and which are found near the base of the plant—are dark green above, and of a fine peach-coloured red beneath. The Nepenthes ampullacea produces green or spotted short and broad pitchers, it is also a climbing plant, and found in thick jungles. The old stems, falling from the trees, become covered in a short time with leaves and vegetable matter, which form a coating of earth about them; they then throw out shoots which become in time new plants; but apparently the first attempts to form the leaf are futile, and become only pitchers, which, as the petioles are closely imbricated, form a dense mass, and frequently cover the ground as with a carpet of these curious formations. As it continues growing and endeavouring to become a plant, the laminæ of the leaves gradually appear, small at first, but every new one increasing in size, until finally the blades of the leaves are perfect, and the pitchers, which, as the leaves developed themselves, have become gradually smaller on each new leaf, finally disappear altogether when the plant climbs into the trees. This formation of the pitcher may afford an instructive lesson to the naturalist, as, though not to the same extent, the principle is perceptible in all of this curious tribe, the leaves of seedlings and weak plants always producing the largest pitchers. The best known to Europeans is Nepenthes distillatoria, *Ait.*, of the Khassya mountains, it is the N. phyllamphora and N. indica, *Lam.* None of the plants of Borneo so much attract curiosity as the various and beautiful pitcher-plants, eight different species of which were discovered in the western part of the island. The pitchers, which in some instances would contain upwards of a pint of water, hang from the mid-rib of the leaf of which they are a formation; they precisely resemble pitchers, being furnished also with a lid. The Nepenthes Rafflesiania produces its pitchers singly; they are large and generally crimson: it grows on rocky islands in the neighbourhood of Singapore, and it is easily distinguished from its near ally the native of Borneo and Mount Ophir by its inferior size, shortness of the column which supports the lid, the white and powdered appearance of its stems, and its bushy habit, never exceeding four or five feet in height, while the largest Bornean one, which was called Nepenthes Hookeriana, in honour of Sir W. J. Hooker, the able director of the Botanic Gardens at Kew, is found growing in deep and shaded jungles, climbing to the tops of the trees. The pitcher is nine inches in length, having a large lid standing on a column, which is a continuation of the beautiful edge of the pitcher: that part which is broadest and turued towards the mid-rib of the leaf from which it depends, is furnished with two broad wings.—*Wallace, Vol.* i, *pp.* 31–2; *Low's Sarawak, p.* 68.

PITCHI PALLUM, Tam. Cucurbita citrullus.

PITCHING COAL or Caking coal, see Coal.

PITH, the Sola or Shola of Hindustan, is obtained from the Æschynomene aspera. At the Madras Exhibition of 1855, the Trichinopoly Local Committee exhibited a large collection of figures and architectural models, carved in the pith of the Typha. The attitudes of the figures were stiff but the draperies characteristic. Also Pith work made from the rushes called "Nultee" in Tanjore.

PITHA, Panjab. Benincasa cerifera—*Savi, W. & A*

PITHA-KALABANDA, Tam. Agave vivipara, *Linn.*

PITHECOLOBIUM SUBCORIACEUM, *Thw.*

Meemini mara, Sing.

A large tree 30 to 40 feet high, growing, not uncommon, at an elevation of 4,000 to 6,000 feet in the central province of Ceylon: wood unknown.—*Thw. En. Pl. Zeyl., pt.* ii.

PITHECUS, the Orang-utang. The following species are known.

Pithecus brookei, *Bl.* P. Wurmbii et P. Abelii, *Owen* (though neither the species described by Van Wurmb, nor that by Dr. Abel, the Mias, Rambi, Malay, *Brooke.* A native of Borneo.

Pithecus curtus, *Blyth.*, a species of Orang-utan. The Mias Chapin of the Dyaks.

Pithecus curtus, *Blyth.* Mias Chapin, Malay. A Borneon species of Orang-utan.

Pithecus morio, Mias Kassan, Malay. A Borneon species of Orang-utan.

Pithecus morio, *Owen*. Mias Kassar, Malay, Brooke, from Borneo.

Pithecus Owenii, *Bl.*, small Orang with short fore-arms. Adolescent female Hab. unknown.

Pithecus satyrus, *L.*, apud Brooke, S. Muller, and others; *Blyth.* Mias Pappan, Malay, Brooke, from Borneo. A species of Orang-utan, in Borneo.

Pithecus syndactylus, see Hylobates agilis. —*Ben. As. Soc. Journ.*, *No.* 4, *p.* 383.

PITHEX OINOPS, *Hodg.*, *Hors.* Syn. of Inuus rhesus, *Jerdon.*

PITI, Hind., pulse ground up into a fine paste with water.

PITI and Hungrang are two valleys. That of the Piti river is entered from Kunawar by the Hungrang pass, elevated 14,800 feet: the Parang pass is 18,500 and leads over the range dividing the Parang from the Piti rivers. The district of Piti, which was formerly almost independent, but paid tribute to, or exchanged presents with, all the Tibetan countries in its neighbourhood, namely, with Garu, Ladak, and Lahul, as well as with Kunawar, followed, in 1846, the fortunes of Lahul in being transferred to British rule. It is a very thinly populated valley, the villages being small and distant, and the arable tracts of no great extent. The mountains on its southern border, by which it is separated from Kunawar, are so very elevated that they entirely intercept all access of humidity from the districts to the northward of them, and render the climate entirely rainless. The houses are in consequence very generally built of unburnt bricks, made of the fine lascustrine clay so common in the valleys, and their flat roofs are thickly covered with a layer of the same material. The gradual transition, in ascending the Sutlej, from hinduism to buddhism, is very remarkable, and not the less so because it is accompanied by an equally marked change in the physical aspect of the inhabitants, the hindoos of the lower Sutlej appearing to pass by insensible gradations as we advance from village to village, till at last we arrive at a pure Tartar population. The people of Upper Piti have quite the Tartar physiognomy, the small stature and stout build of the inhabitants of Ladak, to whom also they closely approximate in dress. To what extent mere climatic influences may cause these differences, and how far they depend on an intermixture of races, it is difficult to decide. It is impossible, however, to avoid being struck by the coincidence between these physical aud moral changes in the human race, and the gradual alteration in the forms of the vegetable world, which are observable as we advance from a wet to a dry climate.—*Dr. Thomson's Travels in Western Himalaya and Tibet*, *p*. 109; *H. f. et. T.*, 223.

PITMALTI, Hind. Jasminum revolutum.

PITNI, or Fitni Hind., of Kaghan, Zizyphus vulgaris, common jujube.

PITOLO, Uria.? A tree in Ganjam and Gumsur, extreme height 30 feet, circumference 2 feet, and height from the ground to the intersection of the first branch, 6 feet. Abounds, but is only burnt for firewood.—*Captain Macdonald.*

PITOLI, Beng., Hind. Trewia nudiflora.

PIT PAPRA, Hind. Fumaria parviflora, *W. & A.*, also the flat seeds of the Butea frondosa, or dhak.

PITRA, Hind. Acetate of copper

PITRA PAKSH, from Pitra, paternal ancestors, the Patrii of the Romans, is a hindoo festival about the end of September, on the last day of Bhadra pad or first day of Ashwin, on which offerings of fire and water are made to the manes of deceased ancestors.

PITRAS, Hind. Curcuma longa.

PITREE-MEDHU, Sans., from pitree, forefathers, and medhu, flesh. The early fathers, the progenitors of the human race, their manes, the dii patrii of the Romans.

PITRI, fathers of the Stars.

PITRI, in Brahmanism, the soul of a deceased ancestor. The Pitri are the names of ancestors to whom Sraddha are performed. They are the Feralia of the Romans.—*Wilson.*

PITRI. The Aryan divinity of food.

PITRI-ISWARA the worship of the ancestorial manes, the Pitri-iswara, or father-gods of the Rajputs, continues for fifteen days. The rana of Mewar goes to the cemetery at Ara, and performs at the cenotaph of each of his forefathers the rites enjoined, consisting of ablutions, prayers, and the hanging of garlands of flowers and leaves sacred to the dead, on their monuments. Every chieftain does the same amongst the altars of the "great ancients" (burra boora); or, if absent from their estates, they accompany their sovereign to Ara. See Dharma-rajah.

PIT-SAL, Hind. Pterocarpus marsupium.

PIT-SHOLA, Hind. Pterocarpus marsupium, *Roxb.*

PITSJEGAM-MULLA, Maleal. Jasminum grandiflorum.

PITSO, Hind. Arundinaria falcata.

PITTA, Tel. Bird.

PITTA, a genus of birds, see Birds.

PITT Mr. Thomas, a Governor of Madras, in 1702.

PITTA CONCINNA, a ground thrush of Lombok. It has puffy plumage and lovely colours, is timid and wary.

PITTA and Kaloochia, Uria. Pitta, a tree of Ganjam and Gumsur, extreme height 36 feet, circumference 3 feet, and height from the ground to the intersection of the first branch, 15 feet. Pitta used for posts, ploughshares and firewood as the kaloochia, but is a larger tree and very plentiful.—*Captain Macdonald.*

PITTALATA, Sans. Verdigris.

PITTAPOOR, a large zemindary in Rajahmundry.

PITT or Regent diamond. See Diamond.

PITT STRAIT, called Sagewyn by the Dutch, is bounded on the north by Battanta Island, and on the south by the north coast of Sallawatty and the group of small islands stretching from thence to the adjacent coast of New Guinea. Its length is about 39 or 42 miles, and its greatest breadth is about 7 or 8 miles.

PITT STRAITS and Dampier Straits are separated from each other by Battanta island.

PITTAM, Tam. Bile.

PITTA MARRI or Konda marri, Tel. Ficus tomentosa, *R.* iii, 550—*W. Ic.* 647.

PITTA PISINIKA or Bapana burri, Tel. Ehretia buxifolia, *R.*

PITTA VULA MARAM, Tam. Feronia elephantum, *Corr.*, *W. & A.*, *Roxb.*

PITTI, Tel. Birds.

PITTOSPORACEÆ, *Lindl.* of 3 genera, 5 species, viz., 3 Pittosporum; 1 Billardiera; 1 Sollya.

PITTOSPORUM CEYLANICUM, *Wight.*, *Illust.*, i, 173.

P. floribundum, *W. et A. Prod.* i, 154.
Celastrus verticillatus, *Roxb. Fl. Ind.* i, 391.
Senacia napaulensis, *DC. Prod.* i, 347. *c. p.* 476.
Katteya-gass, Singh.

A moderate sized tree of the Oova district of Ceylon growing at an elevation of 3,000 to 5,000 feet.—*Thw. Enum. pl. Zeyl. Vol.* i, *p.* 68.

PITTAL, a cultivating race in Rajputana, who are supposed to be Kurmi under another name, *Campbell, p.* 93.

PITULEE, Beng. Trewia nudiflora.

PITULEE-JAMAI-PULI-SHIM, Beng. Lablab cultratum. L. gladiatum.

PITZ, Kashmir. Typha angustifolia, *Linn.*

PIU, or Pihu, or Pisu, Hind. A flea.

PIUMAR, Hind. Plectranthus rugosus.

PIUME, It. Feathers.

PIUN, Hind. Aconitum napellus.

PIYA-BANSH, Beng. Dendrocalamus tulda (larger variety.)

PIYA-DASI, a name of Asoka. See Inscriptions.

PIYAL, Beng. Buchanania latifolia.

PIYAL, Anglo-Tam. For pandal, a verandah; the piyal-schools are open air schools, held in some person's verandah.

PIYAL-SHAL, Beng. Terminalia tomentosa.

PIYALEE, Beng. Buchanania latifolia.

PIYAZ, Hind. Allium cepa, the onion.

PIYAZI RANG, Hind. Very pale pink or flesh coloured.

PI-YUEN, Chin. Spelter.

PIX ABIETINA, see Turpentine.

PIX ARIDA, see Frankincense.

PIX LIQUIDA, Lat. Tar.

PIZARRA, Sp. Slate.

PIZZI, It. Lace.

PIZHDER in the northern mountains, near Sakinah on the frontier of Persia, the original seat of the Kurd clan called Babbeh, Bebbeh or Baban.

PLA, Hind. Butea frondosa.

PLACUNA, a genus of shells. Placuna placenta, the window shell, is found in great abundance in the Tamblegam lagoon near Trincomallee, and their collection is rented out, 18 millions been collected annually. The shells are exported to India and China as a substitute for window glass, and small pearls are found in them. They do not occur on the coast of the peninsula of India, but are found fossil, in the tertiary strata of the eastern coast line.

PLACUNANOMIA, a genus of shells.

PLAGIOSTOMATA an order of fishes of the sub-class Chondropterygii which may be thus shown:

SUB-CLASS IV. CHONDROPTERYGII.

Order I.—Holocephala.

Fam. 1. Chimæridæ.

Chimæra monstrosa, *L.*, Europe, Cape, Japan.
Callorhynchus antarcticus, *Lacep.*, S. Pacific, Cape.

Order II.—Plagiostomata.

First sub-order, Selachoidei.

Fam. 1. Carchariidæ.

Group A.—Carchariina.

Carcharias, *Cuv.*

a. *Scoliodon.*

laticaudus, *M. and H.*, E. Indies, China, Japan.
acutus, *Rupp.*, Indian Ocean to Japan.
dumerilii, *Blkr.*, Amboyna.
walheelhmii, *Blkr.*, Archipelago, Japan.
porosus, *Poey.*

β. *Physodon.*

mulleri, *M. and H.*, Bengal.

γ. *Aprionodon.*

brevipinna, *M. and H.* Java.
acutidens, *Rupp.*, Red Sea, Indian Ocean.

δ. *Hypoprion.*

macloti, *M. and H.*, Indian Ocean, N. Guinea.
hemiodon, *M. and H.*, Indian Seas.
playfairii, *Gthr.*, Zanzibar.

ε. *Prionodon.*

glaucus, *L.*, Pondicherry
munsing, *Blkr.*, Madura.
sorrah, *M. and H.*, Indian Seas.
dussumieri, *M. and H.*, E. I. Archipelago.
gangeticus, *M. and H.*, Ganges, Japan, Fiji.
leucas, *M. and H.*
amblyrhynchus, *Blkr.*, Java.
fasciatus, *Blkr.*, Java.
brachyurus, *Gthr.*, N. Zealand, Australia.

melanopterus, *Q. and G.*, Indian Ocean, E. I. Archipelago.
bleekeri, *Dum.*, Indian Ocean.
albomarginatus, *Rupp.*, Red Sea.
menisorrah, *M. and H.*, Indian Seas.
borneensis, *Blkr.*, Borneo.
amboinensis, *M. and H.*, Amboyna.
glyphis, *M. and H.*
limbatus, *M. and H.*, Atlantic, Indian Ocean.
pleurotænia, *Blkr.*, E. I. Archipelago.
temminckii, *M. and H.*, India.
zambezensis, *Ptrs.* ?
Hemigaleus microstoma, *Blkr.*, Java, Amboyna.
macrostoma, *Blkr.*, Java.
Loxodon macrorhinus, *M. and H.*, Indian Ocean.
Galeocerdo rayneri, *M'Donald and Barron.*, Indian and Australian Seas.
tigrinus, *M. and H.*, Indian Seas, Atlantic.
Galeus canis, *Bonass.*, English, Indian, and Cape Seas.
japonicus, *M. and H.*, Japan.

Group B.—Zygænina.

Zygæna blochii, *Cuv.*, E. I. Archipelago.
malleus, *Risso.*, Mediterranean, Atlantic, China, Japan, Indian Ocean, Archipelago.
tudes, *Cuv.*, E. & W. Indies. Archipelago.
tiburo, *L.*, W. Indies, Atlantic, China.
mokarran, *Rupp.*, Red Sea.

Group C.—Mustelina.

Triænodon obesus, *Rupp.*, Red Sea, Indian Ocean, N. Hebrides.
Triacis scyllium, *M. and H.*, Japan.
Mustelus lævis, *Risso.*, Cape.
manazo, *Blkr.*, Japan, Ceylon.
antarcticus, *Gthr.*, S. Pacific.

FAM. 2. Lamnidæ.

Group A.—Lamnina.

Lamna cornuluca, *Gm.*, Atlantic, Mediterranean, Japan.
glauca, *M. and H.*, Cape, Japan.
Carcharodon rondeletii, *M. and H.*
Odontaspis americanus, *Mitch.*, Atlantic. S. Pacific.

FAM. 3. Rhinodontidæ.

Rhinodon typicus, *Smith.*, Cape, Seychelles.

FAM. 4. Notidanidæ.

Notidanus indicus, *Cuv.*, Cape to California.

FAM. 5. Scylliidæ.

Scyllium marmoratum, *Benn.*, E. I. Archipelago.
maculatum, *Bl. Schn.*, Australian Seas.
edwardsii, *Cuv.*, Cape.
capense, *M. and H.*, Cape, India.
burgeri *M. and H.*, Japan, E. I. Archipelago.
laticeps, *Dum.*, Tasmania.
bivium, *M. and H.*, Cape.
africanum, *Gm.*, S. Africa, Cape.
Ginglymostoma mulleri, *Gthr.*, India.
brevicaudatum, *Gthr.*, Zanzibar, Seychelles.
concolor, *Rupp.*, Red Sea, Indian Ocean, Archipelago.
Stegostoma tigrinum, *Gm.*, Indian Seas.
Parascyllium variolatum, *Dum.*, Tasmauia.
Chiloscyllium ocellatum, *Gm.*, Australia.
trispeculare, *Rich.*, N. W. Australia.
malaisianum, *Less.*, Archipelago'
indicum, *Gm.*, Cape to Japan.
punctatum, *M. and H.*, Java.
Crossorhinus barbatus, *Gm.*, Australian and Japanese Seas.
tentaculatus, *Ptrs.*, Australian Seas.
dasypogon, *Blkr.*, Archipelago.

FAM, 6.—Cestraciontidæ.

Cestracion philippi, *Lacep.*, N. Zealand, Australia, Archipelago, Japan.
quoyi. *Fremin.*, Galapagos.
galeatus, *Gthr.*, Australia.

FAM. 7.—Spinacidæ.

Acanthias vulgaris, *Risso.*, Australia and temperate seas.
blainvillii, *Risso.*
Centrophorus moluccensis, *Blkr.*, Europe, Moluccas.
Euprotomicrus labordii, *Q. and G.*, Indian Ocean.
Echinorhinus spinosus *Gm.* Cape, Mediterranean.
Isistius brasiliensis, *Q. and G.*, Tropical Seas.

FAM. 8.—Rhinidæ.

Rhina squatina, *L.*, Japan and all Seas.

FAM. 9.—Pristiophoridæ.

Pristiophorus cirratus, *Lath.*, Australia.
nudipinnis, *Gthr.*
owenii, *Gthr.*
japonicus, *Gthr.*, Japan.

Second sub-order, Batoidei.

FAM. 1.—Pristidæ.

Pristis perrotteti, *M. and H.*, E. & W. Indies, Archipelago, Red Sea.
pectinatus, *Lath.*, Tropical Seas.
zysron, *Blkr.*, E. Indies, Archipelago.
cuspidatus, *Lath.*, E. Indies.

FAM. 2.—Rhinobatidæ.

Rhynchobatus ancylostomus, *Bl. Schn.*, E. Indies.
djeddensis, *Forsk.*, Red Sea, Indian Ocean, Archipelago.
Rhinobatus thouini, *Lacess.*, Archipelago.
spinosus, *Gthr.*——?
halavi, *Forsk.*, China, Red Sea.
granulatus, *Cuv.*, E. Indies, Archipelago, Australia.
philippi, *M. and H.*
obtusus, *M. and H.*, E. Indies.
schlegelii, *M. and H.*, Japan, and China Seas.
banksii, *M. and H.*, Australia.
columnæ, *M. and H.*, Indian and Atlantic Ocean, Mediterranean.
blochii, *M. and H.*, Cape.
brevirostris, *M. and H.*, S. Australia.
Trygonorhina fasciata, *M. and H.*, Australia.

FAM. 3.—Torpedinidæ.

Torpedo marmorata, *Risso.*, Indian Ocean, Cape, Mediterranean.
panthera, *Ehrenb.*, Red Sea.
smithii, *Gthr.*, S. Africa.
fusco-maculata, *Ptrs.*, E. Africa.
occidentalis, *Storer.*
sinus persici, *Kaempfer.*, Persian Gulf.
Narcine tasmaniensis, *Rich.*, Australia.
timlei, *Henle.*, East Indies, Japan.
lingula, *Rich.*, China.
Hypnos subnigrum, *Dum.*, Australia.
Astrape capensis, *Gm.*, Cape, Madagascar.
dipterygia, *Bl. Schn.*, Indian Seas, China, Japan.
Temera hardwickii, *Gray.*, E. Indies, Penang.

FAM. 4.—Rajidæ.

Raja lemprieri, *Rich.*, Vandieman's Land.
smithii, *M. and H.*, S. Africa.
Platyrhina sinensis, *Lacep.*, China, Japan.
schonleinii, *M. and H.*, India.

FAM. 5.—Trygonidæ.

Urogymnus asperrimus, *Bl. Schn.*, Indian Ocean.
Trygon narnak, *Forsk.*, Indian Ocean.
gerrardi, *Gray*, Japan, Archipelago.
punctata, *Gthr.*, Japan.
bleekeri, *Blyth.*, Bengal.
walga, *M. and H.*, E. Indies, E. I. Archipelago.
polylepis, *Blk.*, Indian Seas.
nuda, *Gthr.*, Indian Seas.
pastinaca, *L.*, Atlantic, China, Japan.
kuhlii. *M. and H.*, Indian Ocena, Archipelag
bennettii, *M. and H.*, E. Indies, China, Atlanti
imbricata, *Bl. Schn.*, Indian Seas.

zugei, *M. and H.*, Madras, Penang, Indian Seas, Japan.
Tæniura lymma, *Forsk.*, Indian Ocean, Archipelago.
meyeni, *M. and H.*, Mauritius.
melanospila, *Blkr.*, Batavia.
grabata, *Geoff.*, Red Sea.
Urolophus cruciatus, *Lacess.*, Australian Seas.
armatus, *M. and H.*, N. Ireland.
testaceus, *M. and H.*, Australian Seas.
javanicus, *Martens.*, Batavia.
Pteroplatea hirundo, *Lowe.*, China, Japan, Madeira.
microra, *Bl. Schn.*, E. Indian Seas.
tentaculata, *M. and H.*, Red Sea, Indian Ocean.
zonura, *Blkr.*, Batavia.

Fam. 6.—Myliobatidæ.

Group A.—Myliobatina.

Myliobatis aquila, *L.*, Mediterranean, Atlantic, Australian Seas.
cornuta, *Gthr.*, Japan.
vespertilio, *Blkr.*, E. I. Archipelago.
maculata, *Gray*, Indian Seas, E. I. Archipelago.
nieuhofii, *Bl. Schn.*, Indian Ocean, Archipelago, Japan.
milvus, *M. and H.*, E. Indian Seas, China.
Ætobatis narinari, *Euphrasen*, Tropical Seas.
Rhinoptera javanica, *M. and H.*, E. Indies, Java,
adspersa, *M. and H.*, E. Indies.

Group B.—Ceratopterina.

Dicerobatis japonica, *M. and H.*, Japan.
eregoodoo, *Cant.*, Indian Seas.
kuhlii, *M. and H.*, Indian Ocean, Archipelago.
Ceratoptera ehrenbergii, *M. and H.*, Red Sea.

—*Gray, Cat. of Fishes.* See Fishes, Periopthalmus, Sharks, Zygodactyle.

PLAGUSIA, of this genus, the following are E. Indian species :

Pl. clavimana, *Edws.*, New Holland, New Zealand, Vanicoro.
„ tomentosa, *Edws.*, Cape of Good Hope, Chili.
„ depressa, *Edws.*, Indian Ocean, China, New Guinea.
„ squamosa, *Edws.*, Red Sea, E. Africa, Indian Ocean.

PLAGUSIA POTOUS, *Cuvier.* The Jerree Potoo, of Russell, Ikan ledah of the Malays, is of excellent flavour, and like Plagusia trulla, passes at European tables under the denomination of "Sole." The species are all distinguished for their tenacity of life. The fishermen at Pinang assert that some species of Plagusia shoal at certain seasons.

PLANAXIS, a genus of molluscs.

PLANCHES, Fr. Planks. Planches minces, Deals.

PLANE TREES, belong to the order Platanaceæ of which the Oriental Plane, Platanus Orientalis, is of S. Europe, Asia minor, Caucasus and Kashmir. See Platanus.

PLANETS, in hindoo mythology, are minor deities. Bruhaspati, is not a planet, but 'the lord of prayer.' See Budh, Graha, Mercury, Jupiter, Parsee, Savi.

PLANKS.

Planker,	Dan.	Takhta,	Hind.
Planken,	Dut., Ger.	Papan,	Malay.
Bordages, Planches,	Fr.	Tolstule-olosku,	Rus.
Takhta,	Guz.	Plankor,	Sw.

Thick strong boards, cut from various kinds of wood.—*McCulloch's Com. Dic. p.* 920.

PLANORBIS, a genus of molluscs.

PLANTAGINACEÆ, *Lindl.* The Rib Grass tribe of 1 gen., viz., 15 species of Plantago. Soda is obtained in Egypt from the ashes of P. squarrosa.—*O'Shaughnessy, p.* 510; *Ben. Phar., p.* 277.

PLANTAGO AMPLEXICAULIS.

Gaj-pipali, Hind.

Said to be an astringent.—*Powell's Handbook, Vol.* i, *p.* 369.

PLANTAGO ISPAGHULA, *Roxb., O'Sh.*

Buzr-katoona,	Ar.	Isabghol,	Hind.
Spogel seeds,	Eng.	Ispungur,	Sind.
Fuslioon,	Gr.	Isapagala vittulu,	Tel.
Ispaghol,	Hind, Per., Tam.		

This Plantago is cultivated in India during the cold season for the seeds, which are used as an emollient and light article of diet for convalescents. In making a decoction of Ispaghool take of Ispaghool seeds two drachms, distilled water one pint. Boil and strain. This preparation is a simple demulcent, was recommended by Mr. Twining, in dysenteries, and is much used in India, in catarrh, gonorrhœa, and nephritic affections.

PLANTAGO MAJOR.

Ch'e'-ts'ien,	Chin.	Fasliyun,	Gr.
Cart-track plant,	Eng.	Bartang,	Hind.
Way-bread,	„		

The Chinese name looks like an adaptation of Psyllium.—*Smith's Mat. Med., p.* 172 ; *Hogg's Veg. King., p.* 599 ; *Powell's Hand-book, Vol.* i, *p.* 369.

PLANTAGO PSYLLIUM, *W.*

Fleawort,	Eng.	Bartung,	Hind.

The Seed.

Flea seed.

The seeds contain a great quantity of mucilage and in Britain are extensively employed by muslin manufacturers for stiffening their goods, they are also employed by paper-stainers and book-binders. They form rich mucilagenous drinks useful in catarrh and other ailments, for which linseed is used.

PLANTAIN, or Banana.

Mauz,	Ar.	Musa paradisaica,	Lat.
Biyu,	Bali.	Pisang,	Malay.
Ng-hyet-praw,	Burm.	Vellakai, Pesang,	Maleal.
Nep-yan,	„	Mauza,	Pers.
Kayla,	Guz.	Kehl kang,	Singh.
Mauz ; Kayla,	Hind.	Valie pallam,	Tam.
Gadang,	Jav.	Ariti pandoo,	Tel.

Plantain is the name applied to various species of the genus Musa, of which the best known species are M. paradisiaca, which yields the edible plantain or banana and M. textilis, the Manilla hemp plant. The bananas appear to be natives of the southern portion of the Asiatic continent, (R. Brown, "Bot. of Congo," p. 51.) Transplanted at an unknown epoch into the Indian Archipelago and Africa, they have spread also into the new world, and in general into all intertropical countries, sometimes before the arrival of Europeans. Humboldt put a very high value on this fruit, as an article of food. According to him it affords, in a given extent of ground, forty-four times more nutritive matter than the potato, and 133 times more than wheat. These figures must be considered as only approximative, since nothing is more difficult than to estimate the nutritive qualities of different aliments, and in the East Indies it is only used as a dessert. In Jamaica, Demarara, Trinidad, and other colonies, however, many thousand acres are planted with these trees. The vegetation of this tree is so rapid that if a line of thread be drawn across, and on a level with the top of one of the leaves, when it begins to expand, it will be seen, in the course of an hour, to have grown nearly an inch. The fruit when ripe is of a pale yellow, from two or three inches to a foot in length and two inches thick, and is produced in bunches so large as each to weigh 40 lbs. and upwards. In the Straits' Settlements, the most approved varieties are the royal plantain, which fruits in eight months; one which bears in a year, the milk plantain, the downy plantain, and the golden plantain or banana. A variety termed Guindy was imported from Madras, where it is in great esteem. It has this advantage over the other kinds, that it can be stewed down like an apple while they remain tough. The Malays allege that they can produce new varieties, by planting three shoots of different sorts together, and by cutting the shoots down to the ground three successive times, when they have reached the height of nine or ten inches. In some districts of Mexico the fruit is dried in the sun, and in this state forms a considerable article of internal commerce under the name of "plantado pasado." When dried, and reduced to the state of meal, it cannot, like wheat flour, be manufactured into maccaroni or vermicelli, or at least the maccaroni made from it falls to powder when put into hot water. The fresh plantain, however, when boiled whole, forms a pretty dense firm mass, of greater consistency and toughness than the potato. The mass, beaten in a mortar, constitutes the foofoo of the negroes. The plantain meal cannot be got into this state unless by mixing it up with water to form a stiff dough, and then boiling it in shapes or bound in cloths. The fibre of the stem is equal in texture, clean and aromatic. Although perhaps there is no province in India in which plantains are grown to so great an extent as in Pegu, yet there are scarcely any good plantains to be had in that country. This is owing to the Burmese habit of only eating green fruit, and their total indifference to the finer qualities of flavour. The great use of all fruit with the Burmese is to serve as an additio to their curry, for which purpose one kind of plantain is just as good as another. The plantain or banana, holds the same place in Tenasserim that the apple does in England and the United States. It is used as a vegetable as well as an article for the dessert, the great proportion being eaten with rice and meat in the place of potatoes. There is perhaps no plant of which so many preposterous things have been carelessly written in books of travels, and then copied into works of graver character than this. Among other things equally veritable, it has been said, "three dozen plantains are sufficient to serve one man for a week instead of bread, and will support him much better." A Karen told Mr. Mason that he often eats ten at a time, and a hundred would not be sufficient for a man one day if he had nothing else, unles they were very large. Like the mango, the tree is indigenous in Tenasserim, but the wil fruit is too full of seeds to be eatable. The plantain and banana embrace many varieties, Mr. Mason had the Burman names of twenty-five before him. "The numerous varieties," writes Voigt, "we have in vain tried to put in some order. The attempt made for this purpose, in Schultens, appears to us to have only increased the confusion." The Manilla hemp, from which a fabric of the finest texture i prepared, is made from the leaves of the Mus textilis. Another distinct species of this genu grows wild in Tenasserim jungles, and i rather an ornamental plant, which is all tha it has to recommend it. Unlike the commo plantain it never throws up shoots from it roots. Several varieties of the banana ar cultivated in the Dekkan,—the large red, th green and the yellow. A small sort, which i supposed to be the real banana of the Wes Indies, is perhaps the most luxuriant. Th plants blossom at all seasons, and so soon as th drupe of fruit begins to ripen, which is know by some turning colour, it is cut and hung up to ripen in the house. The plant will no bear again, and if not cut down it will perish o itself, when the surrounding shoots grow up and blossom as the former. The plants ar generally grown in beds or clusters in a good rich soil, when fine fruit is almost the sure return. In transplanting the shoots, of two or three feet high, about one-half is generally cut off, the green fruit is used in curries; the natives of the peninsula of India also use in their curries, the extremities of the flower shoots, the heart of the stem, and that portion of it from which the roots proceed. The stem yields a fine white silky fibre of considerable length, specifically lighter than hemp, flax and aloe fibre, by 1-4th or 1-5th and possessing considerable strength. The plant is cultivated everywhere in the Southern India, where there are numerous varieties,

Rustaley, superior table plantain.
Poovaley, or small Guindy variety.
Payvaley, a pale ash-coloured sweet fruit.
Monden, 3-sided coarse fruit.
Shevaley, large red fruit.
Putchay laden, or long-curved green fruit.

These yield fibres of very different quality. At the Madras Exhibition of 1855, very fine specimens of this fibre were contributed by the Local Committees of Masulipatam, Tanjore, Malabar, Canara, Nellore and Travancore, and very carefully prepared plantain fibre, hackled ditto, yarn, string, rope, tow and half stuff for paper were exhibited by the Madras School of Industrial Arts. This plant has a particular tendency to rot and to become stiff, brittle and discoloured by steeping in the green state, and it has been ascertained by trial that the strength is in proportion to the cleanness of the fibre. If it have been well-cleaned, and all the sap quickly removed, it bears immersion in water as well as most other fibres, and is about the same strength as Russian hemp. The coarse large fruited plantains yield the strongest and thickest fibres, the smaller kinds yield fine fibres, suited for weaving, and if carefully prepared, these have a glossy appearance like silk. This gloss, however, can only be got by cleaning rapidly, and before the sap has time to stain the fibre, it is soon lost if the plant be steeped in water. By far the greater number of specimens of plantain fibre exhibited at the Madras Exhibition of 1855 were discoloured from steeping, and they had acquired a dull ash-grey or brown-colour, which, in this plant, is always accompanied by stiffness and brittleness; one or two of the specimens were so brittle as to break when gently rubbed; others were harsh and stiff. Some well-made rope, line and string were exhibited by several of the Local Committees. The Travancore Local Committee exhibited some excellent fibre and rope, the latter very carefully laid up but stiff from over-twisting. This kind of rope ought not to be hard spun, as it becomes stiffer when wet and is liable to snap if it get into a twist or knot. Almost every part of the plantain, may be converted into fibre, but it most abounds in the stem and leaves, and can be made available for textile or cordage purposes. The combings or tow separated during the preparation of the fibres is of value as a substitute for horse hair, for stuffing mattrasses, &c., and the peduncle of the core can be pounded into half stuff for the paper-makers and form an excellent material for the finest or the toughest kinds of paper. In the West Indies the spiral vessels are employed as tinder. In the process of separation, the stem should be cut down six inches above the ground, and then divided longitudinally into four parts, and the juice expelled by passing each slip longitudinally through the common sugar mill with grooved hard wood rollers or a mill, the rollers of which are three feet long and one foot in diameter. In the process of crushing, the stalks and the harder and softer parts of the stem should be passed through separately, which can be easily effected if the rollers be horizontal. In this way, the produce will be four or five pounds of fibre from each tree. The fibres from the midrib of the leaf are the best, and in general if the stem yield four pound nett of fibre the stalk will give 1 lb. out of four. After the crushing, the fibres are to be well washed and boiled in soda or other alkaline ley to separate the gluten and colouring matter, keeping the fibres from the several parts quite separate, in this process of boiling. They are then bleached and the highest coloured fibres do not require more than six hours, but the darkest, from twelve to eighteen. The fibre from the stem is fine, white, and silky, of considerable length; specifically lighter than hemp, flax and aloe fibre, by ¼th or ⅕th and possessing considerable strength. The fibre of this plant rapidly rots and becomes stiff, brittle and discoloured by steeping in the green state, and it has been ascertained by trial that the strength is in proportion to the cleanness of the fibre. If it have been well cleaned, and all the sap quickly removed, it bears immersion in water as well as most other fibres, and has about the same strength as Russian hemp. The coarse large-fruited plantains yield the strongest and thickest fibres; the smaller varieties are suited for weaving, and if carefully prepared, these have a glossy appearance, like silk. But this glossy appearance can only be got by rapid cleaning, before the sap has time to stain the fibres, and it is lost soon if the plant be steeped in water. It can be made into string, line, or rope, and manufactured into cloth. The fine grass cloth, ship's cordage, and ropes used in the south-sea whale fisheries, are said to be made from the fibres of varieties of Musa. As in all the plantain tribe, the leaves yield the thickest and strongest fibres. The finest plantain fibre when carefully cleaned and dressed, in what may be termed the "fresh process," in contradistinction to the system of rotting the fibres free, has been said to be well suited for the imitation of silk in carriage braid and carpet work. The average value put upon such fibres was said to be £70 per ton, when Russian hemp was selling at £50 per ton. In the West Indies, the total expense of producing a ton of fibres, is calculated at £9 13*s.* 4*d.* The wild fruit is not edible, from its containing many seeds. On the Arracan coast, the layers of the stem of the plantain, termed there Pa-tha-you-sha, are sold in a dried state, some of it is even twisted into a bast rope. It would probably command a good price as a cordage or paper material, or for textile fabrics.

The Leaves.

Valei elley, Tam. | Maoz ka pat, Duk.

The leaves are used in regimental hospitals, for dressing parts that have been blistered, and men's backs, after punishment.

The Meal

Is prepared by stripping off the husk of the fruit, slicing and thoroughly drying the core in the sun, after which it is powdered and sifted. It has a fragrant odour—and its flavour is said to depend a good deal on the rapidity by which the slices are dried. It should be husked and sliced by nickel or bamboo knives, as those of steel injure the colour of the meal. It is calculated that the fresh plantain will yield 40 per cent. of meal, and that an average bunch of 25 lbs. weight will yield 5 lbs. and that an acre of plantain walk of average quality producing 450 bunches during the year, would yield upwards of a ton of meal. In the West Indies plantain meal is largely employed as the food of infants, children and convalescents. In composition the plantain fruit approaches most nearly, in nutritive quality to the potato, and the meal of the plant to that of rice: the following are the proportions of starch, sugar, &c., and protein compounds, on which depend their nutritive quality.

	Rice.	Potato.	Plantain.
Starch, Sugar, &c..	87-4	79-0	86-0
Protein Compounds.	7-5	8-0	5-2

In South America the fruit is not only used as an article of diet in its fresh state, but, when dried, forms an article of internal trade, besides having its flour separated, and cooked or made into biscuits. It is also preserved in the Society Islands.

The skins.

Valei palum tole, Tam. | Ariti pandu tolu, Tel.

These, as also lime skins, are used by the chucklers in dying leather black. Some plantain meal was sent to the Exhibition of 1851, from Madras, as well as baked Plantains from Jessore, by the Reverend J. Parry. These, after some years, were still in good preservation and well tasted. The late Dr. Stokes, informed Dr. Royle that the plantains at Bassein, where the cultivation is most extensive, are delicious in flavour, and that there the people had acquired the art of preserving them. But this was practised many years ago in Central India, and in Ceylon in 1840, the late Sir John Robison, Secretary of the Royal Society of Edinburgh, wrote to Dr. Royle mentioning the banana, the varieties of which are rich in saccharine matter, make an admirable preserve, on being skinned and split longitudinally and dried in the sun, by which process they immediately acquire a consistence like Turkey figs, and become capable of being packed and preserved in the same way." He was in the habit of having large quantities preserved every year in this way at Hyderabad, and of using them as an article of dessert at table."—*Surgeon T. Key, in the Proceedings of the Madras Committee; Madras Exhibition Juries Reports; Royle's Fibrous Plants; Simmond's Commercial Products; Dr. Alexander Hunter in M. E. Proceedings; Dr. Mason's Tenasserim; Dr. McClelland in Records of the Government of India.*

PLANTAIN.

Lissan-ul-Hamal, Ar.

The greater plaintain is the Plantago major.

PLANTAIN LEAFED PALM, Eng. Urania speciosa, *Tr.*

PLANTIGRADA. A tribe of the carnivorous animals, which may be thus shown,

Order Carnivora.

Tribe Plantigrada.

Fam. Ursidæ, Bears.

2 Gen. Ursus, 4 sp. Ailura, 1 sp..

Tribe Semi-Plantigrada.

Fam. Melididæ.

5. Gen. Arctonyx, 1 sp. Melivora, 1 sp.
Meles, 1 sp. Taxidia, 1 sp. Helictis 2, sp.

Fam. Mustelidæ, Weasels-Martens.

4 Gen. Martes, 2 sp. Mustela, 12 sp. Lutra 7 sp.
Barangia, 1 sp.

Tribe Digitigrada.

Fam. Felidæ.

1 Gen. Felis 14 sp.

Fam. Viverridæ.

Sub-Fam. *Hyeninæ*, Hyænas.

1 Gen. Hyena, 1 sp.

Sub-Fam. *Viverrinæ*, Civets.

7 Gen. 31 sp. viz, *sp.* Viverra, 5 sp. Prionodon,
1 sp. Parodoxurus 10 Paguma.
1 sp. Artictis 1 sp. Herpestes.
12 sp. Urva 1 sp.

Fam. Canidæ, Dog-tribe.

3 Gen. 14 sp. viz.
Canis 5 sp. Cuon 1 sp. Vulpes 8 sp.

PLASA, Hind. Butea frondosa.

PLASMA, a transparent chalcedony of a grass-green or leek-green colours, found in British India and China.—*Simmond's Dict.*

PLAS-PAPARI-KA PHUL, also Tesu, also Kisu, Duk. Flowers of Butea frondosa.

PLASSEY was 80 miles north of Calcutta. A battle was here fought and won by Clive on the 23rd June 1757, with 700 European troops, 1,400 sepoys and 570 sailors and the victory threw Bengal, Behar and Orissa into British hands. Plassey was about sixteen miles higher up than Cutwa. But the memorable battle field has ceased to exist, changes in the bed of the river Ganges having swept it away. Of the famous mango-grove called the Lakha Bagh or the tope of a lac of trees, that was eight hundred yards long and three hundred broad, all the trees have died or been swept away by the river, excepting one, under which one of the nabob's generals who fell in the battle is buried. So long ago as 1801, there were no more than 3,000 trees remaining. The battle of Plassey may appear distinguished by no valorous deed or memorable exploit, but in the importance of its political or moral consequences, its name stands on the page of history as equal to those of Marathon, Cannae, Pharsalia, and Waterloo, the greatest battles in the annals of war. It is now a cultivated plain. The spot where the solitary tree yet survives, is called Pir-ka jaiga and is held sacred by the Mussulmans whose reasons are inexplicable indeed for so doing.—*Tr. of a Hind, Vol.* i, *pp* 51, 53.

PLASTER, BLISTERING.

Pan-miau, kaw-yoh, Chin.

Prepared from the Mylabris cichorii.

PLASTER OF PARIS.

Shuh-shih-kau, Chin.

Heated gypsum or sulphate of lime.

PLASTER OF RESIN.

Sung-hiang-kau-yoh, Chin.

Used in China for dressing sores, wounds.

PLASTER OF BAROS CAMPHOR.

P'ing-p'ien-kau-yoh, Chin.

An expensive warm plaster in much repute amongst the Chinese.

PLASTER OF ISINGLASS.

Yu kian p'ien, Chin.

Strips of thin isinglass formerly in use in China in surgical practice. Sea weed gelatine is now used.

PLASTER, sticking.

Koh-k'au-kau-yoh, Chin. | Adhesive plaster, Eng.

Used for wounds, ulcers, &c. It should be rolled up with a layer of tissue paper intervening.

PLASTER, white.

Peh-kau-yoh, Chin.

A plaster made of Calomel, calamine, cosmetic powder, white wax, yellow wax, Borneo camphor and lard.—*Smith*.

PLATALEINÆ, the spoon-bill sub-family of birds of the family Tantalidæ.

PLATALEA LEUCORDIA, *Linn*.

Cherita,	Beng.	Weisser loffeler,	Ger.
Lepelaar,	Dut.	Chamach-buza,	Hind.
Spoon bill,	Eng.	Becquarouoglia,	It.
„ ibis,	„	Cucchiarone,	„
Pale; Poche; Truble,	Fr.	Gentu-muku-konga,	Tel.
Spatule; Cueiller,	„	Llydon big,	Welsh.
Loffel gans,	Ger.		

Common in India Europe, Africa, Asia. Other known species are,

Platalea major, *Temm.*, Japan.
„ minor, *Schlegel*, Japan.
„ ajaya, *Linn.*, America.
„ flavipes, *Gould*, Australia.
„ melanorhyncus, *Gould*, Australia.

PLASTER OF PARIS, see Gypsum.

PLASTIC CLAY, see Clay.

PLATANACEÆ, the oriental plane tribe of plants, comprising one genus and four species, one of Europe and Asia Minor, one N. America, and two from Asia Minor and Central Asia. P. orientalis, the Oriental plane, has palmate leaves resembling those of the common Sycamore. It grows in the western parts of Asia, and extends as far east as Cashmere. Its wood is fine-grained and hard, and when old it acquires dark veins so as to resemble walnut-wood. The tree was valued for its shade by the Greeks and Romans, and it was held sacred in the east. P. occidentalis is found in most parts of North America, from Mexico as far as Canada. The timber is of a reddish-colour, and will not bear exposure to the weather. There is but this one genus in the order and six species. The family resembles Artocarpaceæ and Altingiaceæ.—*Hogy*; *Eng. Cyc.*

PLATANISTA GANGETICA, *Gray*.

Dolphinus Shawensis Blainville, | D. gangeticus.

Platanista,	of Pliny.	Sou-sou,	of India.
Dauphine du Gange, *T. Cuv.*		Susa,	of Buffon.

Inhabits the Indian seas, the Ganges, and Irawaddy.

PLATANUS ORIENTALIS *Linn*.

Doolb,	Ar.	Chunar,	Hind., Pers.
Oriental plane,	Eng.	Buna, Buin, Bonin,	Panj.
Chinar,	Hind., Pers.		

The Oriental plane is of giant size and great beauty. It is indigenous in most of the countries of the Levant; from whence it was transported in the first instance to Sicily. It is a native of Asia Minor, but extends into Cashmere. Some of the trees in the Turkish dominions, are of gigantic size, the ancients prized it particularly for the close shadow which its spreading foliage afforded, and they celebrated many of their festivities beneath its branches. The wood is hard and fine-grained much like that of the beech, but it is less hard, has a finer and closer-grain, and is more capable of receiving a good polish; it is, however, very apt to warp and split, is not durable, and is frequently attacked by the worm. Sinking the wood in water for several years, is said to improve its quality. It is used for gunstocks. According to Belon, the Greeks of Mount Athos were in the habit of making boats of a single piece, out of the trunks of the largest trees. It grows in Cashmere from seed, but requires to be transplanted. Some re-planted by Akbar in A. D. 1588, when seen by Mr. Vigne in 1838, were 20 feet in circumference. He had seen some grand trees in the valley opposite to Therapia on the Bosphorus, and one near Avin, at the foot of the Elborz mountains, measured by Vigne, was 64 feet in circumference. It is admirably characterised by its derivative plata, ample, significant of its palmate leaves, its spreading branches, and shady foliage, the pale green-colour of which last contrasts beautifully with the silver bark of its lofty stem. Its value in a hot climate has been appreciated by those who looked no higher, to the beneficent goodness of the Creator, and in Kashmir the plane tree attained, under the fostering attention of royalty, to the greatest age and perfection. Dr. Stewart, however, says he has never seen this tree wild, and statements to the effect that it is indigenous in or near Kashmir (as by Hugel), probably as he thinks, arise from some confusion with Acer, owing to the resemblance of the leaves. It appears to be tolerably common planted in Affghanistan, and is frequently seen at villages, &c., in the Panjab Himalaya, extending sparingly east to the Beas, and up to 8,300 feet in Tibet. In the Kashmir valley it is abundant, the trees ranging up to 75 feet high, and he had noted seven or eight of about or more than 20 feet, the largest being 28 feet girth in Srinaggar, Kashmir. The spread of two trees measured by him had a radius of 37 and 44 feet respectively in one direction. He had been told by a European officer of one seen by another officer near the Wular lake of 84 feet in girth, but this seems to him doubtful, and is possibly a corruption of Vigne's statement that he saw one of 66 feet girth under the Elburz near Teheran. The finest grove in Kashmir, or perhaps in the world, is the Nasim Bagh, on the banks of the lake, near the city of Srinaggar, which at one time consisted of 1,200 noble trees said to be planted nearly 200 years ago. The tree is propagated by cuttings (and occasionally by seed in Kashmir.) To the eastward it does not thrive; The wood has a peculiar and rather handsome grain, but appears not to be strong and is not valued. Yet, in Cabul, where timber is scarce, Irvine states that it is the only material for gun-carriages, and in Kashmir it furnishes part of the wood for making the small painted boxes.—*Dr. Stewart, p.* 202; *Book of Trees, p.* 152; *Royle's Ill., p,* 344; *Ed. Baron Hugel's Travels in Kashmir and Punjab, p.* 85; *Cleghorn's Punjab Report.* See Chamba, Kangra, Kullu.

PLATA, Sp. Silver.

PLATAX ARTHRITICUS, *Cuv. and Val.*

Ecan bonna, *Bell.* | Chœtodon arthriticus, *C. and V.*

The total length of this fish is 1 foot 7 inches. It inhabits the Sea of Penang, Sumatra, Java and Singapore. The flavour is excellent, but the large air-vessel is too thin, and yields too little isinglass to become of value.—*Cuv. and Val.* See Isinglass.

PLATE ARMOUR. The plate armour of Asia, unlike the complete steel cases of Europe, is formed of rectangular plates of steel, braced over the surcoat and covering only the vital parts. Underneath, however, a shirt of mail was generally worn. Much skill is lavished upon the plates which are of cast or damask'd steel, arabesqued in gold.—*Ben. As. Soc. Journ. No.* 11 *of* 1854.

PLATINUM or Platina,, Peh-kin, Chin., from Plata, silver, an important metal, first made known in Europe by Mr. Wood, assay-master in Jamaica, who met with its ore in 1741. In 1750 he published a paper upon it in the 'Philosophical Transactions.' The name was given to it on account of its colour, it was originally called Platina del Pinto, because it was found in the auriferous sand of the river Pinto. It has since been found in Brazil, Colombo, St. Domingo, in the Ural mountains, but Dr. Mason asks on what authority Dr. Royle says that platina is found in Burmah. Captain Glover obtained a specimen from a priest in Tavoy, that resembled platina more than any other metal; and Dr. Mason had a specimen of a Tavoy mineral with the general aspect of platina, it was a mixed metal formed of silver, bismuth, zinc, and some other things to aid the alchemists in their search for "the philosopher's stone."—*Dr. Mason's Tenasserim.*

PLATO, the Flatun of the Arabs and Persians, an eminent philosopher of Greece, born B.C. 429, son of Ariston and Perictione. His original name was Aristocles but he received the name of Plato from the breadth of his forehead and chest. Plato, Epicharmus, and others adopted a philosophy similar to that of the Vedanta, a system of perceptions of primary or secondary qualities. He died on his 82nd birthday, B.C. 348. He was a pupil of Socrates, the Bucrat of the Arabs, and had as a pupil Aristotle. See Kama, Vedas.

PLATYCERCUS HYPOPHONIUS, *G. R. Gray*, is called by the Malays "Kastori rajah," or prince parrot, from its being the most brilliantly plumaged of all that family. It is not large.

PLATYCERCUS VULNERATUS, of Timor, a green species of parrot?

PLATYCODON GRANDIFLORUM.

Kih-kang, Chin. | Kih-hung, Chin.

A plant of China of the Campanulaceæ or Bellwort tribe. Its root is used by the Chinese medicinally.—*Smith.*

PLATYCORYNE BIFASCIATUS, one of the Coleoptera of Hong Kong.

PLATYLOBIUM TRIANGULARE, a free flowering shrub, with pretty flowers, readily grown from seed in any tolerable garden soil. —*Riddell.*

PLATYONYCHUS BIPUSTULATUS. See Portunidæ.

PLATYSTEMON CALIFORNICUM. Ranunculaceæ. These are annuals with cream coloured flowers, natives of California, and said to grow best in sandy loam.—*Riddell.*

PLATYSTEMON MEGACEPHALUM. See Chelonia.

PLAVA. A name of the men of Butan.

PLATYCODON GRANDIFLORUM.

Kih-kang,	CHIN.	Kih-hung,	CHIN.

A plant of China, from the provinces of Sechuen, Hupeh, Honan and Shan-si. It is said to be used to adulterate Gingeng.

PLAYFAIR. Several relatives of this name served as medical and military officers in the 19th century in the East India Company's Armies of Madras and Bengal. Dr. Lyon Playfair, C. B., an eminent chemist and philosopher of Great Britain, was at one time in Bengal. Lt.-Colonel Playfair wrote on the Fishes of Zanzibar.

PLECOTUS DARGILINGENSIS, *Hodg.*, syn. of Plecctus auritus, *Jerd.*

PLECOTUS HOMOCHROSIS, *Hodg.*, syn. of Plecotus auritus, *Jerd.*

PLECTOCOMIA, a genus of palms, growing in Malacca, Java, Assam and the Kassya Hills, with leaves of great length, having a hook at the end by which to support themselves. Plectocomia is the Rhenoul of the Lepchas and is not a very large plant: but it climbs lofty trees and extends 40 yards through the forest, 6,500 feet is the upper limit of the palms in the Sikkim, Himalaya, the Rhenoul alone attaining this height.—*Hooker, Vol.* i, *p.* 147; *Seeman.*

PLECTRANTHUS AROMATICUS, *Roxb.*

Coleus amboinicus, *Lour.*

Pen-bu,	BURM.	Pathur-chur,	HIND.
Fragrant plectranthus,	ENG.		

Cultivated in gardens at Ajmeer.—*Genl. Med. Top., p.* 200.

PLECTRANTHUS ASPER, *Spreng*, also P. barbatus, *Andr.* in *Bot. Res.* P. carnosus, *Sims.*, and P. crassifoleus, *Hart. Mal.* Syns. of Coleus barbatus, *Benth.*, and Anisochilus carnosus.

PLECTRANTHUS CORDIFOLIUS, a very aromatic plant of India of the order Labiatæ.—*O'Shaughnessy, p.* 491.

PLECTRANTHUS DUBIUS, *Spr.* P. forskahlii, *Willd.*, and P. monodelphus, *Roxb.* Syns. of Anisochilus carnosus, *Wall.*

PLECTRANTHUS MONACHORUM, *Spr.* Syn. of Ocymum sanctum, *Linn.*

PLECTRANTHUS PARVIFLORA, *Willd.*

P. graveolens, *R. Br.*

A plant of N. Holland with blue or purple flowers.

PLECTRANTHUS RUGOSUS, *Rottler, Benth.*

Lumnitzera densiflora, *Sprenger.*
Isodon plectranthoides. *Schræd.*

Pioomar,	CHENAB.	Kot; Siringri; Itsit,	RAVI.
Choogoo,	,,	Pok: Rosbang,	SUTLEJ.
Sola: Solei,	,,	Chichri; toarb,	,,
Flea-killer,	ENG.	Sirru kalengu,	TAM.
Bui,	JHEELUM.	Khwangere,	TR.-INDUS.

A small, rather slender, shrubby plant, has a wholesome pleasant tasted, bulbous root, much eaten by the natives, particularly during the period of their great festivals. Its leaf is rough and not unlike that of Burrage, it grows in the Himalaya, at Mount Choor, Sirmoor, Dehra Dhoon and at Tinnevelly. It is abundant in the Punjab Himalaya, from 3,000 to 9,000 feet, and occurs in the Salt Range. In places it is used as bedding to keep off fleas. The leaves have an aromatic sago-like smell and a somewhat bitterish taste.—*Ainslie, p.* 250; *Dr. J. L. Stewart,* M. D., *Punjab Plants; Voigt, p.* 449.

PLECTRANTHUS SECUNDUS, *Roxb.*

P. cordifolius, *D. Don., Graham.*	P. incanus, *Lam.*
P. mollis, *Spreng.*	P. magpurensis, *Rotl.*
P. divaricatus, *Weinm.*	Ocimum molle, *Ait.*

A plant of Mysore and the Western Dekhan, Kandalla, Roza, Ellora.

PLECTRANTHUS STROBILIFERUS, *Roxb.* Syn of Anisochilus carnosus.

PLECTOGNATHI, an order of fishes which may be thus shown:

ORDER VI—PLECTOGNATHI.

FAM. I—*Sclerodermi.*

FIRST GROUP.—Triacanthina.

Triacanthodes anomalus, *Schleg.*, Japan.
Triacanthus brevirostris, *Schleg.*, E. Indies, China, Japan.
biaculeatus, *Bl.*, E. Indies, Australia.
strigilifer, *Cant.*, E. Archipelago, China.

SECOND GROUP.—Balistina.

Balistes, *Cuv.*
a Liurus.
B. stellatus, *Lacep*, Indian and Pacific Oceans.
b Balistes.
maculatus, *Gm.*, Indian and Pacific Oceans, also Atlantic.
aureolus, *Rich.*, E. Indies.
vetula, Tropical Atlantic, E. Indies, Cape.
vidua, *Rich.*, E. Archipelago, Pacific.
capriscus, *Gm.*, Mediterranean, Pacific.
niger, *Mungo Park*, Indian Ocean, E. Archipelago.
mitis, *Benn.*, Indian and Pacific Oceans.
bursa, *Bl.*, *Schn.*, Indian and Pacific Oceans.
conspicillum, *Bl.*, *Schn.*, Sandwich islands.
viridescens, *Bl.*, *Schn.*, Indian Ocean, E. Archipelago.
ringens, *Leach*, W. Indies, Mauritius.
auromarginatus, *Benn.*, Mauritius.
rivulatus, *Rupp.*, Jedda.
fuscus, *Bl.*, *Schn.*, Indian Ocean, E. Archipelago.
flavimarginatus, *Rupp.*, Indian Ocean, E. Archipelago.
aculeatus, *Leach*, W. Africa to Pacific.
assasi, *Forsk.*, Red Sea.
verrucosus, *Leach*, Indian Ocean, Archipelago, New Ireland.
rectangulus, *Bl.*, *Schn.*, Indian Ocean, Archipelago, Polynesia.

cinereus, *Bonnat*, Mauritius.
undulatus, *Mungo Park*, Indian and Pacific Oceans.
oire, *Benn.*, Society Islands.

c Melanichthys.

buniva, *Lacep*, Tropical Atlantic, Indian and Pacific Oceans.

d Erythrodon.

erythrodon, *Gthr.*, Indian Ocean, Archipelago.
jacksonianus. *Q. & G.*
heteracanthus, *Blkr.*
caprinus, *Val.*
lima, *Benn.*
monocanthus, *Cuv.*

a Monacanthus.

pardalis, *Rupp.*, Indian, Pacific and Atlantic Oceans.
scopas, *Cuv.*, Indian Ocean, E. Archipelago.
longirostris, *Cuv.*, Indian Ocean. E. Archipelago, Fiji.
cryptodon, *Blkr.*, Celebes, Amboyna.
curtorhynchus, *Blkr.*, Amboyna.
prionurus, *Blkr.*, E. Archipelago, N. Guinea.
trossulus, *Rich.*, W. Australia.
oculatus, *Gthr.*, S. Australia.
baueri, *Rich.*, Australia.
chinensis, *Blkr.*, China, E. Archipelago.
megalurus, *Rich.*, Australian Seas.
tomentosus, *Leach*, E., I. Archipelago.
sulcatus, *Holl*, E. I. Archipelago, Chinese and Australian Seas.
setifer, *Benn.*, E. Africa, Japan, China,
nematophorus, *Gthr.*, China, Borneo.
oblongus, *Schleg.*, Japan, Zanzibar.
chærocephalus, *Blkr.*, E. I. Archipelago.
nemurus, *Blkr.*, Java, Singapore.
melanocephalus, *Blkr.*, E. Archipelago.
spilosoma, *Benn.*, Sandwich Islands.
granulosus, *White*, N. S. Wales.
rudis, *Rich.*, Tasmania.
ayrandi, *Q. & G.*, Australia.
penicilligerus, *Cuv.*, E. Archipelago, Australia.
hippocrepis, *Q. & G.*, N., S. Wales.
knerii, *Steindachner*, China.
gunnii, *Gthr.*, Van Dieman's Land.
macrurus, *Blkr.*, E. Archipelago.
convexirostris, *Gthr.*, Tasmania, New Zealand.
multiradiatus, *Gthr.*, S. Australia.
trachylepis, *Gthr.*, Australia.
peronii, *Holl*, S. Australia.
scaber, *Forst.*, N. Zealand.
brownii, *Rich.*, Australia.
spilomelanurus, *Q. & G.*, Australia.

b Aleuteres.

monoceros, *Osb.*, Atlantic, Tropical America, Indian Ocean, E. Archipelago.
scriptus, *Osb.*, Zanzibar, Amboyna, Penang, Siam W. Indies, Cape Verde.
liturosus, *Shaw*, Indian Seas, Otaheite.
personatus, *Less.*, N. Guinea.
nasicornis, *Schleg.*, Indian Ocean, E. Archipelago, Japan.
pusillus, *Rupp.*
freycineti, *Cuv.*, *Holl.*
broccus, *Mitch.*
maculosus, *Rich.*
brevispinosus, *Holl.*
platifrons, *Holl.*
serrasquamosus, *Holl.*
tricuspis, *Holl.*
dumerilii, *Holl.*
nitens, *Holl.*
trachyderma, *Blkr.*
holbrookii, *Holl.*
cuspicauda, *Mitch.*

lineolatus, *Rich.*
anacanthus, *Gray.*
barbatus, *Gray.*

THIRD GROUP.—Ostraciontina.

Ostracion, *Art.*,

a Ostracion.

gibbosus, *L.*, Indian Ocean, E. Archipelago.
concatenatus, *Bl.*, Cape of Good Hope, Chinese Seas, Australia.
cubicus, *L.*, Indian Ocean, E. Archipelago, Australia.
sebæ, *Blkr.*, Indian Ocean, E. Archipelago.
punctatus, *Bl.*, *Schn.*, Indian Ocean, E. Archipelago, Pacific.
renardi, *Blkr.*, Amboyna, Ceram, Java.
solorensis, *Blkr.*, E. Archipelago.
ornatus, *Holl.*, Marquesas.
nasus, *Bl.*, E. Archipelago, Pacific.
rhinorynchus, *Blkr.*, E. Archipelago, Australia.
diaphanus, *Bl.*, *Schn.*, Cape of Good Hope to Australia and Japan.
forasini, *Bianc.*, Indian Ocean, E. Archipelago.
cornutus, *L.*, Indian Ocean, E. Archipelago, Micronesia.

β Aracana.

aculeata, *Houttuyn*, Japan.
aurita, *Shaw*, Tasmania, S. Australia.
ornata, *Gray*, Tasmania, S. Australia.
lenticularis, *Rich.*, S. Australia.
ostracion boops, *Rich.*

FAM. II.—*Gymnodontes.*

FIRST GROUP.—Triodontina.

Triodon bursarius, *Reinw.*, Indian Ocean, E. Archipelago.

SECOND GROUP.—Tetrodontina.

Xenopterus naritus, *Rich.*, Penang, Sumatra, Borneo.
modestus, *Blkr.*, Sumatra, Borneo.
tetrodon, *L.*

β Gastrophysus.

lagocephalus, *L.*, English, Irish and E. African Coasts.
lævigatus, *L.*, Japan, Tropical America.
lunaris, *Bl.*, *Schn.*, E. Archipelago, Indian Ocean, Pacific, Brazil.
sceleratus, *Forst.*, Indian Ocean, E. Archipelago.
honckenii, *Bl.*, Cape of Good Hope to China.
hypselogenion, *Blkr.*, E. Africa to Australia.
oblongus, *Bl.*, Indian Ocean, China, Japan, S. Sea.
ocellatus, *Osb.*, China.
rubripes, *Schleg.*, China, Japan.
hamiltonii, *Rich.*, Port Jackson.
vermicularis, *Schleg.*, Japan.
pardalis, *Schleg.*, Japan.

γ Cheilichthys.

richei, *Freminv.*, S. Australia, N. Zealand.
multistriatus, *Rich.*, S. Polynesia.

δ Liosaceus.

cutaneus, *Gthr.*, St. Helena, Cape of Good Hope.
porphyreus, *Schleg.*, Japan.
angusticeps, *Jen.*, Galapagos.

ε Crayracion.

palembangensis, *Blkr.*, Siam, Sumatra, Borneo.
liurus, *Blkr.*, Java, Sumatra, Borneo.

ζ Chelonodon.

patoca, *H. B.*, Coasts of E. Indies.
viridipunctatus, *Day*, Cochin.
waandersii, *Blkr.*, Bombay.

η Monotretus.

cutcutia, *H. B.*, Ganges.

θ Arothron.

immaculatus, *Bl.*, *Schn.*, Red Sea, Australia, Polynesia.
carduus, *Cant.*, Penang.

cochinensis, *Day*, Malabar.
nigropunctatus, *Bl.*, *Schn.*, Indian Ocean, E. Archipelago, Fiji.
diadematus, *Rupp.*, Red Sea.
mappa, *Less.*, Indian Ocean, E. Archipelago.
stellatus, *Bl.*, *Schn.*, Indian Ocean, E. Archipelago, Pacific.
reticularis, *Bl.*, *Schn.*, Indian Ocean E. Archipelago.
hispidus, *Lacep*, Red Sea, E. Africa, Ceylon.
bondarus, *Cant.*, Vizagapatam, Penang.
erythrotænia, *Blko.*, Celebes, Amboyna.
meleagris, *Lacep*, Polynesia.
firmamentum, *Schleg.*, Japan.
fluviatilis, *H. B.*, Fresh waters of East Indies.
ι *Anosmius.*
margaritatus, *Rupp.*, E. Africa, Tahiti.
papua, *Blkr.*, E. Archipelago.
bennetti, *Blkr.*, E Archipelago, Indian Ocean.
janthinopterus, *Blkr.*, Celebes, Amboyna.
amboinensis, *Blkr.*, Indian Ocean, E. Archipelago.
sanctæ helenæ, *Gthr.*, St, Helena, Japan
striolatus, *Q. & G.*, E. Archipelago.
rivulatus, *Schleg.*, Japan.
valentini, *Blkr.*, Indian Ocean, Archipelago.
grammatocephalus. *Schl.*
cochinchinensis, *Steind.*
Diodon hystrix, *L.*, Tropical Atlantic, Indian Ocean, Pacific, E. Archipelago.
spinosissimus, *Cuv.*, Cape of Good Hope, Siam.
maculatus, *Gthr.*, Tropical Atlantic, Cape of Good Hope, E. Archipelago, Pacific.
bocagei, *Steindachner*, Port Jackson.
Chilomycterus calarii, *Bianc.*, Zanzibar.
orbicularis, *Bl.*, Indian Ocean., E. Archipelago.
echinatus, *Gronov.*, Cape of Good Hope.
jaculiferus, *Cuv.*, N. Zealand.
tigrinus, *Cuv.*, Indian Seas.
Dicotylichthys punctulatus, *Kaup.*, Australia, Cape of Good Hope.
Atopomycterus nychthemerus, *Cuv.*, Australia.

THIRD GROUP.—Molina.

Orthagoriscus, *Gray*, E. I. Fishes
lanceolatus, *Lienard*, Mauritius.
truncatus, *Retz.*, Atlantic, Pacific.

PLEMBANG, or Palembang, a port and town on the coast of Sumatra. See Banca Islands, Johore.

PLEUROBRANCHIDÆ, a family of Mollusca, viz :

Pleurobranchus. Syn. Berthella. Oscanius, rec. 20 sp.
  Sub-genus. ? Pleurobranchæa. rec.
    Posterobranchæa. rec.
    Runcina. Syn. Pelta. rec.
    Umbrella. Chinese-umbrella shell. Syn. Acardo. Gastroplax, rec. 3 sp. fossil, 2 sp.
    Tylodina. rec. 3 sp.

PLEURONECTIDÆ, a family of fishes which may be thus shown :

FAM. 7.—Pleuronectidæ.

1 Psettodes, 2 Hippoglossus, 2 Hippoglossoides, 1 Tephritis, 7 Rhombus, 1 Phrynorhombus. 6 Arnoglossus, 1 Citharus, 1 Brachypleura, 1 Samaris, 1 Psettichthys, 2 Citharichthys, 3 Hemirhombus. 14 Pseudorhombus, 1 Paralichthys, 13 Rhomboidichthys, 22 Pleuronectes, 5 Parophrys, 1 Psammodiscus, 1 Ammotretis, 3 Rhombosolea, 1 Peltorhamphus, 34 Solea, 2 Pardachirus, 1 Liachirus, 9 Synaptura, 1 Æsopia, 2 Gymnachirus, 1 Soleotalpa, Apionichthus, 1 Ammopleirops, 1 Aphoristia, 3 Plagusia.
29 Cynoglossus.

PLEURONECTES SOLEA. The sole.

Kowlie mutchie,	DUK.	Naak meen,	TAM.
Ecan leda,	MALAY.		

—*Ains. Mat. Med.*, p. 155.

PLEUROPTERA, a tribe of Mammals, generally known as the flying lemurs, flying cats, and flying foxes. See Mammals.

PLEWAN, PSHTU, or Plewane, HIND. Salvadora oleoides.

PLEUROTOMA, a genus of Molluscs.

PLICATULA, a genus of Molluscs.

PLINY, a historian of Rome, whose name was Caius Plinius Secundus, born A. D. 23. He died A. D. 79, suffocated by a pestilential vapour near Mt. Vesuvius. He was a voluminous author, but most of his works have been lost, the Historia naturalis, or Historia mundi still remains, it is in 37 books. Notices occur in it of Khuzistan, Koh, Lokman, Okelis and the Kol race.

PLOCARIA, a genus of plants belonging to the alliance Algales, the order Ceramiaceæ, and the sub-order Sphærococceæ. One of the species, P. helminthocorton, a native of the Mediterranean is called Corsican moss, and has a considerable reputation as a vermifuge. —*Eng. Cyc.*

PLOCARIA CANDIDA, *Nees.*

Gracillaria lichenoides, *Greville.* | Fucus amylaceus.

Kyouk-pwen,	BURM.	Sea weed,	ENG.
Hai-tsai ; Hai-tsau,	CHIN.	Agar-agar,	MALAY.

The Chinese name Hai-t's'ai means sea vegetable, and is applied to all the different kinds of Algæ used as articles of diet. The Malay term Agar-Agar is also applied by the Malay race to the Gigartina tenax and Sphærococcus growing on the rocky shores of Malaysia. The Plocariacandida sea weed is abundant on the Tenasserim coast, and exceedingly valuable for its nutritious and medicinal properties for invalids. It was first brought to public notice by Dr. O'Shaughnessy as the Edible moss of the Eastern Archipelago, and referred by him to the genus fucus. The fructifications, however, being in small tubercles, the Rev. Mr. Mason considers it as a species of Agardh's genus, Sphærococcus which now constitutes a member of the genus P. Focaria. It is an allied species with the Ceylon moss (Gigartina lichenoides) first described as fucus amylaceus by Dr. O'Shaughnessy, the P. Focaria lichenoides of Mr. Mason ; also with a species found on the coast of Devonshire in England ; Pl. compressa : with the Corsican moss of the Mediterranean P. Helminthochorton ; also with the Agar-agar Pl. tenax a species used in China, as a substitute for glue and gum arabic, but differs from the Irish moss or Chondrus crispus ; and is not of the same natural family as the Iceland moss which, indeed, is a lichen, the Cetraria islandica. The Tenasserim moss is said to be superior to all others, as it is wholly free from the bitter principle which renders other fuci so objectionable; but Mr. Mason seems to consider it identical with the Ceylon moss, for he gives the same account of it as Dr. O'Shaughnessy gives of that from Ceylon. It contains he says a considerable proportion of starch, and was hence named by Dr. O'Shaughnessy, the starch fucus, F. amilaceus but its specific name has been since changed to candida, white, probably from a mistaken idea that the substance is naturally white, whereas it becomes so only by bleaching in the sun; its natural tint, is a shade between olive and purple, such as the natives designate red. According to Dr. O'Shaughnessy's analysis it contains in 100 parts as follows:

Vegetable jelly,...	54.5	Sulphate & muriate of soda, ...	6.5
True starch,... ...	15.0	Sulphate & phosphate of lime, ...	1.0
Wax, a trace, ...	0.5?	Iron, a trace, ...	0.4?
Ligneous fibre, ...	18.0		
Gum, ...	4.0		

On the best mode of preparing it for use he adds: "In the first place, from the tendency of pectin or vegetable jelly to form insoluble compounds with saline and earthy bases, it is necessary to steep this fucus for a few hours in cold rain water as the first step in its preparation. This removes a large portion, if not the entire, of the sulphate of soda, leaving all the gelatine, and starch. It should next be dried by the sun's rays, and ground to a fine powder; cutting or pounding, however, diligently or minutely performed, still leaves the amylaceous globules so mechanically protected, and so closely involved in an external sheath of tough ligneous fibre, that scarcely a particle of the starch can be extracted by boiling, even though the decoction is prolonged for several hours. When ground, boiling for 25 minutes or half an hour dissolves all the starch and gelatine. The solution while hot should be passed through muslin or calico, and thus the ligneous fibre is removed: lastly, the strained fluid should be boiled down till a drop placed on a cold surface gelatinizes sufficiently. With milk and sugar, and flavoured with lemon juice or sherry, this substance when prepared as now directed, would afford the invalid a pleasant article of diet, especially at sea, where other jellies or their materials cannot be so easily preserved. As this fucus is found abundantly on the eastern coast of Bengal, Mr. Mason entertained considerable hopes of its being hereafter found available also in several processes of art and various manufactures.—*O'Shaughnessy; Mason's Tenasserim.* See Edible sea-weed.

PLOCARIA COMPRESSA, Pl. Helminthochorton and Pl. Lichenoides, see Edible sea-weed.

PLOCEINÆ, the weaver birds, a sub-family of birds of the family Fringillidæ and tribe Curvirostres. The weaver birds form curious pensile nests.

Ploceus baya, *Blyth*, the common weaver bird, Ceylon, all India, Assam, Burmah.
P. manyar, *Horsfield*, the striated weaver bird, Burmah and Archipelago.
P. bengalensis, *Linn*, black throated weaver bird, British India, Assam, Tipperah, Burmah.
P. philippinus—— ? Java, Burmah.

They build nests like a crucible, with the opening downwards and usually attach them to the tender branches of a tree hanging over a well or tank.

PLOCREDERMA, see Laudakia melanura.

PLOHIERRO, Sp. Iron wood.

PLOMB, Fr. Lead.

PLOMBAGO, Black lead, see Plumbago.

PLOMB-DE-MINE, or Potelot, Fr. Black-lead.

PLOMB SULFURE, Fr. Galena.

PLOM CARBONATE, Fr. White lead.

PLOMO, Sp. Lead.

PLOTOSUS ANGUILLARIA, and Pl. albilabris occur in the seas of the Malay peninsula. At Pinang, the latter species is less numerous, both are eaten by the poorer classes of natives. The wounds of both are equally dreaded.

PLOTOSUS CANIUS, *Buch. Ham.*, *Cal. Cat.*

Notopterus pallasii, *Cuv. et Val.*, *Cal. Cat.*

PLOTUS LEVAILLANTII, see Pelecanus.

PLOUGHING. Amongst the hindoo races of British India, at the close of the ploughing and sowing season, either in the spring or autumn, the plough is worshipped. It is the Har-puja. The Chinese annual ceremony of ploughing is of very ancient origin. At Peking it consists in ploughing a sacred field with a highly ornamental plough kept for the purpose, the emperor holding it while turning over three furrows, the princes five, and the high ministers nine. These furrows were, however, so short that the monarchs of the present dynasty altered the ancient rule, ploughing four furrows and returning again over the ground. The ceremony finished, the emperor and his ministers repair to the terrace, and remain till the whole field has been ploughed. The ground belongs to the temples of heaven and earth, on the south of the city, and the crop of wheat is used in idolatrous services. The rank of the actors renders the ceremony more imposing at Peking, and the people of the capital make more of it than they do in the provinces. A monstrous clay image of a cow is carried to the spot, containing or accompanied by hundreds of little similar images; after the field is ploughed it is broken up, and the pieces and small images are carried off by the crowd to scatter the powder on their own fields, in the hope of thereby insuring a good crop. The heads of the provincial governments, the prefects and district magistrates, go through a similar ceremony on the same day. In Ningpo, an eye-witness describes the principal features of the ceremony as consisting in a solemn worship, by all the local officers, of a clay image of a buffalo and an idol of a cowherd. The prefect then ploughed a small piece of ground, and he and his associates dispersed till the morrow, when they came together in another temple at dawn. Here a series of prostrations and recitals of prayers were performed by the "fathers of the people" in their presence, some of whom seemed to have no respect for the worship they were engaged in, while others evinced deep reverence. As soon as this was over, the clay ox was brought out, and a procession consisting of all the officers passed around it repeatedly, striking the body at a given signal, and concluding the ceremony by a heavy blow on the head. The crowd then rushed in and tore the effigy to pieces, each one carrying off a portion to strew on his fields. In British India, the plough is more usually drawn by the buffalo but often by bullocks and from two to eight team are put to the plough according to the nature of the land. In the Malay countries the plough is usually drawn by one or two buffaloes, which, peculiarly adapted for the wet land culture of rice, to which the use of the plough is almost exclusively confined, the chunkal or large hoe, being the instrument employed in turning up the soil in plantation culture.—*Wils. Gloss.*; *Williams' Middle Kingdom, Vol.* ii, *p.* 109.

PLOVER, a name applied in ordinary conversation to species of birds, of the families Cursoridæ and Charadridæ ;

Cursorinæ.

Cursorius coromandelicus, *Gm.*, Indian courier plover.
Rhinoptilus bitorquatus, *Jerd.* Double-banded „
Glareola orientalis, *Leach.* Large swallow „
G. lactea, *Temm.* Small swallow plover.

Charadrinæ.

Squatarola helvetica, *Gm.* Grey plover.
Charadrius longipes, *Temm.* Golden plover.
Ægialitis geoffroyi, *Wagler.* Large sand plover.
Æ. pyrrhothorax, *Temm.* Small „ „
Æ. cantianus, *Latham.* Kentish ring plover.
Æ. philippensis, *Scopoli.* Indian ringed plover.
Æ. minutus, *Pallas.* Lesser ringed plover.

The courier plover runs about rapidly, nodding its head occasionally when it stops, running for a distance at speed, suddenly stopping, erecting the body and then starting off again. The large and small swallow plovers hawk over the fields of grain or rumnahs of grass, catching insects in the air.—*Jerdon.*

PLOWDEN, Mr., once Her Britannic Majesty's Consul in Abyssinia, who, in 1860, died from wounds received in an attack made upon him by one of the chiefs in Tigre, while he was travelling through that province from Gonda to Massowa.

PLUKENET. Leonard Plukenet's works were published in London between 1696 and 1705, in 4 volumes quarto, containing 454 plates, with 2,740 figures of plants, many of them Indian. These figures are small, and often much reduced from the natural size, especially when the plants were large, but are generally very characteristic: they are much less costly and more easily procured than those of Rheede.

PLUMS.

Kia-king-tsze, CHIN. | Nai, CHIN.

The fruit of the tree, Prunus domestica, indigenous to the greater part of the northern hemisphere, 274 varieties of this fruit are enumerated. Dried plums form an article of commerce under the names of prunes and prunellas.—*Smith's Materia Medica*; *Faulkner.* See Kabul.

PLUMAZO DE AVESTRUX, SP. Estrich, Estridge.

PLUM-OIL, Oil of kernel of Prunus domestica.

PLUIMEN, DUT. Feathers.

PLUMAS, SP. Feathers.

PLUMBAGINACEÆ, *Lindl.*, the Leadwort tribe of plants, of 2 gen., 4 species, viz., 3 Plumbago, 1 Ægialitis.

PLUMBAGO.

Black lead.
Carburet of iron.
Plumbago.
Graphite.

Plumbago is a carburet of iron though commonly known as blacklead, and also called graphite. It is used for making leads for pencils and crucibles. Veins of this occur in the hills near Nambrapane. These are largely worked in Ceylon, and 2,000 tons are annually exported.

Plumbago is sold for antimony in the bazaars, it is found in Ceylon and Travancore, also in Kumaon, and the Northern Circar mountains and abounds in the hills skirting the western boundary of the Vizagapatam district. The deposits have never been worked, and that which is brought to the coast is coarse and impure. A fine and varied series, both as regards, size and quality were exhibited by General Cullen from Trevandrum. One large block was in a matrix along with laterite and contained some pieces the size of a walnut, nearly equal to the fine kinds of Cumberland black lead. Other large blocks nearly a foot in cubic measurement appear of a softer and coarser quality, not so compact as the brightest portions of the first-named block. This plumbago or graphite is well suited for the manufacture of ordinary pencils or for making crucibles. Lieut. Evans, 51st Regiment M. N. I., exhibited plumbago of good quality from Ceylon, and of indifferent quality from beds of shale that accompany iron ore at Malacca. Some indifferent specimens of plumbago were also exhibited along with iron ore and slaty shales from Cuddapah. This mineral was formerly found in its most pure state in Borrowdale in Cumberland, which indeed was the only mine that produced lead of that fine quality requisite for the manufacture of drawing pencils. The Cumberland mines have been wrought since Elizabeth's time; pure Cumberland lead costing as much as from 30 to 40 shillings a pound. The lead is not found in veins but in detached pieces, so that the supply is occasionally irregular and the search for it laborious and often fruitless. Inferior descriptions of lead come from Spain and Ceylon, and are used in the manufacture of crucibles and of the inferior sort of pencils and in polishing cast iron. Finely powdered graphite can, by an extreme degree of pressure, be rendered nearly as compact as the best natural graphite, or we should be without any more good drawing pencils. The great manufacturers of pencils in England reported the Kumaon and Travancore specimens as quite useless for the manufacture of black lead pencils, observing that they could not use the specimens in the state in which they had been sent without damaging their machinery, at the same time they could not conceive why purer specimens should not be found in the same locality. In regard to the objections made to the specimens forwarded, General Cullen, Resident of Travancore, reports on the plumbago or graphite of Travancore, that two varieties are found one in thin laminæ, another granular, and he sent specimens of both to the Exhibition of 1851. The granular or fibrous variety, he had discovered in two localities and both of them in laterite, a few feet only below the surface. One locality is about 5 or 6 miles N. E. of Trevandrum and the other about 12 or 14 miles N. E., he brought in from this latter locality on his visit to it, about 3 cwt. Some small deposits are also found immediately on the W. of the town of Trevandrum. Graphite in thin scales or laminæ is common nearly throughout the laterite tracts of Travancore and Cochin, but more or less abundant in particular places. It is found in some places in laminæ of considerable size, particularly in a laterite hill about 25 miles N. E. of Trevandrum at a place called Caviattencudul, near the foot of the ghat mountains. It is also found in laminæ of good size in the disintegrated gneiss of the ghats on the Tinnevelly side, also common in the Kunker or Travertine deposits near Culdacoorche and Amba-samoodrum. The Vizagapatam graphite is perhaps also found in laterite, of which there is a large deposit at Bimlipatam. Plumbago mixed with boiled oil, and applied to canvas and other cloths, renders it non-combustible. A powdery plumbago has been obtained from Jammu territory, and a specimen of rather better stuff found in some other parts of the Gurgaon hills. Dr. W. J. Thomson says that the most eastern point of the hill at Sonah is semi-detached from the principal range by a deep gorge. This portion is composed of sandstone much indurated by heat and mixed with eruptive quartzose and gneiss rock near the top. About half way up (100 feet) on the eastern slope of the gorge, where it is nearly precipitous, he found a bed of a soft black stone, easily friable, and soiling the fingers when touched, and brought home some specimens. The bed was from 18 to 24 inches thick, and, as far as traced, it extended about 30 yards N. and S., and had a dip of nearly 10 to the N; he conjectured that plumbago of an equally pure quality and more dense structure will be found further in. A plumbago mine, was discovered by Dr. W. J. Thornton, Civil Assistant Surgeon, Gurgaon, in October 1861. It is found in masses of variable sizes, and in general quite detached; though, in some cases, the rock all round is full of plumbago mixed with finely divided micaceous particles, it was sent to the Exhibition of 1862, from Malacca, Burmah, Vizagapatam, Umritsur, Darjeeling.—*Cat. Ex.* 1862; *Observations on the graphite or plumbago of Kumaon and Travancore by Dr. Forbes Royle*, M. D., *with an extract from a letter from the Resident of Travancore and Cochin, dated 9th February* 1857; *Bombay Gazette*; *M. L. S. Journal*; *Rohde's MSS.*; *M. C. C.*; *M. E. J. R.*; *Genl. Cullen*; *Simmond's Dict.*

PLUMBAGO CAPENSIS, flower.

PLUMBAGO EUROPÆA.

Chitra vani, SANS. | Chitra; Chitah; Shitraj, SANS.

An erect, branching, smooth, herbaceous shrub. The whole plant, especially the root, is very acrid, and, applied as paste to the skin, acts as a powerful vesicatory. Given internally in small doses, it is said to be a very efficacious emetic, but we would deem its administration as dangerous as that of cantharides. The bruised root has been employed in Europe as an application to cancer, as a counter-irritant in toothache, and as a remedy for the itch. It is a native of various parts of the East Indies, is nearly similar to the Chittramoolum in its natural qualities. The bruised root tempered with a portion of some bland oil, is used as an external application in rheumatic and paralytic affections. It is also prescribed internally in powder in small doses, for the same complaints. The properties of this species and of the P. scandens and P. zeylanica are nearly identical. A paste made with rice congie and the bruised bark is applied by the natives to buboes in the incipient states: it acts as a vesicatory. Dr. O'Shaughnessy made numerous clinical experiments with the bark of the plumbago root of various species, especially the P. rosea, rubbed into a paste with water and a little flour, or congie; it occasions pain in about five minutes, which increases in severity till a quarter of an hour it is equal to that of a cantharides blister or mustard sinapism. If the paste be removed in half an hour the pain is soon allayed, and in a period of 11 to 18 hours a large uniform blister, full of serum, is occasioned. The blistered surface heals readily without unpleasant ulceration.

PLUMBAGO ROSEA, *Linn.* Applying Plumbago rosea in the native of India, the skin in a few minutes is intensely blackened; in white-skinned persons a deep redness is occasioned. In all chronic cases and in many acute diseases this blister will prove an effectual and very cheap substitute for cantharides, over which it possesses the peculiar advantage of never producing strangury or any other form of irritation of the urinary organs. Dr. O'Shaughnessy speaks from the experience of from 3 to 400 cases. His experiments led him to believe that the blistering quality resides in the plumbagin, but on this poiut he was unable to speak in positive terms. The root, in various forms, is much employed as a poison in India; and as an irritant to occasion abortion it is introduced into the vagina and applied directly to the neck of the uterus. In a criminal case of the former kind, in 1837, Dr. O'Shaughnessy, succeeded in detecting the poison by acting on the contents of the stomach with alcohol, concentrating the tincture, redissolving in a small quantity of boiling water, and adding the sub-acetate of lead, by which the very characteristic red colour was immediately occasioned. By a modification of this process two grains of the powdered bark may be detected in a pint of a mixture of milk, blood, and various articles of food. A powerful irritant, containing a neutral crystalline principle of plumbagine.—*O'Shaughnessy, pp.* 508-10; *Ainslie's Mat. Med., p.* 112; *Powell's Handbook, Vol.* i, *p.* 368.

PLUMBAGO ZEYLANICA, *Linn., Roxb.*

Shituruj,	AR.	Cittra modlam,	TAM.
Chutra,	BENG.	Kodiveli-chitra mulum,	TAM.
Ken-kyok-phyoo,	BURM.		
Chitur mul,	DUK.	Agni mata,	TEL.
White Lead wort,	ENG.	Chitra mulum,	„
Chitra-chita,	HIND.	Tella chittra mulum,	„
Tumba kodivali,	MALEAL.		

The White Plumbago is common; so are the other varieties, red and blue, and blossom throughout the year; but the blue is the handsomest of the whole, and introduced from the Cape, is by far the most esteemed. Is propagated by layers. The three different species of plumbago, the red, the white, and the blue flowered, are common in Tenasserim gardens; and the first two are cultivated by the Burmese for the vesicatory power of their roots.—*Riddell; Mason.*

PLUTARCH, a Roman, who mentions the Bulla, as suspended from the necks of the more noble Roman boys, as a phylactery, or "preservative of good order, and as it were a bridle on incontinence." But it is not improbable that some of the Jews in our Saviour's time, as they certainly did afterwards, regarded their phylacteries as amulets or charms, which would keep or preserve them from evil. There is a remarkable passage in a rabbinical Targum, written about 500 years after Christ, which may both serve to illustrate what our Lord says, Matt. xxiii, 5, and to show what was the notion of the more modern Jews concerning their phylacteries. It runs thus:—"The congregation of Israel hath said, 'I am chosen above all people, because I bind the phylacteries on my left hand and on my head, and the scroll is fixed on the right side of my door, the third part of which is opposite to my bed-chamber, that the evil spirits may not have power to hurt me.'" See Parkhurst's Greek Lexicon; also Bishop Patrick, and Calmet, quoted by D'Oyly and Mant, in a note on the passage in St. Matthew.—*Ras Mala, Hindoo Annals, Vol.* ii, *p.* 409. See Yavana.

PLUTO, see Osiris.

PLUTUS, see Saraswati, Kuvera.

PLUMBI CARBONAS, LAT. White lead.

PLUMES, FR. Feathers.

PLUMES A ECRIRE, FR. Quills or writing pens.

PLUMES A LIT, FR. Bed feathers, feathers.

PLUMIERIA. Several species of this genus, natives of Jamaica, Surinam, Brazil, the Malayan Archipelago, and Cochin-China, are used as drastic cathartics.—*O'Shaughnessy.*

PLUMIERIA ACUMINATA, *Ait., Roxb., W. I.*

Gobur-chumpa,	DUK.	Vada ganneru,	TEL.
Pagoda tree,	ENG.		

A small elegant tree, common; flowers white and yellow, tinged with red, very fragrant. A pure white caoutchouc is obtained from this tree. It is abundant and luxuriant in the Pinjore valley. A small South America tree, is called by the Burmese, China champac. Its straggling, and often leafless branches shoot out from their extremities delicate orange-coloured blossoms, tinged with red, and of sweetest fragrance.—*Riddell; Royle; O'Shaughnessy, p.* 449; *Mason.*

PLUMIERIA ALBA.

Gulachin, DUK.

The White Chumpa.

PO, HIND. Parrotia jacquemontiana.

PO, HIND. Kashmir, Fothergilla involucrata, Parrotia jacquemontiana.

POA, a genus of grasses of the natural order Panicaceæ of which the following are species of the South and East of Asia.

annua, *Linn.*, Europe, Caucasus.
chinensis, *Retz.*, P. India, China,
cylindrica, *Roxb.*, Canton.
cynosuroides, *Retz.*, Egypt, India.
diarrhena, *R. & S.*, Bengal.
digitata, *R. Br.*, Port Jackson.
elegantula, *Kth.*, Bengal.
gangetica, *Roxb.*, Bengal.
multiflora, *Roxb.*, Bengal.
nemoralis, *Linn.*, Europe.
nutans, *Kon.*, Bengal, Coromandel.
punctata, *Linn.*, Bengal.
paniculata, *Roxb.*, Bengal.
plumosa, *Retz.*, Bengal.
roxburghiana, *Schult.*, Bengal.
pratensis, *Linn.*, Europe, Caucasus.
tenella, *Linn.*, Pen. India.
trivialis, *Linn.*, Europe.
unioloides, *Retz.*, Pen. India, Bengal, Moluccas.
viscosa, *Retz.*, Pen. India, Bengal.

The genus Poa has its glumes rather unequal; the outer palea with 3 or 5 nerves, membranous below, scarious at the tip, compressed, keeled, unarmed; the styles terminal. The species of this genus are very numerous, constituting the commonest weed that follow the migrations of man, and generally containing a sufficient quantity of nutritive matter to render them fodder for various animals. Thirteen species of this genus are described by Babington as natives of the British Islands. Of these the most common are the P. annua and P. pratensis. The former is perhaps the commonest of British plants, springing up on every neglected spot around the habitations of man. The latter is known by the name of the Smooth-stalked Meadow-grass, and is found in most pasture lands. P. nemoralis, the Wood meadow-grass, is also a common grass in shady places. Many of the recent genera of grasses were formerly referred to the genus Poa.—*Voigt Hort. Sub. Cal.*

POA CYNOSUROIDES, *Retz.*, *Roxb.*

Eragrostis cynosuroides, *R. & S.*
Uniola bipinnata, *Linn.*
Briza „ *Linn.*

Doob,	HIND.	Pavitra,	SANS.
Koosh,	MAHR.	Kusa dharbagaddi,	TEL.
Koosha ; Koosa,	SANS.	Aswalayana	„
Darbha,	„ TEL.		

A plant of Egypt and India, the sacred grass of the hindoos, the dab or koosha of the brahmins and sacred to Siva; as are also the pepul, banyan, the neem (Melia azaderachta), the Cratæva religiosa. The Ocimum sanctum or tulsi is sacred to Vishnu and Krishna. Some hindoo legends make Garuda the offspring of Kasyapa and Diti. This all-prolific dame laid an egg, which it was predicted would produce her a deliverer from some great affliction: after a lapse of five hundred years, Garuda sprung from the egg, flew to the abode of Indra, extinguished the fire that surrounded it, conquered its guards, the devata, and bore off the amrita (ambrosia), which enabled him to liberate his captive mother. A few drops of this immortal beverage falling on the kusa, it became eternally consecrated; and the serpents greedily licking it up, so lacerated their tongues with the sharp grass, that they have ever since remained forked; but the boon of eternity was ensured to them by their thus partaking of the immortal fluid. This cause of snakes having forked tongues is still in the popular tales of India, attributed to the above greediness; and their supposed immortality may have originated in some such stories as these; a small portion of amrita as in the case of Rahu, would ensure them this boon. See Dharmarajah, Dab, Doob, Garuda, Hindoo, Yama.

POALUM, MALAY. Coral.

POALKAYA, TEL. Trichosanthes anguina, *Linn.*

POAM or Boa or Boe, a Malabar and Canara wood much like the timber called in Ceylon Palari, or Pali, and Irambu, or, as known by the English name, iron-wood. It is a strong, heavy wood, and is considered durable. It grows from 20 to 30 feet high, and from twelve to thirty inches in diameter.—*Edye, Forests of Malabar and Canara.*

POCHAN, of Dera Ghazi Khan, a woman's scarf.

POCHOBORO, URIA? A tree of Ganjam and Gumsur. Extreme height 30 feet, circumference 2½ feet, and height from the ground to the intersection of the first branch, 6 feet. Tolerably common, only used for firewood and charcoal.—*Captain Macdonald.*

POCKHALN, GER. Guaiacum officinale.

POCOCK, EDWARD, author of History of the Arabs.

POCREE of Delhi, Cotton-gatherer.

PODADENIA SAPIDA, *Thw.*

Rottlera thwaitesii. | Stylanthus thwaitesii, *Baillon.*

A large tree of Ambagamowa in Ceylon and at Marai-Calai, near Ratnapoora, at an elevation of 1,000' to 2,000 feet.—*Thw. En. Pl. Zeyl.*, *p.* 274.

PODAK, TEL., Female, Eudynamis orientalis, *Linn.*

PODALA MANU, TEL. Acacia catechu, *Willd.*

PODA PATRA, TEL. Gymnema sylvestre, *R. Br.*—also Asclepias geminata, *R.* ii, 45. The Konda Doralu call it Putla podara, Br. gives the meaning Tylophora vomitoria on the authority of Ainslie.

PODALYRIA GENISTOIDES, a pretty shrub with silky leaves, should be grown in a light garden soil, their colours are mostly white, purple, blue or red, and should be raised from seed. See Leguminosa.

PODA PATRA, or Putla podara, TEL. Gymnema sylvestre, *Spr.*, *R. Br.*

PODARGUS, the goat sucker genus of birds of the family Caprimulgidæ, as under :

Fam. Caprimulgidæ.
Sub-fam. Podarginæ, 1 gen., 3 sp., viz., 3 Podargus, auritus, Javanensis and affinis.
Sub-fam. Caprimulginæ, 2 gen., 9 sp., viz., 2 Eurostopodus, 7 Caprimulgus.

PODARGUS SUPERCILIARIS, a goat-sucker of Bessir island.

PADAVALAM, MALEAL. Trichosanthes cucumerina, *Linn.*, *Roxb.*, *W. & A.*

PADDU or Proddu tringudda-chettu, Helianthus annuus, *Linn*, *Roxb.*

PODDU TIRUGUDU PUVVU or Proddu-tirugulu, TEL. Helianthus annuus, *L.*

PODEX, see Sati.

PODICIPIDÆ, the Grebe family of birds, as under :

Fam. Podicipidæ, 1 gen., 2 sp., viz. 2 Podiceps. cristatus, Philippensis.

PODICEPS CRISTATUS, the Great-crested Grebe of Europe, Asia, all Africa, America ; the Australian barely separable : Himalaya, Bengal, Sunderbans. Perhaps commoner than generally supposed in India, from its secluded habits and the great difficulty of procuring specimens.

PODICEPS PHILIPPENSIS, or P. minor, the 'Little Grebe of Europe, Asia and its islands, North Africa : very common in India.

PODICEPS OCCIPITALIS, See Colymbidæ.

PODINA, HIND. Mentha sativa. Pahari-podina, HIND., is Mentha viridis, *Linn.*

PODINA KOHI, HIND., PERS. Mentha viridis, *Linn.*

PODI-URILANGA, SINGH. Trichosanthes anguina, *Linn.*

PODOCARPUS, a genus of the yew tribe of plants, the Taxaceæ, of which the following E. I. species are known :

polystachys, *R. Br.* Nepal, Khassya, Malacca, Singapore, China, Japan.
elongatus, *l'Herit* —— ?
chinensis, *Swt.*, China.
cupressinus, *R.* Br. Penang, Java.
macrophylla, *Wall.* Maki, *S. & Z.* Chinensis, *Wall.* JAP.
koraiana, *Sieb.* JAP.
nageia, *R.* Br. „
japonica, *Sieb.* „
cuspidata, *Endl.* „
grandifolia, *Endl.* „

PODOCARPUS DACRYDIOIDES is the Kahikatea or white pine timber tree of New Zealand.

PODOCARPUS FERRUGINEA is the Miro timber tree of New Zealand.

PODOCARPUS LATIFOLIA occurs in the mountains of Sylhet.

PODOCARPUS MACROPHYLLUS in Nepaul, Penang, Amboyna and Japan.

PODOCARPUS NERIIFOLIA —— ?

Theet-min, BURM.

The meaning of this Burmese name is 'the prince of trees.' These are large trees with stems not very regularly shaped, and found on the higher hills between Sitang and Salween rivers, and on the range which skirts the coast of the Tenasserim provinces in British Burmah. The wood is close-grained and may prove a substitute for box-wood. A cubic foot weighs lbs. 50. In a full grown tree on good soil the average length of the trunk to the first branch is 20 feet and average girth measured at 6 feet from the ground is 6 feet. —*Dr. Brandis' Cal. Cat. Ex.* 1862; *Royle's Ill. Him. Bot., p.* 349.

PODOCARPUS SPICATA, is the Matai or Mai or Blackpine timber tree of New Zealand.

PODOCARPUS TOTARA, is the Totara or Mahogany pine, a timber tree of New Zealand.

PODODAPHNE, GR. Nerium oleander.

PODOLEPIS GRACILIS. The stems of these plants are covered with scales, the flowers are white, yellow and pink, the plants are adapted for borders, and may be raised from seed.—*Riddell.*

PODOPHTHALMUS VIGIL, *Edw.* Indian Ocean.

PODOPHYLLUM EMODI, *Wall.* Occurs in Nepaul and Kumaon, and on the Choor mountain in the Himalayas, at an elevation of 10,000 feet. A specimen of the root was forwarded to the Committee investigating the Bengal drugs, by Dr. Falconer, of Seharunpore, but the quantity obtained was too small for the requisite experiments being instituted upon its virtues.—*O'Shaughnessy, p.* 170.

PODOPHYLLUM HEXANDRUM, was found by Dr. Royle on the Kedarkanta mountain, at an elevation of 12,000 feet.—*O'Shaughnessy, p.* 170.

PODOPHYLLUM PELTATUM, the May-apple, is a native of the United States, where the root is considered to be a valuable, and powerful cathartic.—*O'Shaughnessy, p.* 170.

PODOSTEMON. Of this genus of plants, Dr. Wight, in Icones, gives, P. dichotomus, elongatus, griseus, olivaceus, rigidus, subulatus, Wallichii, Wightii. P. Wallichii, *R. Br.*, P. Griffithii, *Wall.*, have been found on the Khassya mountains. One species grew near the Jyntea hills on the stones at the bottom of the Oongkot: it is a remarkable water-plant resembling a liver-wort in its mode of growth. Several species occur at different elevations in the Khasia, and appear only in autumn, when they often carpet the bottom of the streams with green. In spring and summer no traces of them are seen ; and it is difficult to conceive what becomes of the seeds in the interval, and how these, which are well-known, and have no apparent provision for the purpose, attach themselves to the smooth rocks at the bottom of the torrents. All the kinds flower and ripen their seeds under water, the stamens and pistil being protected by the closed flower from the wet. This genus does not inhabit the Sikkim rivers, probably owing to the great changes of temperature to which these are subject.—*Hooker's Him. Journ., Vol.* ii, *p.* 314; *W. Ic.*

PODOTHECA CAPITATA, a yellow flowering plant of no great beauty, readily cultivated from seed.—*Riddell.*

PODSWESCHNIKII, Rus. Candlesticks,

PODU-TALLI, Tam. Zapania nodiflora, *L.*

PŒATSJETTI, Maleal. Gomphia angustifolia.

POEE, Tam. Basella alba and B. rubra, Malabar nightshade, a twining, succulent plant, with smooth fleshy leaves; it grows very rapidly and is generally cultivated as a spinach. There are two sorts.—*Jeffrey.*

POEECHANDIA, Uria. Elæocarpus, species.

POEPHAGUS GRUNNIENS, the Yak.

POETRY. The poetry of the hindoos is rich, high and varied, abounding in luxuriant descriptions and occasionally displaying both grandeur and tenderness; but it is often rendered dull by repetition and bombast and deformed by an indelicacy unknown to Europeans—

> ...... They loudest sing
> The vices of their deities, and their own
> In fable, hymn and song, so personating
> Their gods ridiculous, themselves past shame.
> —*Paradise Regained.*

The most common Sanscrit metre is the stanza of 4 verses, containing 8 syllables.

The following are poetesses, who lived at different times and contributed to the Urdu poetical literature; Atab Begam, Behar and Roshini Jan of Lucknow; Bhangan of Paniput; Begam Jan, the daughter of Nawab Khair-ud-din Khan; Began, daughter of Mirza Babar, belonged to the zanana of Bahadur Shah of Delhi; Beni Jan of Benares; Begam, daughter of Nawab Intizam-ud-Dowla and wife of Asaf-ud-Dowla of Oudh; Begam, daughter of Arnad-ul Mulk Ghazi-ud-din Khan, Mutilabale of Barelf; Beranija of Delhi; and Nur Jahan, Mirasin of Furakabad. Sakuntala famed in the Indian drama was the daughter of Viswamitra, and brought up by Kanwa Rishi, in whose hermitage she lived. Dushmanta Raja, who had been out on a hunting excursion, happened to meet her and prevailed upon her to be his wife. He left her and told her to follow him. Sakuntala became the mother of a boy, with whom she afterwards appeared before her husband while he was seated in his palace surrounded by his ministers. She approached the raja; and in presenting the boy as his son introduced herself as his wife. The rajah denied having married her. She said that there was not a greater sin than speaking an untruth while there was nothing more elevating than truth; truth constituted the essence of God. Nor was there a truer friend than a devoted wife who was a help in adversity, a father in religious rites, a mother in nursing, a solace amidst the fatigues of travel. She was afterwards received by the raja.

The better known of the poets who have written in Hindi and its dialects are known by the following takhallus or poet-name.

Ajaz.
Asaf.
Balhar.
Bedar.
Dard.
Fadvi.
Ihsan.
Insha.
Josash.
Jurat.
Kudrat.
Kalandar.
Latif.
Lutf.
Ma azzaz.
Mahakam.
Maruf.
Mastan.
Mir.
Mir Taki.
Na.
Nazer.
Niaz.
Razakh.
Sheda.
Souda.
Soz.
Suraj.
Wali.
Yakin.

The poets who have written in Persian.—

Sadi.
Jalal-ud-Din.
Kamal-ud-Din.
Shah Sharf ud Din.
Mir Murad Ali Khan.
Jami.
Hafiz.
Kamal ud Din.
Sharf.
Shams-ul-Haq Tabriz.
Syed Sabir Ali, Tatwi.
Bedil.
Kazim-wala-Isfahani.
Fakhri.
Amir khoosroo.
Nazim.
Agah.
Jamal-ud-DinAbdoorRazaq.
Asofi.
Nizami.
Khakani.
Mahmood, Ghaznavi.
Arselan.
Maharram.
Faek.
Roomi Sadiq Mail.
Hassam.
SyedShahAzim-ud-DinTatwi
Saib.
Mir Mooshtaq.
Wazir.
Hoosain.
Wakif.
Mir Zaktil.
Zahid.
Sharf-Boo Ali Kalandar.
Syed Azim ud Din,
Rafiq, sabzi farosh Shah, Tatwi.
Kamal.
Wali Mahomed Taghari.
Khaleek.
Nasrati.
Mahomed Takki Sabha.
Syed Azim-ud-Din.
Mirza Hoossain, Wazir wafa;
Mir Hotuk, Affghan.
Gholam Sarwar, Lahori.
Mir Syed Ali Mooshtaq, Tabatabai.
AqaMahomedAshiqIsfahani
Mirza Mahomed Hoossain wafa.
Kazim wala, Isfahani.
Azad.

—*Mahabarat; Calcutta Review, No.* 109, *p.* 28; *Balfour's Guldastah-i-Soohn.*

POGA or Poka chettu, Tel. Areca catechu.

POGHALAY, see Jakun.

POGADACHETTU, Tel. Mimusops elengi. *R.* ii, 236; *Cor.* 14.

POGAKU, Nicotiana tabacum, *L.* Tobacco, cigars.

POG-CHUMPA, Beng. Alpinia nutans.

POGHADA MALLE, also Pogada malli, Tel. Nyctanthes arbor-tristis.

POGHEI-ELE, Tam. Leaves of tobacco.

POGONIDÆ. Some of the genera of this family are not confined to the temperate zones; the major part of them prefer the polar regions. Pogonus and Cardiaderus are met with in Asia and Africa.—*Hope, M. L. S. J., July* 1840, *p.* 115.

POGOOL, alias Koondul, large hindoo earrings.

POGOSTEMON PATCHOULI, *Pellet.*

Pogostemon intermedius, *Benth.*

Pachouli	Beng.	Kottam,	Maleal, Tam.
Patcha pat,	„		

A labiate plant used as an ingredient to mix with tobacco for smoking, also for scenting women's hair. It grows in Sylhet, Penang and the Malay peninsula. Its leaves are used in France to impart an odour to the imitation Kashmir shawls, and the Arabs stuff pillows and mattresses. Its essential oil is used as a perfume. See Patchouly.

POGY or Pagi islands, see India.

POHN, Malay, any tree, see Poon.

POHONTJAT, Jav. A wild tree in Java, which furnishes a beautiful vermillion dye.

POI, Beng., Hind., Tam., also Bun Poi, Beng. Basella alba.

POI-BUGULU, Tel. Charcoal.

POIL. Fr. Hair. Poil de chameau, camel hair.

POILA or Poliya, a race of slaves, *Wils.*

POINCIANA, a genus of plants of the order Fabaceæ. The following are species growing in south-eastern Asia:

aculeata ——— ? W. and E. Indies.
elata, *Linn.*, all Peninsular India.
gilliesii, *Hooker*, Chili.
pulcherrima, *Linn.*, Peninsular India, Bengal, Moluccas.
regia, *Bojer.*, Madagascar.

POINCIANA ACULEATA, the Barbadoes Flower-fence, is a tropical bush, about ten feet high, but covered with masses of inflorescence, showy yellow or red flowers, having singularly long stamens. It is among the most beautiful of plants. In the East Indies, it is common in gardens, flowering and seeding all the year round. The leaves when bruised have a smell of savin, and are said to have the power of bringing on abortion. They are well-known to be purgative, and to have been used as a substitute for senna. According to Roxburgh, the trunk when old, is constantly hollow, and occupied by a large red dark brown ant. From this place, when disturbed, the ants issue in swarms, and inflict a severe and painful bite on their disturbers.—*Eng. Cyc.*

POINCIANA CORIARIA, *Jacq.* Syn. of Cæsalpinia coriaria.

POINCIANA ELATA, *Linn.*, *Roxb.*, *W. & A.*

Nirangi,	Can.	Suncaishla,	Tel.
Pade Narrayan,	Tam.	Sunkeswaram,	„
Chitikeswaram,	„		

A small tree of the Peninsula of India, with large yellow flowers. It has been successfully used as a protection for the footings of rivers and channel banks. Where it is not wanted to spread laterally and to cause obstructions, it should be planted in cuttings in December; it grows quickly; its wood might be used for basket boats. The tree affords a grateful shade, and though continually stripped of its leaves, which are extensively used for manuring indigo fields in Cuddapah, it quickly replaces them and that abundantly.—*Dr. Cleghorn.*

POINCIANA GILLIESII, *Hooker*, a tree of Chili, with sulphur flowers.

POINCIANA PULCHERRIMA, *Linn.*, *Roxb.*, *W. & A.*, *Rh*,

Cæsalpinia pulcherrima, *Swartz.*
var. (*a*) bicolor, flowers orange variegated with crimson.
var. (*b*) concolor, flowers throughout bright yellow.

Krishna choora,	Beng	Krishna chura,	Hind.
Doung-Souk,	Burm.	Gul-i-turah,	„
Barbadoes fence,	Eng.	Tsetti mandarum,	Maleal.
Flower, „	„	Myli konni: Komri,	Tam.
Peacock's pride,	„	Pamidi tangedu,	Tel.
Spanish carnation,	„	Rela ? Turayi,	„

A tree of both Peninsulas of India, Bengal and the Moluccas, and cultivated all over India. The variety with yellow blossoms is occasionally seen in the Burmese gardens. It is commonly cultivated at Ajmeer; it is very hardy, grows to the height of five or six feet, the leaves during the rains are green, and afterwards become of a bright scarlet having a most showy appearance. It is easily propagated by cuttings, both leaves and bark contain a milky juice which when dried and boiled possesses some of the properties of gutta percha, its large vermillion-coloured floral leaves render it, a very ornamental plant.—*O'Shaughnessy, p.* 317; *Mason; Genl. Med. Top., p.* 192; *Riddell.*

POINCIANA REGIA, *Bojer.*

Royal poinciana.

This gorgeous shrub was introduced from Madagascar into India, bears a most magnificent and graceful flower; showy coloured flowers, bright scarlet variegated with yellow. It flourishes well in the Tenasserim provinces. This tree does not attain a great size, but it is very pretty and should be planted in mixed avenues.—*M. E. J. R.*; *Mason*; *Madras Hort. Garden Cat.*

POINT DE GALLE. Its flag-staff, is in lat. 6° 1½' N., and long. 80° 17' 42" E. The town and fort are built on the point which is rocky and bluff to sea-ward, with a rocky islet near, called Pigeon island, surrounded by smaller ones. The entrance of the bay is about a mile wide, and there, as well as inside, the depth of water varies from 2 to 14 feet. It is 70 miles S. E. of Colombo, and is a fortified sea-port town, having the only good harbour on the southern coast of the island. It was formerly in the possession of the Dutch, by whom the fort at the entrance of the harbour was built.

POINT PEDRO, in lat. 5° 38' 40" N., long. 95° 31' E., bears 9 miles E. 22° N. from Acheen roads. See Tanjong bato.

POINT PEDRO SHOAL. A dangerous shoal, which encompasses the N. E. extremity of the island of Ceylon.

POIS, Fr. Pease.

POISON.

Tuh-yoh, Chin.
Lau-hway-jin-tih-yoh, „
Kwan-yoh, Chin.
Zahr, Hind., Pers.

Poisons are largely used in British India, for criminal purposes, and amongst the Mahratta races, opium mixed with sweet oil is commonly used by suicides. The ordinary plant used to stupify is the Dhatura. In China, the most common and convenient drug is opium. Mandarins of high rank wear on their persons a small bead, filled with what is called peacock's blood, which it is said they take when they wish to destroy themselves suddenly. The Bikh poison of the Himalaya is largely used to poison tigers. Dr. Buchanan first acquainted the European world with the existence of four kinds of Bikh. 1, Singya Bikh, 2, Bish or Bikh, the poison, 3, Bikhma, a powerful bitter, 4, Nirbisi; also without deleterious properties. The first, Dr. B. referred to a species of Smilax. The specimens of Caltha; Nirbisi and C.? Codoa of Dr. Buchanan, appear to be Dr. Wallich's Aconitum ferox, while those of C.? Bishma, his Aconitum palmatum, all evidently in a young state, and without flowers or fructification. The virulent poison, emphatically called Bish, *i. e.* the poison, is the root of Aconitum ferox. The substances used for poisoning rivers in order to obtain fish, are Croton tiglium, Anamirta cocculus, Capsicum frutescens, and Kare kai (Tulu), a Posoqueria, probably nutans or longispina. The inhabitants of Mysore and Coorg habitually poison with impunity such portions of the rivers as lie within their limits. Two years discouragement of poisoning and one year's discouragement of fine cruives, worked such a change that marked advantages can be reaped from the adoption of these two simple measures alone. Pulped as coffee now is, a great quantity of water is defiled, and the river for miles down is rendered literally as dark as porter, and as fœtid as flax water. Even after it commences to clear, the stones are all coated with slime. The expressed juice of the root of Maranta arundinacea is stated to be a valuable antidote to some vegetable poisons, and also serviceable in cases of bites or stings of venomous insects or reptiles.—*Royle's Ill. Him. Bot., p.* 46; *Simmond's Commercial Product, p.* 627.

POISON OAK.

Yen-fu-tsze, Chin.

This is the Rhus semialata.

POISON BULB, Eng. Crinum asiaticum, *Willd., Herb.*

POISON NUT, Eng. Strychnos nux vomica.

POISON TURNIP, Eng. Cicuta virosa.

POISSONS, Fr. Fish.

POITA, Sans., from Oopa, and veeta, pure. The poita or jandiam is worn as a sacred cord by brahmins, by all the Parsee race, by the Kshatrya, the Rajput and all the Vaisya race of hindoos. There is a class of artizans in southern India, engaged in five avocations viz.:—

Goldsmiths, Komsala.
Carpenters, Wodla.
Blacksmiths, Komala.
Braziers, Konsagara.
Stone cutters, Sungtrash

who all wear the Poitu or Zonar. They are Sudras, and are divisions of the same race, for they intermarry. See Acharya, Rhadia, Zonar.

POIVRE, Fr. Black pepper. Poivre D'Espange, Fr. Cayenne pepper. Poivre long, Fr. Long pepper. Pepper.

POIVREA COCCINEA, *W. Ic.*

Combretum coccineum, *Lam.*
„ purpureum, *Roxb., Vahl.*
Scarlet poivrea, Eng.

This, is the popular favorite amongst the climbing plants in Madras; requires a trellis not too high, the sooner it gets a procumbent position the more luxuriant it will grow and flower, unfit for pot cultivation, easily propagated by cuttings of the young wood in sand under glass. Native of Madagascar.—*Jaffrey*; *Hints to Amateur Gardeners.*

POIVREA GRANDIFLORA. Syn. of Combretum grandiflorum. Similar to the above in habit but having far superior flowers. Native of S. Leone.—*Jaffrey.*

POIVREA ROXBURGHII, *DC.*

Tha-ma-ka, Burm.

Among the fibrous barks sent from Assam to the Exhibition of 1851, was one that was named Roxburghia in the Catalogues. This was no doubt a mistake for some plant called after Dr. Roxburgh, probably Poivrea roxburghii, one of the Combretaceæ, of which several are remarkable for tough wood as well as bark.—*Royle's Fib. Pl., p.* 301.

POJO, Hind. A tree of Chota-Nagpore with a soft, white wood.—*Cal. Cat. Ex.* 186

POKA; Poka chettu; Oka vakha; Kunda poka; Kola-poka, Tel. Areca catechu, *Linn.*, *Roxb.* The variety Kola-poka has long nuts.

POKA BANTI, Ageratum conyzoides, *L.—R.* iii, 415; *Br.* 691. This common weed is commonly known as "Goatweed."

POKA CHETTU, or O'ka, Tel. Areca catechu, *L.—R.* iii, 615; *Cor.* 76; *Rheede*, ii, 5-8

POKA MAMADI, Tel. Literally "nut mango," Sans., syn. Kushdramah signifies "bad mango," ? spondias.

POKHRAJ, Hind. Topaz; Zafrani and Zard are the varieties of it.

POKARA, Tel. Terminalia paniculata.

POKHAR-MUL, Hind. Dolomiæa macrocephala, also Spilanthes oleracea.

POKO NEREI, a tree growing amongst mangroves at Singapore, used to prevent diarrhœa.

POL, Sans. A gate: eastern or sun gate is Sooruj-pol; Bal-pol, 'the gate of Bal,' the sun-god.

POLA, see Kalkas.

POLA, or Pula, Hind. Kydia calycina, also Crotalaria burhia.

POLA, a hindoo festival, when bullocks are ornamented and paraded throughout the towns and villages.

POLACH, Hind. Albizzia odoratissima.

POLAI, a tree of Singapore, its wood is used to make floats for fishing-nets, a very remarkable light white wood, and might probably be exported, and used with advantage as a substitute for cork, and some similar subtances. See Phye.

POLANISIA, a genus of plants of the order Capparidaceæ. Dr. Wight gives, Polanisia burtporensis, chelidonii, and icosandra. The genera Cleome and Polanisia, of this order, embrace several species with supposed medicinal virtues. Ainslie describes five species. The Cleome felina (cats cleome, Eng. Swarnakshira, Sans.) is used as an astringent in northern India and Ceylon. The C. pentaphylla, (Hurhuriya, Beng. Caraila, Hind. Hoolhool, Duk. Caravela and Varsar, Sans.) affords small, black, rather aromatic seeds, used by the natives in decoction as a stimulant drink in low fevers, and in some forms of convulsion. The expressed juice too is considered stimulant, and sudorific. The C. viscosa, or viscid Cleome (Hoorhooria, Hind. Savana barbara Sans.) is also celebrated for its seeds, the Chori-ajooain, of the bazaars. These are believed to be vermifuge and stimulant, and are given to the extent of a tea spoonful twice daily, (Ainslie). The C. dodecandria and icosandria of Ainslie are identical with this plant, and are described by Lindley as Polanisia icosandra. In Cochin China the whole plant bruised is used like sinapisms for counter-irritation, and blistering. This fact deserves attentive experimental investigation.—*O'Shaughnessy, p.* 206; *W. Ic.*

POLANISIA CHELIDONII, *DC.*

Cleome chelidonii, *Linn.*

Of the Peninsula of India, with large rose-coloured flowers; seeds pungent, are powdered and used in curries.

POLANISIA FELINA, *DC.*

Cleomefelina, *Linn.*	Aria-vila, Maleal.

This small plant grows at Courtallum, and is used medicinally.—*Voigt, p.* 75.

POLANISIA ICOSANDRA, *W. & A.*

Cleome icosandra, *Linn.*	Cleome viscosa, *Roxb.*
Cleome dodecandra, *Linn.*	

Hurhurya,	Beng., Hind.	Kukka vaminta,	Tel.
Kat-kuddaghu,	Mal.	Nela vaminta,	"
Naia-veli,	Tam.	Pedda vaminta,	"
Nahi kuddaghu,	"		

A plant of both peninsulas of India, of Bengal, Nepal, Saharunpore. The bruised leaves are used in Cochin China as as a counter-irritant in the same way as sinapisms in Europe, and as a vesicant. The root is used as a vermifuge in the United States of America. The seeds are employed medicinally in India, and sold in the bazaars under the name of chori-ajooain, they yield an oil when subjected to very powerful pressure, which is of a light olive-green colour.—*Eng. Cyc.*; *Mason.* See Oil.

POLAO, a savoury dish made of rice, and fowl or mutton or beef, with cardamoms, cloves.

POLATNO, Rus. Linen.

POLAVA, Tam.? A Tinnevelly wood of a light brown colour. Used for musket stocks, and building purposes.—*Colonel Frith.*

POLE, Captain, an English officer who fell at the taking of the Travancore lines in A. D. 1809, and was buried in a sandy waste, 25 miles from the scene of battle. A few years after, the Shanars of the neighbourhood commenced the worship of his spirit. It consists in offering to his manes, spirituous liquors and cheroots.

POLE-CAT. The Black-faced Pole-cat of Tibet, has a tail one-third of the entire length. Soles clad. Fur long. Above and laterally, sordid fulvous, deeply shaded on the back with black. Below, from throat backwards with the whole limbs and tail, black. Head pale with a dark mask over the face. Snout to vent 14 inches. Head less 3. Tail only 6. Tail with hair, 7. Palma 1¾. Planta 2⅜. Habitat, the plain of Central Tibet. A specimen of this interesting animal was obtained in the district of U, on the south of the Sanpu, and was brought along with a specimen of the Tibetan Badger (Taxidea leucurus). The skin was in good condition, and had the limbs and scull complete, seemingly a male, and certainly, a mature animal. The length from snout to vent is 14 inches and the tail is 7 more, so that toufæus only of Tibet, and Flavigula of the Himalaya, can compare with it in size.—*Mr. Hodgson in Beng. As. Soc. Journ. No.* vi., *May* 1849.

POLEEYOR, Guz. A tombstone raised over a peasant who had fallen in defence of his homestead.

POLEMONIACEÆ, *Lindl.* The Greek Valerian tribe of 3 Gen., 6 spe. viz., 2 polemonium; 2 gilia; 1 collomia; 1 caldasia. See Collomia coccinea, Gilia achilliæfolia, Leptosipon.

POLERROI, Prostoi: Schaffran Rus. Safflower.

POLEYAN of Malabar are domestic or agrestic slaves.

POLI, Hind. Eryngium planum, also Carthamus oxyacantha and Cousinia calcitrapæformis.

POLIAN, Hind. Carthamus tinctorius.

POLIANTHES TUBEROSA, *W.*

Rujuni-gundha,	Beng.	Sandhy-araga,	Sans.
Gool-shaboo,	Hind.	Undimandari,	Tel.
Andi-malleri,	Maleal.		

The common tuberose. Cultivated in gardens, flower worn by native women in their hair.—*Graham; Thomson's Record of General Science, Vol.* iv, 301.

POLICHI, Maleal. Hibiscus sabdariffa, *Linn.*

POLIGAR. This wood appears to have been anciently used for a freebooter; and phond poligar, one who lived on black mail. As the weakness of the Moghul empire increased, and the terror inspired by the insurgent feudatories and marauding chiefs extended over the south of India, this word came to be applied to all who had set up for themselves, whether from choice or absolute necessity. The most northern Poligar chief, was the Dessaee of Sawunt Warree. Those of Jooneer and Punala were reduced by Sevajee. The poligars of Southern India occupy a very prominent station in the animated contests, between the first British adventurers and the native powers, as described by Orme. Prant was an ancient hindoo term, signifying a considerable subdivision of a county.—*Jervis's Geographical and Statistical Memoir, p.* 81. See Polygar.

POLIOÆTUS ICHTHYŒTUS, *Horsf.* The White-tailed Sea Eagle.

Pandion lineatus,	*Jerd.*	Icthyætus lucarius,	*Hs.*
Icthyætus bicolor,	*Gray.*	Haliætus plumbeus,	„
„ horsfieldii,	*Hodgs.*		
Mach-moral,	Beng.	Mudhuya,	Hind.

This eagle is rare, south of the Nerbudda, but common in Hindustan, Burmah and Malayana. It lives chiefly on fish, but will carry off a teal or wounded duck.

POLIOÆTUS HUMILIS, *Temm.* A miniature of the last, is found in Malacca and the islands. It is the I. nanus of Blyth.

POLISHING SLATE, Polier Schiefer, a mineral, occurring massive, with a slaty texture. Its colour is white, yellowish-white, or yellow, brittle, opaque. Specific gravity 0·59. It is found near Biliu in Bohemia, at Zwickau in Saxony, and Auvergne, and is supposed to be a volcanic product. Its analysis by Bucholz gives 100 parts,

Silica	83·5	Oxide of iron	1·6
Alumina...	4·0	Water	9·0
Lime	8·5		

—*Eng. Cyc.*

POLIYAN, Hind Carthamus tinctoria; seeds of Carthamus oxyacantha.

POLKEE, Woods known by this name, viz.

White Polkee.

Tella polkee,	Tel.	Suffaid polkee,	Hind.

Black Polkee.

Nulla polkee,	Tel.	Siah polkee,	Hind.

Red Polkee.

Yerra polkee,	Tel.	Taghanee kee lakree,	Hind.

—*M. C. C.*

POLLUX, See Aswin, Saraswati, Surya.

POL-NAWASI, Singh. Cocos nucifera, *L.*

POLO, Hind. Tibetan game of hockey on horse-back.

POLOSINA a name used by Hwen Thsang for mount Paresh or Aparasin of the 'Zend Avesta,' and with the Paropamisus of the Greeks, which included the Indian Caucasus, or Hindu Kush. Hwen Thsang states, that to the north-west of the capital Capisene or Opian there was a great snowy mountain, with a lake on its summit, distant only 200 li, or about 33 miles. The district of Capisene is first mentioned by Pliny, who states that its ancient capital, named Capisa, was destroyed by Cyrus. His copyist, Solinus, mentions the same story, but calls the city Caphusa, which the Delphine editors have altered to Capissa.—*Cunningham's Ancient Geog. of India, p.* 19.

POLLANARRUA, a ruined city in Ceylon, its capital in the middle ages. It was captured and sacked by the Tamil invaders in A. D. 1023, recovered by Wijao Bahu in 1071, but again plundered in A. D. 1204. These ruins are the most extensive and best preserved in Ceylon. There are many gigantic stone figures of Buddha, and the remains of various temples and other buildings compared with those at Tissemaha-rama, these ruins are modern, only dating from A. D. 718 and though looked upon as entirely buddhist remains both the Delada Malagawa, and the Jagta-maharama more nearly resemble the hindoo temples seen in India than other buddhist temples in Ceylon.—*Frere Antipodes, p.* 186.

POLPA DI CASSIA, It. Cathartocarpus fistula.

POLUH, Hind. Ehreta buxifolia.

POLUMORINIKA or Chekonadi, Tel. Cadaba indica.

POLVERE, It. Gunpowder, Polvere de cipri, It. Hair powder.

POLVORA, Port., Sp. Gunpowder.

POLVOS DE PELUCA, Sp. Hair powder.

POLYANDRY. As a rule, throughout the south and east of Asia, woman is monandric, living with one husband, but there have been polyandrists in the same region from the most ancient times till the present day. It has been supposed by some that polyandry was peculiar to no division or race of mankind, but was a phase, at one stage of the development of every race. It prevailed amongst the Jews and Arabs, among the Spartans within historic times and among the Celts of Briton in Cæsar's time. As a rule, in India, the entire population are monandrists and monogamists. But both polygamy and polyandry are met with. From the most ancient times, we read of the existence of forms of polyandry amongst various nations, wide apart the one from the other. It still prevails in modified ways, in Tibet; in the Himalaya; amongst some Tamil races, in southern India, and in Ceylon amongst the indigenes, probably also a Tamil race. It is said to be followed in parts of Africa, and also in North America. Humboldt found it common in the island of Lancerota, one of the Canaries. Mr. Sirr, in his recent account of Ceylon, mentions that polyandry was practised in ancient Sparta. For this statement, however, we have not met with any nearer authority than in the somewhat obscure observation of Polybius, (Book iv, chapter iii), in which he tells us that the Arcadians in order to smooth and soften their rough and stubborn dispositions, ruled the study of music and dancing, and appointed frequent festivals and sacrifices, which both sexes were obliged to celebrate together; the men with women, and the boys with virgins. Aristotle, followed by Polybius, (Book xii, Ex. ii), mentions that among the Locrians of Italy all nobility of ancestry was derived from women and not from men. One hundred noble families of the Locrians seem to have migrated into Italy from Asia Minor, along with some of their women, and only the descendants of these women were reputed noble and regarded as descendants of the hundred families. It was from these hundred families that the hundred virgins were taken by lot, as the ordeal had commanded, and were sent to Troy. They had amongst them an institution which they had adopted from the people of Italy, amongst whom they were mixed. At the time that they drove the Sicilians out of this part of Italy, the latter had a custom of appointing a young man to lead the procession in their sacrifices, and he was always chosen from the noblest and the most illustrious of their families. But instead of a young man, the Locrians appointed a virgin for the office, because nobility among them was derived from women. The one brother after another succeeding to a widow, among the Jews, alluded to in the question of the Sadducees, may have the relation to the Asiatic polyandria, that a normal state has to an abnormal. Indeed we read in ancient scripture of the son succeeding to or taking his father's wives. And Marco Palo tells us that amongst the Mongols, in the time of Kublai Khan, brothers took deceased brothers' wives, and sons the wives of their fathers, their uterine mother excepted. In the west, Cæsar, (lib. v., ch. xiv), says of the Britons of his time "Uxores habent deni duodenique inter se communes, et maxime fratres cum fratribus, et parentes cum liberis. Sed si sunt ex his nati, eorum habentur liberi a quibus primum virgines quæque ductæ sunt." "Ten and even twelve have wives common to them, and particularly brothers among brothers and parents among their children; but if there be any issue by these wives, they are reputed to be the children of those by whom respectively each was first espoused when a virgin." And it may be that the "bundling" is but a partial continuation of another social custom of the ancient Britons, who often contracted conditional marriages. But Dr. Vaughan, in his Revolutions in English History, (pp. 97 and 98), questions if Cæsar's knowledge of the Britons was such as to warrant his making that statement. He grounds this scepticism on his belief in the natural instincts of barbarians which operate as powerful safeguards of the chastity of women, and on the fact that among the Britons, according to Pomponius Mela, iii, 2, women were held in high estimation; shared in the honors of priesthood; had the gifts of inspiration, prophecy, and of working miracles—and like Boadicea and Cartismandua ruled in failure of male descent. He notices the silence of Diodorus and Strabo as to the custom of polyandry, though both were familiar with what Cæsar had written, and he mentions also his disbelief of the statement of Xiphiline, who attributes the usage imputed to the Britons by Cæsar, to the Caledonians in the time of Severus. Dr. Vaughan also disregards the authority of Dion Cassius, who wrote two centuries later, in which a British woman, is made to say in defence of her country-women, that they only did openly with their equals, what the Roman women did secretly with their inferiors. The high feelings of the Britons on the purity of their women, he considers established by the fact that it was the wrong done to the chastity of the daughters of Boadicea that filled the cup of indignation among the Britons to overflowing, and the statement of Tacitus, that it was the scandalous proceeding of Cartismandua, in marrying beneath her rank, that helped to produce such disaffection among her subjects as to compel her to fly to the Romans for protection. But when discrediting Cæsar, as to the Britons, and Xiphiline, as to the Caledonians in the time of Severus, from the disaffection produced by the marriage of Cartismandua beneath her rank, Dr. Vaughan was not perhaps aware that the same would result were a Nair woman of the present day to consort with an inferior. Polyandry received a partial sanction in the Institutes of Menu. It is adverted to without reproach in the epic of the Mahabarat, wherein the heroine Draupadi, is made the wife of five Pandu brothers. The Mahabarat details the fortunes of the five Pandava princes and the history of their adventures in an archery contest, at the court of Drona. The character of the reward to be given by the king to the most successful archer was unknown but the five Pandava brothers agreed to divide the prize if any of them should prove the winner. The third of the brothers, Arjun was declared victor and received as his prize the king's daughter, Draupadi, who was considerably surprised to find that she was equally the property of his brothers, or possessed five husbands instead of one. Arjun and his wife and her other four husbands, lived for some years at the fort of Bairath the remains of which, or rather of a Ghoorka structure on the same site, are still visible on a hill near the north-west corner of the Dhoon.

Polyandry, though almost universal in the hill districts attached to the Dhoon, called the Jounsar and Bawar pergunnah, is apparently unknown in the hills of Gurhwal and Kemaon on the east, or those of the Simla superintendency on the west. In the Jounsar district, when the eldest brother marries, the woman is equally the wife of his younger brothers, though the offspring are called the children of the eldest brother. When much difference exists in the ages of the brothers of a family, the elder marry a wife, and when the younger grow up, they marry another but the two wives are considered equally the wives of all the brothers. Mr. Dunlop in his hunting in the Himalaya, p. 181, observes, that wherever the practice of polyandry exists, there is a striking discrepance in the proportions of the sexes among young children as well as adults. In a village with upwards of 400 boys, there were only 120 girls. He does not suppose that female infanticide prevails or is the cause of the preponderance, as a wife is generally purchased for a large sum from her parents. But in the Gurhwal hills, where polygamy is prevalent, there is a surplus of female children.

Polyandry never found any place in the brahmanical code, when the five Pandava were remonstrated with, by king Drupada, for making his daughter Draupadi their joint wife. Yudhishthira, the eldest, according to the Mahabharata replied to him that Jatila, of the family of Gotama, an excellent woman, had lived with seven saints: and that Varkshi, the daughter of a Muni, resided with ten brothers all of them called Pracheta, or men whose souls had been purified by penance. These two arguments leave no doubt but that polyandry was then an institution in India.

The Satyayoga or golden age is thus described:

O lovely age, by brahmins fam'd
Pure Setye yug in Sanscrit nam'd!
Delightful! Not for cups of gold,
Or wines a thousand centuries old;
Or men, degenerate now and small,
Then one and twenty cubits tall:
Not that plump cows full udders bore,
And bowls with holy curd ran o'er
Nature then reigned and Nature's Laws.
When females of the softest kind
Were unaffected, unconfined,
And this grand rule from none was hidden
What pleaseth hath no law forbidden.

The Brazen age has been thus noticed:

Not such the Dwaper yug! ah then,
Preposterous that one biped vain
Should drag ten housewives in his train
And stuff them in a gaudy cage
Slaves to weak lust or potent rage,
One Buxom Dame might wed five men;
True history in solemn terms,
This philosophic lore confirms;
For India once, as now cold Tibet,
A group unusual might exhibit,
Of several husbands, free from strife,
Linked fairly to a single wife!
But, lest my word should nought avail,
Ye Fair, to no unholy tale
Attend: five thousand years ago,
As annals in Benares show,
When Pandu chiefs with Curus fought,
And each the throne imperial sought,
Five brothers of the regal line
Blazed high with qualities divine
The first a prince without his peer,
Just, pious, liberal Yudhishteir:
Then Arjun, to the base a rod,
An hero favoured by a god;
Bhima, like mountain-leopard strong
Unrivaled in the embattled throng,
Bold Nacul, fir'd by noble shame
To emulate fraternal fame;
And Sehdeo, flushed with manly grace,
Bright virtue dawning in his face:
To these a dame devoid of care,
Blythe Draupady, the debonair,
Renowned for beauty, and for wit,
In wedlock's pleasing chain was knit.

McClelland (p. 180) gives a long list of tribes which he regards as Polyandrous, namely, those of Thibet, Cashmeer, and the Himalayan regions, the Toda, Coorg, Nair, and various other races in India, in Ceylon, in New Zealand, (Lafitan, Vol. i, p. 555) and one or two other Pacific islands, in the Aleutian Archipelago, among the Koryak, the Saporogian Cossack, on the Orinoco, in parts of Africa and in Lancerota. To these he adds the ancient Britons, some of the Median cantons, the Picts, and the Getes, while traces of it occurred among the ancient Germans. To these Lubbock adds that of some families among the Iroquois.

In Ceylon, the joint husbands are always brothers. (Davy's Ceylon, p. 286). But, on the whole, lawful polyandry (as opposed to mere laxness of morality) seems to be an exceptional system, generally intended to avoid the evils arising from monogamy where the number of women is less than that of men.

It has existed from time immemorial in the valley of Kashmir, (Vigne, vol. i, p. 37), in Thibet, and in the Sivalik mountains. It is found in Sylhet and Cachar (Jo. As. Soc. Ben., vol. ix, p. 834). Among the Coorgs, and on the Neilgherri hills among the Todas. And it regulates the laws of inheritance amongst peoples in the southern extreme of the Peninsula of India. The prevalence of polyandry in the Vedic times, is shown in Kashivat saying, "Aswins, your admirable (horses) bore the car which you had harnessed, (first) to the goal, for the sake of honour, and the damsel, who was the prize, came through affection to you and acknowledged your (husband-ship) saying, you are my lords." But polygamy was likewise known, for Kashivat, an illustrious Rishi, marred ten sisters at once, and this practice continues to the present day, for the last rajah of Tanjore who died in 1855, a Mahratta sudra and descendant of Sivaji, married eighteen young women at once.

Turner mentions that the Tibet women in his day, with their three or four husbands, were just as jealous as a Mahomedan polygamist is of his several wives. He saw one woman who had five husbands alive, all brothers, though the chief, indeed real, husband is the elder brother. Major Cunningham remarks that amongst the Bhoti, of Ladak, polyandry is strictly confined to brothers. Each family of brothers has only one wife in common. The most usual number of husbands is two, but three and even four husbands are not uncommon. This system, however, prevails only among the poorer classes, for the rich, as in all eastern countries, generally, have two or three wives, according to their circumstances. Polyandry, he adds, is the principal check to the increase of population, and, however revolting it may be to our feelings, it was a politic measure for a poor country which does not produce sufficient food for its inhabitants. Vigne in his Travels in Kashmir, (vol. i, p. 37), remarks that amongst some of the natives of the Alpine Bengal, the custom, it is well known, prevails, of one woman being married to a whole family of brothers. The Padam or Bor Abor in north eastern India, are polyandrous, and it is not uncommon for an Abor woman to have two husbands, brothers, living under one roof, and other authors mention that the Bhot races occupying the Tibetan Himalaya, lend their wives, or assent to their cohabitation with strangers and travellers.

Polyandry may also somewhat explain the comparative indifference with which some races regard the purity of their unmarried women. And this view is supported by the still existing hindoo belief as to the visits of the gods to certain women, this is an ancient belief of the Arian hindoos, as of the Greeks and Romans, and it is alluded to in the mythological history of the origin of the Pandava heroes now demi-gods. Descended from the ancient sovereigns of the countries of Hindustan bordering upon the Jumna, called "Panduan raj," or the kingdom of the Pandus, Pandu, the father of these five heroes, was the son of Vyasa and Pandea. Their mother's name was Kunti, the sister of a prince of Mathura, who was the father of Heri and Baldeva, the Indian Hercules. Kunti, in consequence of the sins of the ancestors of herself and her husband, was doomed to experience the greatest curse that can befall a hindoo woman, sterility. However, by a charm, she contrived to remove the anathema by enticing the gods to her bed. Thus, says Colonel Tod, from whose disquisition on the Hindoo and Theban Hercules, Coleman extracted this account, she had by Dhermaraja (Yama or the Minos of the Greeks), Yudishtra; by Pavana, Bhima; by Indra, Arjun; and Nycula and Sydiva by the Aswini Kumara (the Hindoo Esculapius, or the sons of Surya), the twins of the Hindoo zodiac, (Cole. Myth., Hind., p. 248.) Polyandry prevails amongst the Tibetans in the hills south and east of Kashmir. But, over all Kamaon, amongst the richer people, the custom of many brothers having one wife in common has long ceased to be practised, though the widow of an elder brother is commonly re-married to the next brother. This is also said to be the custom with some Jat tribes. The Chamar or leather workers of Kunawar, however, like the Bhot still practice polyandry. Amongst the Toda and Kurumbar of the Nilgiri mountains, the brothers of a family have usually only one wife between them. She is, moreover, allowed to consort with strangers, without the slightest objection or jealousy on the part of her proper lords.

Polyandry prevails in Travancore and in the two provinces of the Madras presidency, called Malabar and Canara, about 300 miles long, and 50 broad, with upwards of 36 millions of people. Mr. Strange fully describes it (Hindoo Law, p. 67) when he says, the inheritance runs in the female, and not in the male line. A man's sons are not in the list of his heirs. His property goes to his sisters, sister's sons, sister's daughters, sister's daughter's sons and daughters, mother, mother's sisters and their children, and to his maternal grandmother, her sisters and their children. Failing these and their stock in the same way of descent, it goes, as in other parts of the Madras presidency, to the man's disciple and fellow-student, and then escheats. This rule of descent is termed Marumakatayam, or Nepotism in the female line. The origin of this, he adds, is stated to have been in the time of Parasuramen, the first king of Malabar, who introduced brahmins into the district, and gave them possessions therein, and to prevent these properties from being split up, decreed that they should vest in the elder brothers, whom alone he permitted to contract marriage. The sons of these were to be accounted as sons for the whole family. The junior brothers being without wives are allowed to consort with females of lower classes. The offspring of these unions not being legitimate, could not rank as brahmins, or inherit from their fathers. Their inheritance was hence made to follow from their mothers. The lower castes fell into the same system of promiscuous intercourse amongst themselves. With them, the females before attaining maturity, go through a form of marriage, the bridegroom not necessarily taking the position of husband. After maturity, they may consort with whom they please, and with as many as they please, provided that the connexion be with members of their own or some higher caste. The offspring succeed to the estate in the mother's family, it being obvious that parentage cannot be traced out in the line of the male. The castes that follow this rule of Marumakatayam, are all, excepting Brahmins and Aka Podwals, a class of pagoda servants, the artisans, viz., carpenters, brass-smiths, black-smiths, and gold-smiths and some of the lowest denominations, such as the Cheromars, or slave tribe; with the Malayers and the Paniars, the rule of descent is to sons. The Teear or toddy-drawers, and the Mookwa or fishermen of North Malabar, follow Marumakatayam, while those to the south observe Ma-ka-tayam, or descent to sons. In North Malabar, most of the Mopla, Ma-pilla, mother's son, although mahomedans, follow also the rule of Marumakatayam, in this respect having conformed to hindoo usuage, in the times of the ascendancy of the hindoos. The adherents to Marumakatayam form united family communities termed Tarwaad. The remotest member is acknowledged as one of the family, if living under subordination to the head of the family and taking part in their religious observances. The senior male of whatsoever branch is the head of the family and is termed Karnaven. The other members are termed Anandraver. There is nothing analogous to the state of widowhood as existing elsewhere; females whether in alliance with males or not, reside in their own families. In theory, the property is held to vest in the females only, the males having right of management and claim to support. Practically, the males are co-sharers with the females. In default of males, females succeed to the management of the family property. In some families the management devolves on them preferably to the males, and in such case the senior female takes it. All members of the family, even the remotest, are entitled to maintenance. On failure of sister's progeny, male and female, the head of the family may make adoption. The descent being in the female line, the adoption must be a female. In view of the probable minority of her offspring at the period when the management may fall in, a male, her brother, may be taken, in adoption, at the same time with herself, in order to afford provision for the administration of the affairs of the family, and for conduct of the religious rites to be observed therein.

Part of the peoples here alluded to as practising polyandry, on the Malabar coast, are called Nairs. Dr. Buchanan, writing regarding their social customs and the results from this practice of polyandry in his time, states that they marry before they are ten years of age, but the husband never afterwards cohabits with his wife. Such a circumstance, indeed, would be considered as very indecent. He allows her oil, clothing, ornaments and food; but she lives in her mother's house, and after her parents death, with her brothers, and cohabits with any person that she chooses, of an equal or higher rank than her own. If detected associating with any man of low caste, she becomes an outcaste. It is no kind of reflection on a woman's character to say that she has formed the closest intimacy with many persons; on the contrary, the Nair women are proud of reckoning among their favoured lovers many brahmins, rajas, and other persons of high birth. In consequence of this strange manner o propagating the species, no Nair knows hi father; and every man looks upon his sister children as his heirs. He, indeed, looks upo them with the same fondness that fathers in oth parts of the world have for their own children and he would be considered as an unnatur monster, were he to show such signs of grief the death of a child, which, from long cohabi tation and love with its mother, he might sup pose to be his own, as he did at the death of child of his sister. A man's mother manag his family, and after her death his eldest sis assumes the direction. Brothers almost alwa live under the same roof; but, if one of t family separate from the rest, he is always a companied by his favorite sister. Even co sins, to the most remote degree of kindred, the female line, generally live together in gre harmony : for in this part of the country, lo jealousy, or distrust, never can disturb t peace of a Nair family. The land estate managed by the eldest male of the family, b each individual has a right to a share of t income. In case of the eldest being unab from infirmity or incapacity, to manage t affairs of the family, the next in rank does in the name of his senior. Under these soci rules it is not easy to see the inducement the Nair to marry, as he has the burthen wit out any of the enjoyments of wedded life. B this legal or authorized practice must have i check in the social or natural state of ma which, as of most creatures, is one of true monogamy, and proof of this, and yet also of the lateral descent law, is furnished by the account given of the death of a rajah of Travancore, who, in 1860, died of a decline, at the age of 46, after a reign of 13 years. He had been much affected by the death of a lady of his family, and made a pilgrimage to several shrines, practising great austerities and fastings. His medical attendants (Native and European) warned him of the risk in his feeble health, but he persevered, and sank of exhaustion and weakness. His end was suitable to an enlightened prince. He took an affectionate leave of his family, and showed his solicitude for his people by requesting that the custom of shutting the shops for 15 days when a rajah dies, might be dispensed with on this occasion on account of the dearth and distress from which the people were then suffering. On account of the imbecility of the first nephew, the second nephew Rama Verma had long been acknowledged as the first prince by the family and the government, and then ascended the throne.

The law as it prevails in Malabar, has been given above. The following details by Mr. Strange, who long served in that district, will show the curious modifications which increasing civilization and the social customs of other races are effecting amongst these people. Mr. Strange mentions (in literis) that polyandryism in Malabar has prevailed only among those classes whose rule of inheritance is by Nepotism, termed Marumakatayam. It has prevailed in like manner in Travancore, where the same rule of descent is followed. There is, however, a strong tendency in Malabar to throw up the said rule of descent, and to convey property from father to son, and this feeling is owing to the gradual abandonment of polyandryism. The connubial connection which is in question is termed ordinarily in Malabar Goona-dosham, Goona good, Dosham evil (for better for worse.) In Travancore it is styled Mundu-vanga, Moondu cloth, vanga receiving. The girl taken is of ripe age, and her consent must be obtained. Personal acquaintance thus precedes the formation of the union. The ceremonial consists in the man presenting her with a Moondoo or white muslin cloth. In North Malabar a small sum of money is tied up in a corner of the cloth. Small presents of money are given to brahmins. There is an assemblage of friends at the girl's house and a supper is given either before or after the ceremonial. The hour is about 8 p. m. The girl sometimes is taken to the man's house, and sometimes remains in her own, and is visited by him there. Each party is unrestricted as to the number of such connections that may be formed, but these ordinarily do not exceed two or three. The descent being in the female line, the parentage as to the father was immaterial. Jealousies and quarrels, terminating sometimes in murder, are however rife, as might be expected. The connection depends simply upon the will of the parties, and may be broken off by either at pleasure. But, now, the unions in Malabar are commonly of single couples, the woman living in the man's house strictly as his wife. The classes among whom polyandryism has prevailed in Malabar are the Nair, the Teear of North Malabar (those of South Malabar adhering to the descent to sons), and a branch of the slave tribes called Kallady. The term "Nair" is derived from Naiker, the respectful plural of Naik, which comes from the Sanscrit term Nayakah, meaning a chief man. The four classes of workmen in Malabar, namely, the Ashary (carpenter), Mooshaly (brass-founder), Tattan (gold-smith), and Peroon-kollan (iron-smith), still follow a curious form of polyandryism. This is kept up only in the family. The elder brother marries and his wife is common to all the other brothers. If a junior wish to marry, he must live apart, and set up business apart, but if any of those junior to him should reside with him, his wife is common to them. These classes have descent from father to son.

A native writer, Kookeloo, himself a Nair, mentions that Kummaler is the name given in the Malayalam country, to an artificer. The Ainkudi Kummaler are the five artizan castes, the Ashari or carpenter, the Mushari or brazier, the Tattan or goldsmith, the Perning-kollen or blacksmith and the Tol-kollen or tanner. These five castes follow the custom of marrying one girl among three or four brothers, and this Kummaler custom of three or four brothers marrying one girl, is followed in some parts of Malabar by the Eeyoover, Juver or Teer, toddy-drawers, and, partially also, is the custom of the mahomedan Mopilla, in taking the wife of a deceased brother. The Kummaler and Teer are sprung from the same race and in earlier times intermarried, and this may explain the similarity amongst them of this social practice. It is only in the taluqs of Nidunganad, Kuttanad, Chowghat, in some parts of Vettutnad, and a few adjoining spots in South Malabar, that a woman amongst the Nair is kept at the same time by two or three men, who are not brothers. Although the Nair, the Teer and other hindoo castes of Malabar, Cochin and Travancore, particularly by the two latter countries, are thus more or less tainted, the practice of polyandry does not seem to have ever prevailed generally, amongst the Nair and many of the Teer of North Malabar, from Kurumbranad to Mangalore.

But many Teer women, even there, admit to indiscriminate connection all races, of all castes or religions, without incurring any prejudice as to caste or loss in social estimation. The Teer women of South Malabar do not so readily yield themselves to this unusual practice. As this Nair custom is of interest ethnologically, we give the following description of it by one of that race, Kookel Keloo, Nair, district munsiff in Malabar, in No. 48 of the Madras Lit. Soc. Jour., pp. 52-53 of 1859:—

He says " the Eeyoover or Teeyer (toddy drawers) are a section of the servile class of people who, during the time of the brahmins and peroomals, came to Malabar from Ceylon to earn their livelihood. It cannot, however, be accounted for, how they, in many parts, though not throughout the whole of Malabar, came to adopt the beastly custom of the Kummaler of the country, of a single girl, being married to three and four brothers; and likewise in some parts of the country, where this sad custom is not so generally prevalent among them, the practice of taking their deceased brothers' widows for wives as the mussulman Mapilla do. It is only in the taluks of Needoonganad, Cootanad, Chowghaut, and some parts of Vettutnad and a few adjoining spots in South Malabar alone, that a woman among the Nair is kept at the same time by two or three different men, who are, though, never brothers. It is, though, very possible that the Teeyer may have taken the idea from this latter error and themselves fallen into the other and more shameful one, or perhaps they observe the custom as they in general are, as a document in its beginning shows, sprung from the Kummaler or the Kummalers from them, through their then frequent intermarriages. The document calls them also Eeyoovahaiyer, a word equally low and contemptuous in Malabar and of the same meaning as the word Kummaler. Moreover, amongst the Nair of the whole of North Malabar (that is to say form part of Cooroombranad as far as Mangalore), though sometimes unchaste practices occur in their families, yet, I can, he says, most confidently assert, that the above abominable custom of one woman being kept by two or three men at the same time, never in ancient or modern time was once known. A Nair there will, though, occasionally, marry two or three women in succession, if the first or second prove barren or all the children born, die, or from any other like cause or domestic difference. Many of the Teeyers also of that part of the country do in some measure follow the custom of the Nairs; but the Teyettees (Teeyer women), of the remaining Teeyers there, are notorious harlots and become the concubines of strangers of any caste or religion, and this without the least prejudice to their own caste, or any loss of esteem in society; on the other hand, any such act proved against any females of the other castes, subjects the person to excommunication from caste, banishment from society, and all religious advantages. The Teeyer females of South Malabar do not, though, so readily as those of the north, yield themselves to this disgraceful practice. Owing to the very great number of castes, and the peculiar and different manners and customs of various parts of the country, the superficial enquiries of most foreigners have led them into error and in their works they generally ascribe the same pernicious practices to all castes and parts of the country indiscriminately. However, the Nairs, Teeyers and indeed all the other numerous castes Malabar (including the Cochin and Travancor countries, these being indeed the most striking in this respect), are in some way or other in greater or less degree of error; and reformation therefore is indeed much needed among them all. It is, though, very lamentable find them dormant in their original state of depression and not seeking for reformation rather than growing blindly proud of their vain different castes and privileges, and ready to ru any risk even that of hazarding their live only to preserve their castes." Ashary, Malabar, the carpenter caste, in comm with the brass-founder, gold and iron-smith continue the practice of polyandry, but in civ inheritance follow from father to son, and the old Italian practice of maternal desce descensus ab utero. The elder brother ma ries and the wife is common to all the brothe If a junior wish to marry he must live ap and set up business apart, but if any of h younger brothers reside with him, his wife common to them. Anandrawer, is the term a plied to the junior members of a Tarwaad co munity living under the law of inheritance call Marumakatayam. See Karnaven, Tarwa In the Madras Journal of Literature and Scien for July 1864, a native of the country, furnish a translation of a work entitled the Bhut Pandyana, Aliaya Santanada Kattukattale, which is given the following mythical expla tion of the causes which led Bhutala Pandya frame the Aliyasantana rules. It relates th Deva Pandya, a wealthy merchant of t Pandya country, was sending richly laden n ships to a dark island covered with snow, b before launching them, Kundo-dara, a Bhu raja, or king of the demons, an attendant o Siva, observing that the ships were new, d manded a human sacrifice. Deva consult with his wife, as to sacrificing one of his o seven sons, but the wife fled with them to h native town. On which Deva lay in deep di tress until his sister Satya-vati, hearing of the case, came and offered her own boy, saying to Deva, "you should not care for this trifling matter. Do you give the boy Jaya Pandya, a son of mine, as a human sacrifice." But Kundo dara refused the boy, being aware that Jaya was the son of Vira Pandya, king of that dominion who had been defeated by Chand Rangada raja; and that Jaya was a Maha-purusha, destined to be a great man, he desired Jaya to assume his, the demon king's name, as Bhutala Pandya, and promised to return him to the dominions of which Chanda Ranga had deprived him. On this, the demon king entered Ujein, subdued the eight demi-gods, Bhairava, &c., gave Bhutala a throne that Davendra had given to Vikramarka, and entered the town of Jayantika, accompanied by Bhutala. On the demise of the king Siddha Vira Prassiddha Raya, Jaya was elected king. Jaya ruled for six years, during which the Makkala Santana, *i. e.* the law of inheritance by direct descent of sons, was, for the following reasons set aside and that of Aliya Santana, *i.e.* inheritance on the line of nephews substituted. The ships of Deva had during a mercantile voyage grounded on the miry bank of an island covered with snow and darkness and the crew were in great distress when the demon king appeared and bid them load the ships with the Siddha sile stone (a green stone husuru sile alu) and Siddha-rasam and pray to him. This being done, a fair wind brought the ships to the river mouth of Hangara katte at Kaanpur harbour. King Jaya on ascertaining that the ships belonged to his uncle Deva, sent for him to receive them, but the demon king again demanded one of Deva's sons as a sacrifice. Deva consulted as to this with his wife, who refused the goods on that condition, and the cargo of stone and liquid was then delivered to king Jaya, who placed both the stone and the liquid in front of the idol Someswara, changing its name to Sidh-Eswara, and erected a temple and image to Kundo-dara the demon king, to which he gave the name of Mah-Eswara. On the demon king's recommendation, he framed a code of laws, containing 30 rules, introducing the Aliya Santana rule (the descensus a matre.) At this time, king Jaya is styled "master of the throne of king of kings, master of the masters of the four countries, called Tulu, Malayala, Haiga, and Karnataka, the first person in the era of Sativahana. In the sixth year of his reign, the demon king ordered him to bury the green stone (emerald) and shut up the Siddha-Rasa well, and the image of Naga set thereon. The castes enumerated in these rules, are the

1 Tulu varu.
2 Mala varu.
3 Jainaru.
4 Nayamma-varu,
5 Masadika.
6 Haricetti.
7 Pari-yaru,
8 Kambararu Potters.
9 Devadiga.
10 Saliyaweavers.
11 Mulekudeya.
12 Panchala.
13 Kshauraka (barbers.)
14 Agasa (washermen)
15 Halepaika.
16 Mundala.
17 Karinnara.
18 Holeya.
19 Andekoraga.

King Jaya prohibited the brahmins officiating in death and birth ceremonials; prohibited the Maha-layam or inauspicious ceremony for the deceased; prohibited the giving of the Pancha-gavyam; prohibited the Punya Homa sacrifice with Darbha grass on births and deaths and permitted only the Nirmalya or remains of idol offerings for the dead, and authorised the continuance of the puja and Abhishebam to the deity for those who brought forth children or died. In the twelfth year of his reign, he invited Jains from the Balaghat, and they built Mangalore and other towns. King Jaya made the Aliya Santana rules applicable to the Kshatrya, the Vaisya, and the Sudras, but permitted brahmins to continue the rule of direct descent. The explanation of the above fable seems to be that in the time of king Jaya, all great works, such as ship building, as is still the case in Polynesia, were inaugurated by human sacrifices, in propitiation of demons; that a woman of rank twice refused to part with any of her sons for such a purpose and her husband's sister offered her son Jaya in their stead, but was refused: from which king Jaya declared that descent of property should follow from the sister's side.

As the result of the Aliya Santana rules, it is stated that in the present day the husband during his life gives his personal property to his wife and children, mortgages his permanent property and on his demise transfers it with the debts to the sisters and children, so that the territorial possessions have all fallen to brahmins, mahomedans and christians.

In Canara, a similar system of inheritance obtains to that in Malabar, which is termed Aliya Santana, or Aliya Satana or nephew inheritance. As in Malabar the brahmins do not follow this rule. In its details, the Canara law of Aliya Santana corresponds with that of the Malabar Marumakatayam, saving that the principle that the inheritance vests in the females in preference to the males is in practice better carried out in Canara, where the management of property vests ordinarily in the females, while in Malabar the males commonly administer thereto.

The Aliya Santana of the Tulu country is similar to the old Italian law of descent ab-matrice. A sister's children being considered more surely of a man's own blood than those by his married wife. (*Coorg Memoirs, p.* 30.) In the Tuluva country, the brahmin widow can devote herself to the temple, and reside outside or inside its walls. If within, she is a servant of the idol, and receives other men of her own caste only. The offspring of such, if boys, are called Moylar, and if girls, are said to be given in marriage to the boys. But if the woman elect to reside outside, she must pay a monthly sum to the pagoda, and may cohabit with any one of pure descent.

The Coorgs continue to have a kind of marriage communism within the family, the wives of the brothers of one house are considered as common property. Children, therefore, are rather children of the family or of the mother, than of the ostensible father. The Coorgs quote, as their authority for this custom, the story above related of the five Pandu brothers who had one wife Drapadi. But the state of family-life, in many Coorg houses, resulting from this custom, is very sad, giving rise to jealousy, mistrust, heart-burnings, quarrels, and often deadly hatred. One evening the Revd. Mr. Moegling addressing an assembly of Coorg men on the excellency of Christianity as a rule of life, said, "leaving for a moment out of sight, the salvation of your souls, and that eternal joy and glory, which Christ gives to such as believe in Him, faith in his gospel would render you happy men, indeed, compared with your present miseries.* * There would be one man in each house, living in peace with his own wife and children." The men grew silent and thoughtful, and one near him whispered to his neighbour, "The padre seems to know all about us." At present two or three generations continue to live together in the ancestral home, a large human bee-hive, the grandfather and grandmother, their sons and daughters-in-law, the children of these families, some houses containing sixty, seventy, eighty souls and upwards; but families are constantly being torn up and separated from the discord that occurs. Dr. Baikie alludes to a somewhat similar community amongst the Canarese speaking races to the north.

The habits of the Coorgs may vary amongst themselves. Reliable information from another source is to the effect that the first to take to himself a wife is the elder brother. But if she remain unfruitful to him, she passes to the next brother, and only when she fails to have offspring to any brother does she become an outcaste from the family. Until abolished by Sir Henry Ward, the Governor, about A.D., 1860, polyandry prevailed throughout the interior of Ceylon, chiefly amongst the wealthier classes, of whom one woman had frequently three or four husbands and sometimes as many as seven. The custom was at one time universal throughout the island, Valentyn, Ch. vi, p. 95, is quoted for the fact that the king of Kotta, Wijaio Bahuvij who was reigning when the Portuguese built their first fort at Colombo had one wife in common with his brother; and raja Singha I, was born in polyandry, but the influence of the Portuguese and Dutch sufficed to discountenance, and extinguish it in the maritime province. As a general rule, the husbands are members of the same family, and most generally brothers. According to the notion of the Singhalese, the practice originated in the feudal times, when it is alleged, their rice lands would have gone to distruction during the long absences enforced on the people by the duty of personal attendance on the king and the higher chiefs, had not some interested party been left to conduct their tillage. Hence the community of property led at length to the community of wives. Sir J. E. Tennant in AD., 1848, was informed to the abov effect by an aged chief of the Four Corl Arunpulle Ratemahatmeya, who had lived under three native kings prior to the conquest of Kandy by the British. In more rece times the custom has been extenuated on th plea that it prevents the subdivision of estat the children of these promiscuous marriag being the recognised heirs of all the husband however numerous, of their mother. But existed in Ceylon, before the conquest of Wij In Ceylon no infamy attaches to such unio and the offspring are regarded as equally legi mate with those born in wedlock. Within recent period, about A.D. 1860, a law been introduced, to put a stop to this c tom. Sir J. E. Tennant tells us that, Ceylon, in the province adjoining Bintenn where the owner's sister's sons inherit, preference to the sons of the owner's wiv the custom is explained by a Singhalese leg to have originated from one of their kings bei directed by an oracle to sacrifice a male child the blood royal, in order to thwart the malice a demon who nightly destroyed the bund a tank in process of construction. But queen refused to surrender one of her childr on which his sister voluntarily devoted her o boy to death: the king in honour of her patri ism, declared that nephews were ever after be entitled to succession in preference to so Also, in the western extremity of the province Ceylon adjoining that of Bintenne, someth like the custom of the peoples of western In prevails, and nephews by the sister's side su ceed to the inheritance to the exclusion of th possessor's sons. Singhalese kings frequent married their sisters, throughout the interior Ceylon, at present, among the Kandyans a them only, polyandry is prevalent, and the wi has the possession of all the brothers of who so many as eight have been known. T children call the eldest brother father. man can bring in another, not a rela tion, to have joint martial rights with his self; indeed the first husband, can so introduce, as many as the wife will consent to receive as husbands. In Kandy, in the Beena marriage, the husband goes to reside in the wife's house, and the woman shares the family inheritance with her brothers. The husband, in this marriage, can be dismissed summarily, by the family of the wife. In the Deega, a more respectable marriage, the wife leaves her own house for that of her husband—forfeits all her claim on the property of her parents, but acquiring some claim on that of her husband, and the wife cannot obtain divorce, unless with the full consent of the husband. Divorces are constantly sought for by women, on trivial pretences. A child born within nine months of the divorce, must be maintained by the husband.

The customs prior to marriage are not an dication of the married life. International arriages are very frequent among the ifferent tribes that compose the great family f the Selishes in north America. After e union, the man generally joins the and to which his wife's family belongs. The stom, arises from the women being the puryors of the family; they are better able to aintain their household in a locality known them and where they can find the nutritive ots, on which these tribes chiefly live. The dian women, in those regions, are treated th more respect than those of other parts, d enjoy more of consideration and authority. e cabins containing provisions are completely der their control and husbands can never ch anything in these without the permission the mistress of the house. In Origon, the eness of morals is not such as might be pposed, considering the ignorance and rudes of savages. Among the Natchez, the intinence of the young girls was for them a e of honour for they made marriage portions themselves by means of the most unrestrain- prostitution, the importance of their matches pending on their greater or less licentiouss. But when once married they lead a t exemplary life, and became models of njugal fidelity. The reason of this change g that having solemnly given themselves up their husbands, they had no right to dispose themselves to any one else. The marriage length was a purchase, however, the young n, saying, here are the presents with which uy thee of thy parents." Polygamy is rected among the Indian nations of north nerica by their poverty. The system of purse precluding many being bought, but among e rich, several wives are married. The Navajos ve a regular harem, the last married wife ing the mistress of the house, but an Indian nerally chooses sisters, to have peace.

Colonel Marcy of the United States army mentions that though the custom is now very much abandoned, it was formerly regarded by the Comanche Indians of north America as an essential part of genuine hospitality that their guests should have wives assigned to them during their stay in camp. Polygamy is prevalent amongst them, every man having as many wives as he can support. On one occasion in 1849 when escorting emigrants across to New Mexico, two young girls were brought and offered to him before all the party, but to the great surprise of the chief Is-sa-kip they were declined. Among the Moqui Indians of North America, the young woman selects the young man who suits her fancy, and then her father proposes the match to the youth's father, this proposal is never refused. Polygamy is unknown amongst them.

It has existed from time immemorial in the valley in Kashmir, (*Vigne, Vol.* i, *p.* 37), in Thibet, and in the Sivalik mountains. It is found in Sylhet and Cachar (Jo. As. Soc. Ben., Vol. ix, p. 834.) Among the Coorgs, and on the Neilgherri hills among the Todas. And it regulates the laws of inheritance amongst peoples in the southern extremities of the Dekhan. The mean number of inhabitants to a house in various parts of Kunawer is six, Polyandry, or a plurality of husbands, prevails, as also, in Chinese Tartary and in the hilly tracts towards the plains. Besides this draw back on the increase of the population there is another peculiar to Chinese Tartary and the adjoining countries; that is, celibacy, which is professed by numbers of the inhabitants; and in some villages the monks or lamas and nuns form almost half the population.

In Tibet the young unmarried woman is not expected to be chaste and her married life is polyandrous, the woman becomes the wife of all the brothers of the family, not as a perverse law, but as a necessary institution. Every spot of ground within the hills which can be cultivated, has been under the plough for ages; the number of mouths must remain adapted to the number of acres, and the proportion is preserved by limiting each proprietary family to one giver of children. The introduction of mahomedanism in the west, by enlarging the views of the people and promoting emigration, has tended to modify this rule, and even among the Lamaic Tibetans, any casual influx of wealth, as from trade or other sources, immediately leads to the formation of separate establishments by the several members of a house. The eldest brother proposes to a girl's parents, and if agreed to, she is brought to her future home, where a three days carousal completes the ceremony. In the upper valleys of the Sutlej, in Spiti, Kunawer, are mixed races exhibiting much Tibetan blood, and religion, apparently more buddhist than hindoo. The Tibetan colony at Mahasoo just above Simla are powerful ruddy-looking people, entirely unlike Indians. Their women are industrious but very unattractive. The Tibetan forms an interesting study for the curious in national manners and character. The institution of polyandry indicates a singularly moderate state of the passions, inasmuch as the reproductive instinct, elsewhere allotted to a single individual, is with them divided among a whole family. The eldest son has the privilege of choice, but he shares the lady he marries in common with his brothers, and the whole live amicably together. The higher classes do not encumber themselves even with this divided labour of house-keeping, and rarely marry at all. In such a state of society, female chastity is of course not much valued, till the question becomes intermingled with the rights of property. Before marriage, therefore, a woman may associate with men with but little remark; but after she has entered into the fraternal copartnery, they are taken cognisance of by the law. But even here the frail wife receives a little corporal punishment, the favoured lover pays a pecuniary fine, and the penalty of their sin being thus acquitted, they are freed from its reproach.

In Surmoor, the customary marriage charge to a common peasant or zemindar, is from ten to twenty rupees. The difficulty of raising this sum, and the alleged expense of maintaining women, may in part account for the usage, which is universal over the country. Three or four or more brothers marry and cohabit with one woman, who is the wife of all: they are unable to raise the requisite sum individually, and thus club their shares, and buy this one common spouse. Women are here articles of property. Should the labour of females be of actual profit to those with whom they live, instead of a loss and charge to them, it might partially account for a proportion of females remaining unmarried in the houses of their parents; but it cannot seem a full and satisfactory reason for this great restraint in keeping so large a body of the sexes separate. The custom has a deplorably injurious effect upon the morals of the females in this country, particularly in point of chastity. They do not see it valued, and of course do not preserve it. From the degree of community of intercourse prevailing by custom, the men do not feel shocked at an unlimited extension of it: and the women do not feel the slightest sense of shame in a practice from which they are not discouraged by early education. Of a family of four or five brothers, only one or two are in general at home at the same time: some are out on service as soldiers, or with the minor chiefs; others are travelling: the elder usually remains at home. If any quarrel were to arise, a common cause would be made against the offender, and ejectment from house and board ensue. The first-born child is the property of the elder brother, and the next in succession are supplied in turn, it was usual always to purchase wives, and the zemindars were too poor to be able to give from ten to twenty rupees for a woman. The polyandry of Ladakh, is noticed by Moorcroft, (Travels, ii, 321, 322,) and also in the Journal of the Asiatic Society of Bengal for 1844, p. 202, &c. The effects of the system on bastardy seem marked, out of 760 people in the little district of Hung-rung, around the junction of the Sutlej and Pittee (or Spiti) rivers, there were found to be 26 bastards, which gives a proportion of about 1 in 29; and as few grown-up people admitted themselves to be illegitimate, the number may even be greater. In 1835 the population of England and Wales was about 14,750,000, and the number of bastards affiliated (before the new poor law came into operation) was 65,475, or 1 in about 226; (Wade's British History, pp. 1041-1055;) and even should the number so born double those affiliated, the proportion would still speak against polyandry as it affects female purity. At Irtok, in Nepal, there is to a certain degree a sort of community of wives.

If we may credit the statement of Rinso, polyandry prevails amongst the Smerenkur Gilyaks of the Amoor and the women are treated with the greatest indulgence. But, only those can expect to get married who are skilled in the use of the needle; but the custom here, seems of a kind similar to those noticed by Sir R. K. Porter amongst the Kisty tribe in Circassia, and amongst the Torneo in Lapland; also by Colonel Yule amongst the people of Hazlakh, by Marco Polo amongst the people of Kamul and by Sir A. Burnes amongst the Jakuri Hazara. Before the caliphs had extended their principles, with their power over every part of N. Persia, the reverse of the system of polygamy was prevalent in Atropatia, (now restored to its more ancient name of Azerbijan;) for there, the ladies estimated their dignity according to the number of husbands they could boast. Half-a-dozen at a time were deemed an inconsiderable conquest; and the woman disgraced, past living in the best society, who could not number more than three or four.—*Yule Cathay*, *Vol.* i, *p.* clxxxix; *Panthier*, 157; *Wood*, *p.* 201; *Burnes' Travels*; *Porter's Travels*, *Vol.* i, *pp.* 143-4, 340; *Vigne's Kashmir*, *Vol.* i, *p.* 37; *Beng. As. Soc. Journ.*, *Vol.* ix, *p.* 834; *Asiatic Researches*, *Vol.* v, *p.* 13; *Institutes of Menu*; *Cæsar's Commentaries*, *Book* v, *ch.* x; xiv; *Westminster Review*, *April* 1868; *Polybius*, *Book* iv, *ch.* iii, *Book* xii, *Ex.* xii; *Sirr's Ceylon*; *Humboldt's Travels*; *Dr. Vaughan's Revolutions in English History*, *pp.* 97-98; *Cunningham's History of the Sikhs*, *p.* 18; *Ravenstein's Russians*, *p.* 391; *Fraser's Himalaya mountains*, *pp.* 70; 206, 218, 368; *Moorcroft's Travels*, *Vol.* ii, *p.* 321-322; *Abbe Domenech's Vol.* ii, *p.* 314; *Lubbock Origin of Civilization*; *Tod's Rajasthan*, *Vol.* i, *p.* 345; *Sir J. E. Tennents, Ceylon*; *Colonel Marcy*, *Thirty-seven years Army Life of the Border*. See Gen. xi, 29; xiv, 14.

POLYANTHES TUBEROSA.

Shabbo, HIND. | Zambak, HIND.

Considered by natives hot and dry, diuretic and useful after labor, also in rheumatism. Roots emetic, and used as a dressing for burns. The natives say its seeds are the white Todree of the oriental bazaars which, as also the other Todrees, Europeans supposed to be from Malacca. Whatever they may be they are effective medicine. This, "the tuberose with her silvery light," introduced into India from Mexico or South America, is cultivated very extensively by the Burmans and in many English gardens. The flower has a delightful fragrance, and throws out its odours strongest at evening.—*Dr. Honigberger*, *p.* 329; *Mason*; *Powell's Hand-book*, *Vol.* i, *p.* 382.

POLYBIUS, see Portunidæ.

POLYGALA SENEGA, Snake root. Several species of Polygala are medicinally employed in Germany, South America, and Java. In Nepal and the Himalayas, the P. crotalarioides is used as a snake antidote. The stem of this species is branched from the base, suffruticose, decumbent, downy; leaves obovate, wedge-shaped at the base, stalked; raceme 8–10 flowered, wings roundish, obovate, as long as the orbicular, ciliated capsule.—*O'Shaughnessy*, *pp.* 209-212.

POLYGALA SPECIOSA, grown in gardens as an ornamental plant. All the species of Polygala are very handsome, showy flowers, they are natives of the Cape, some parts of Europe and America; their colours are chiefly pink, scarlet, red or white, they are readily grown from seed, and should be raised in a light soil.—*Riddell.*

POLYGALA TENUIFOLIA.

Yuen-chi, CHIN.

The root of this Chinese plant is brought from Shensi and Honan, in contorted quilled pieces. It is used in cynanche, cough, carbuncle, and its leaves in spermatorrhœa.—*Smith's Chin. Mat. Med.*, *p.* 175.

POLYGAMY. Although polygamy is sanctioned by the laws of the mahomedan religionists, by the customs of the Chinese, the Cochin-Chinese, the Siamese, and, in particular circumstances, amongst the hindoos, the people generally, are in practice monogamic. Throughout the Old Testament (Gen. xxi; xii, 15; Esther, ii, 3,) there are notices of a plurality of wives, from the most ancient times, but the Jews were truly a monogamic race, and it was only with Saul and David followed by Solomon that numerous wives became usual. Amongst the mahomedans, the practice from Mahomed's time till now, has been to restrict to four wives and the harm or war captives or purchased or household slaves, and in British India, the followers of this faith do not deviate from their religious rules, though, in general they are monogamic. Opinions greatly differ as to the advantages of polygamy. Though the christian peoples of Europe and the hindoos of British India, are monogamic by law, in practice polygamy, with many resulting crimes and evils, is not unknown. With the mahomedans and ruling hindoo races who permit polygamy, it is a fertile source of intrigue and disquiet. Colonel Tod writing of the ruling Rajputs says polygamy is the fertile source of evil, moral as well as physical, in the east. The desire of each wife that her offspring should wear a crown, is natural; but they do not always wait the course of nature for the attainment of their wishes, and the love of power too often furnishes instruments for any deed however base. The number of queens is determined only by state necessity and the fancy of the prince. To have them equal in number to the days of the week is not universal; while the number of handmaids is unlimited. It will be conceded, that the prince who can govern such a household, and maintain equal rights, when claims to pre-eminence must be perpetually asserted, possesses no little tact. The government of the kingdom is but an amusement compared with such a task, for it is within the Rawula that intrigue is enthroned. Captain Burton, who saw the great polygamic system in the Salt Lake city, observes that the nations of Europe have monogamic laws, have forbidden a plurality of wives, and the consequences are that adulteries and unlawful connections prevail to a most fearful extent. And among some of these nations sinks of wickedness, wretchedness, and misery, are licensed by law. He remarks that the doctrine of a plurality of wives was believed and practised by Abraham. Though polygamy is met with among nearly all the nations of southern and eastern Asia, neither amongst the mahomedans or hindoos, is it deemed a respectable practice. A mahomedan by law can marry four wives, and all his captives in war can form his Harm, but no mahomedan, however rich, no ruling sovereign even, can obtain a second wife from a family of the same social position as his own, and amongst Indian mahomedans only one wife is married with all the rejoicings and ceremonial display which in most countries are observed when a bride becomes a wife and mistress of a home. In the profligacy of towns or in the enforced idleness to which so many mahomedans in India, are now constrained, there are sometimes found the legitimate number of wives, along with many hindu converts to mahomedanism, who are styled the "Harm," and occasionally amongst the poorer men who have been great travellers, more than one wife is in a house. But monogamy is the general rule, and marriage is made with the wife for whom the greater rejoicings are made. In mahomedan law, all children born in marriage have equal rights. In India, therefore, where women are married either simply by the Nikkah ceremonial or by the additional display in the Shadi or rejoicings, the mahomedan law does not recognize any distinction in the rights of the children from Nikkah or Shadi wives. But, in the social customs of the mahomedans of southern India, a great distinction is made between the offspring in the two marriages. A Nikkah wife never receives the same amount of respect from her household, and from relatives, and never receives from her husband an equal monthly allowance to that of a Shadi wife. The Nikkah and Shadi children in their father's households, receive equal courtesy from relatives, because they are then alike looked upon as the children of the master of the house. But a father never grants to Nikkah children allowances equal to those which he apportions to those of his Shadi descent. When parents are seeking for suitable marriages for their children, Nikkah offspring are regarded as greatly inferior in social rank to Shadi offspring, and the taint of the Nikkah marriage is remembered from generation to generation, men who marry by the Nikkah ceremony take such wives from families of inferior rank to themselves, or from women of very low position, while wives who are married by the Shadi ceremony are always of equal rank to the men. As a rule then, Nikkah wives and Nikkah children do not receive incomes equal to those of the Shadi relation, and the courtesies and respect shewn to them in their families and by the outer world, are greatly less than those which Shadi wives and children receive. The enforced idleness to which British supremacy has subjected the hereditary soldiery and chiefs of India, few of whom have inclination for intellectual pursuits, with their means for hunting and hawking and other field sports diminished, there have grown up amongst them many loose ideas, loose ways, and low habits, but, even in all this, the Indian onogamists. Among the Meman mahomedans their Pir, or holy men, are of the family called Rashid Shahi (descended from one Mahomed Rashid Shah), or the Rohri-wara Sayyids, remarkable for nothing but excessive polygamy. Rashid the founder of the house, took unto himself thirty-two wives (instead of four), and justified the practice by the usual sophistical arguments of the Sufi order to which he belonged. The Sindhi divines pronounced his tenets to be heretical, and his conduct damnable. The Meman sect, however, did not object to it, and still reverence his descendants.

Among hindoos, in general, it is rare to hear of two wives in one house, but the concubinage of cities in the south of India, is facilitated by the temples of the Deva Dasa, women devoted to the gods. In hindoo law, a man may have wives without limit. He ought not, however, to take an additional wife, save under certain justifying circumstances. These are, his wife's exhibiting want of chastity; habitual disobedience or disrespect towards him; bad temper; bad health; barrenness; or should she for a period of ten years produce only daughters. The consent of the hindoo wife, without any disqualifying causes on her side, also, of itself, warrants remarriage. The absence of these justifying causes will not, however, invalidate a second marriage. A wife who has been superseded by a second marriage, whether justifiably or not, should continue to reside with her husband. If he oblige her to leave him, she should reside with his relatives or her own. In either case the husband is bound to maintain her.

It will thus be seen that by the law, a hindoo can marry as many wives, and by custom keep as many concubines as he may choose; the former is allowed by law and custom, the latter however, is not explicitly sanctioned by law, but indirectly permitted by custom, and prevails chiefly among the lower orders. The late maharaja Sevaji of Tanjore married 18 wives on one day, but this was caused by a mere accident. The rajah had sent to his native place for some young women intending to marry one and give the others in marriage to his nobles: but, on their arrival, and becoming aware of his intention they declared that as they came to marry him they would do so or not marry at all, but all would at once destroy themselves. In mythological history, it is stated that the ancient king Dasaradha, the father of Rama, had 60,000 wives. Generally speaking, a hindoo marries only one wife, and after her death, another, if he can afford it. There are a few hindoo persons, in Madras, with two married wives: but it is so extremely rare to find a husband with three or four wives at one time that in all that city of 400,000 people, there were (in 1860) only three instances in the higher classes, of husbands living with three wives, and these they had married successively, on account of the want of children. Concubinage among the higher ranks of hindoo society in Madras, is not uncommon, and is generally selections from among the dancing girls of pagodas. In the interior, most of the petty rajahs, poligars and zemindars, marry two wives, and sometimes keep concubines at the same time. In the large towns of China and Japan, concubinage seems to prevail to a greater extent, than it is met with in the western countries of Southern Asia. In Japan, the practice, so soon as a woman is married, of staining her teeth black, and thus destroying one of woman's greatest ornaments, can only have the effect of making the wife less attractive to the husband and forcing his affections elsewhere. And in the concubinage of China there is not found among the young women whom they select, any of the deformed feet which the richer classes of the people create for the wives of their households.

Polygamy is not prohibited by the brahminical law but it reserves the privilege of being burnt together with the husband, to the eldest and only lawful wife. Polygamy seems to have been customary in India, in the times of their transition from the pastoral to the agricultural state. Notices of polygamy are more frequently met with in the stories of the hindoo gods than seen among the modern hindoos.

The law of divorce which is enforced among European nations is not applicable to hindoos. According to their religious belief the future beatitude of a man solely depends upon the funeral obsequies performed and oblations offered to the manes by his putra or son, otherwise they consider he will be doomed to purgatory. The primary object of marriage among the hindoos is to obtain a male issue, and it is only in case of failure of a putra or son that the Hindoo law sanctions polygamy, as also under certain other conditions. The Hindoo law, or as may be said, the fountain head of all Hindoo law, the Institutes of Menu, their great lawgiver, sanctions this practice only exceptionably, but not at the mere pleasure or caprice of any man.

"The grounds that justify it regard the wife's conduct, her temper, or her state of health; to which may be added barrenness, or the producing only daughters during a period of ten years."

Throughout the South and East of Asia, women, even as first wives, do not take a favourable position in their households, until they become mothers. Mr. T. T. Meadows writes strongly on the injurious effects on Chinese women which the right to have many wives occasions. The Chinese system differs seemingly from mahomedan polygamy in this, that a mahomedan woman can legally hold property, is the owner of her own dower, and each wife has a separate establishment and a separate allowance for herself. In China the extent to which wives are, by law and custom, in the power of their husbands, would produce deplorable effects, but for the almost unlimited power which law and opinion give mothers over their sons of every rank and age. So also the institution of polygamy is largely counterbalanced by the desire of all the men to marry early, in order to secure a progeny of sons as soon as possible. The condition of the Chinese woman is most pitiable: suffering, privation, contempt, all kinds of misery and degradation, seize on her in the cradle, and accompany her pitilessly to the tomb. Her very birth is commonly regarded as a humiliation and a disgrace to the family, an evident sign of the malediction of Heaven. If she be not immediately suffocated, she is regarded and treated as a creature radically despicable, and scarcely belonging to the human race. Pan-houi-pan, celebrated among Chinese writers, though a woman, endeavours in her works, to humiliate her own sex, by reminding them continually of the inferior rank they occupy in the creation. "When a son is born," she says "he sleeps upon a bed; he is clothed with robes, and plays with pearls; every one obeys his princely cries. But when a girl is born, she sleeps upon the ground, is merely wrapped up in a cloth, plays with a tile, and is incapable of acting virtuously or viciously. She has nothing to think of but preparing food, making wine, and not vexing her parents." In ancient times, in China, instead of rejoicing when a child was born if it happened to be a girl, they left it for three whole days on a heap of rags on the ground, and the family did not manifest the slightest interest in so insignificant an event. This public and private servitude of women, a servitude that opinion, legislation, manners, have sealed with their triple seal, has become, in some measure, the corner-stone of Chinese society. The young girl lives shut up in the house where she was born, occupied exclusively with the cares of housekeeping, treated by everybody, and especially by her brothers, as a menial, from whom they have a right to demand the lowest and most painful services. The amusements and pleasures of her age are quite unknown to her; her whole education consists in knowing how to use her needle, she neither learns to read nor to write; there exists for her neither school nor house of education; she is condemned to vegetate in the most complete and absolute ignorance, and no one ever thinks of, or troubles himself about her, till the time arrives when she is to be married. Nay, the idea of her nullity is carried so far, that even in this, the most important and decisive event in the life of a woman, she passes for nothing; the consulting her in any way, or informing her of so much as of the name of her husband would be considered as most superfluous and absurd. In China a woman counts for nothing. The law ignores her existence, or notices her merely to load her with fetters, to complete her servitude, and confirm her legal incapacity. Her husband, or rather her lord and master, can strike her with impunity, starve her, sell her, or, what is worse, let her out for a longer or shorter period, as is a common practice in the province of Tche-kiang. Polygamy aggravates the sufferings of the Chinese wife. When she is no longer young, when she has no children, or none of the male sex, her husband takes a second wife, of whom she becomes in some measure the servant. The household is then the seat of continual war, full of jealousies, animosities, quarrels and not unfrequently of battles. When they are alone they have at least the liberty of weeping in secret over the cureless sorrows of their destiny. The little Chinese girl born in a christian family is not murdered, as is often the case among the pagans. Religion is there to watch over her at her birth, to take her lovingly in its arms, and say, here is a child created in the image of God, and predestined, like you, to immortality. The Chinese bride is seldom seen by the husband until she leaves the sedan chair in which she is conveyed, with her belongings, to his house. Mandarin ducks are introduced at marriages as patterns of connubial felicity. In the little feet of the Chinese women, the four small toes appear grown into the foot; the great toe left in its natural position. The fore part of the foot is so tightly bound with strong broad ligatures, that all the growth is forced into height instead of length and breadth, and forms a thick lump at the ancle; the under part measures scarcely four inches long and an inch and a half wide. The foot is constantly bound up in white linen or silk, and strong broad ribbons and stuck in a very high heeled shoe. The crippled fair ones trip about with tolerable quickness; to be sure they waddle like geese, but they manage to get up and down stairs without the help of a stick. Infanticide, of which the husbands are the only perpetrators, is not uncommon; but female children only are murdered, and those immediately after their birth. This horrible crime meets with no punishment from the laws of the country; a father being the sovereign lord of his children, he may extinguish life whenever he perceives, or pretends, that a prolongation of it would only aggravate the sufferings of his offspring.

Polgamy is practised both on the mainland and in Torres Straits and Mr. McGillivray had heard of a man with four wives. According to the will of the father, and without regard to disparity of age, the future husband may be and often is an old man with several wives. When the man thinks proper he takes his wife to live with him without any further ceremony, but before this she has probably associated with the young men, such, if conducted with a moderate degree of secrecy, not being considered as an offence, although if continued after marriage it would be visited by the husband (if powerful enough) upon both the offending parties with the severest punishment. The Abbe Em. Domenech tells us that polygamy prevails amongst the Indians of North America.—*Sinnett's, Lady's Voyage*, *p.* 50; *Bowring's Siam*, *Vol.* i, *p.* 105; *McGillivray's Voyage*, *Vol.* i, *p.* 8; *P. Vencatroyloo Naidoo, at the Hindoo Debating Society*; *Maj. Cunningham's Ladak*, *pp.* 54, 306; *Revd. H. Moegling's Coorg Memoirs*, *pp.* 29—32; *The enchanted fruit*, *Sir W. Jones's Works*, *Vol.* xiii, *pp.* 213-217; *Lubbock's Orig. of Civil*, *pp.* 100-102; *Tod's Rajasthan*, *Vol.* i, *p.* 307; *Burton*, *The City of Saints*, *pp.* 457, 458; *Burton's Pilgrimage to Mecca*, *Vol.* iii, *p.* 51; *Strange's Hindoo Law*; *Chinese and their Rebellions*, *pp.* 538-39; *Huc's Chinese Empire*, *Vol.* i, *pp.* 248-252; *Mr. T. T. Meadows*; *The Chinese and their Rebellions*, *pp.* 538-539. See Polyandry, Kulin.

POLYGALACEÆ, *Lindl.* The Milk-wort tribe of plants comprising 4 genera, 6 species, viz.: 3 Polygala; 1 Salomonia; 1 Xanthophyllum; 1 Securidaca.

POLYGAR, in southern India, in the time of Orme, was a term applied to the semi-independant chiefs in mountainous and woodland districts. Of these were Aryalore, Bangar Yatcham, Bomraz, Coilor-pettah, Elerempenah, Ettapuram, Madura, where their districts lie along the foot of the mountains to the west. Others in Tinnevelly, in that neighbourhood were styled the Tondiman rajah, the greater and lesser Moravar; Nattam Nelli Cotah, and Nellitangaville, the last styled Pullitaver. North of Madras are the polygars of Bangar Yatcham, Damerha, and Bomraz, against whom in 1756, Mahomed Ali and Colonel Kilpatrick marched. A polygar possessed the fort of Savanore, one settled at Oodiaghery and another near Verdachelum, when in July 1751, Mr. Pigot and Clive drove off another at Warriorpolliam.—*Orme*, i. See Poligar

POLYGAR DOG, See Canis.

POLYGONACEÆ, *Lindl.* The Buck-wheat tribe of plants, comprising 9 gen. 65 sp. viz., 1 Konigia; 6 Rumex; 1 Oxyria; 4 Rheum; 2 Coccoloba; 1 Ceratogon; 1 Ampelygonum; 46

Polygonum; 3 Fagopyrum. Roxburgh names 15 species of Polygonum. His P. lanatum, common round Calcutta, is called Sweet panee merich, or white water pepper; P. pilosum; burra panee merich, or great water pepper, is also common near Calcutta, and flowers at the beginning of the wet season. The name denotes its analogy in properties to the P. hyderopiper of Europe, which gives a yellow colour to wool; P. flaccidum is also called Panee merich in Calcutta. In China, two species of Polygonum are cultivated for the blue dye furnished by the leaves, which is extracted like indigo by maceration. In Icones, Dr. Wight gives Polygonum ambiguum, aviculare, barbatum, Chinense, donii, glabrum, horridum, Indicum, molle, Nepalense, pedunculare. strictum, Wallichii.—*O'Shaughnessy, p.* 523; *Williams' Middle Kingdom, p.* 282; *Wight's Icones*; *Roxb. Vol.* ii, *p.* 285.

POLYGONUM, *sp.*

Bijband,	HIND.	Kamin,	HIND.
Kuwar,	„	Hunraz,	„

Used for spitting of blood and rheumatism. A substitute for rhubarb in double doses.—*Powell's Hand-book, Vol.* i, *p.* 372.

POLYGONUM AMPHIBIUM.

Guree,	CASH.	T'ien liau,	CHIN.

The root of this Chinese plant has been recommended as a substitute for sarsaparilla, which its root-like stems resemble. Vegetates in Cashmere, and is considered as a veterinary medicine; whence its name, guree (horse).—*Smith's Mat. Med., China, p.* 175; *O'Shaughnessy, p.* 523; *Honigberger, p.* 330.

POLYGONUM AVICULARE.

Wei-jui,	CHIN.	Machooti,	HIND.
Knot grass,	ENG.	Nisomali,	SANS

A plant of China, its dried root is used as a pectoral. Considered medicinal in Behar. Its numerous seeds supply abundant food for small birds; they are said to be emetic and cathartic. Thunberg says that in Japan a blue dye is prepared from this plant. It grows at Cashmere, and is there officinal.—*O'Shaughnessy, p.* 522; *Beng. Disp.*; *Eng. Cyc.*; *Honigberger, p.* 330; *Smith Chinese Mat. Med.*

POLYGONUM BARBATUM, *Linn., Roxb., W. & A.*

Miau-liau,	CHIN.	Atalari, Aatalari,	TAM.
Velutta modela muku,	MALEAL.	Konda malle,	TEL.

This plant grows in Bengal and peninsular India. Considered diuretic at the Cape of Good Hope and given in infusion by the native doctors in India in cases of colic. Cattle eat it greedily. The seeds are used in China also in colic and choleraic affections. Its leaves and stalks as a wash for callous ulcers.—*O'Shaughnessy, p.* 522; *Smith.*

POLYGONUM BISTORTA

Maslun,	HIND.	Anjabar.	PUNJAB.

A plant of N. W. of the India. Root very astringent; useful in sore throat and relaxed gums and ulcers. Ishtapri, a long root, apparently of Polygonum bistortum, known from Lahore to Peshawar as "anjabur."

POLYGONUM CYMOSUM, *Wall.* A wild buckwheat, is abundant at Choongtam in Sikkim, forms an excellent spinach; it is called "Pullopbi;" is a common Himalayan plant, and is also found in the Khasia mountains.—*Hooker's Him. Jour., Vol.* ii, *p.* 31.

POLYGONUM FAGOPYRUM, *Smith.*

Fagopyrum esculentum.		Ugla kaspat,	HIND.

Seeds nutritive, contain much oil, said to be very fattening.—*Powell's Hand-book, Vol.* i, *p.* 372.

POLYGONUM HYDROPIPER.

P'en-chuh, CHIN.

A Chinese plant. Juice used as a wash in itching skin affections, as a diuretic, carminative and anthelmintic. The plant is used as a flux in operating on metals.—*Riddell.*

POLYGONUM LINIFOLIUM, as also Poligonum aviculare and affinis grow about Lahore, where they are well known, but little used.—*Dr. Honigberger, p.* 330.

POLYGONUM MACROPHYLLUM, grows among the Cashmere mountains, where its roots are officinal.—*Dr. Honigberger, p.* 330.

POLYGONUM MOLLE, grows on the Cashmere mountains and its roots are officinal at Cashmere.—*Dr. Honigberger, p.* 330.

POLYGONUM PERSICARIA. The dwarf persicaria, a garden plant, is of easy culture, P. hydropiper, a water plant, has beautiful pink flowers.—*Riddell.*

POLYGONUM POLYSTACHYUM, *Wall.*

Amldandi,	HIND.	Tror,	RAVI.
Chuchi,	„		

This and P. polymorphum are tall plants with fine flowers. One at least of them exhaling a strong honey smell at times. Both appear to be common locally in the Punjab Himalaya from 6,000 to 12,000 feet. The young leaves are used by the natives as a pot-herb, and a very good imitation of rhubarb, is got by stewing the stalks, which also, after peeling, are eaten raw by the natives in some places.—*Dr. J. L. Stewart,* M. D.

POLYGONUM TINCTORIUM, also P. Chinense and P. barbatum, yield a blue dye like indigo, in China and Japan.—*O'Shaughnessy, p.* 523. See Dyes.

POLYGONUM TORTUOSUM, *Don.*

Niala.	LAD.	Nialo,	PUNJAB.

This species, grows to 15,000 feet in the Himalaya, is said to yield a yellow dye in

Lahoul. In Ladak it is browsed by goats and yaks.—*Dr. J. L. Stewart*, M. D.

POLYMNIA ABYSSINICA, *Linn.* Syn. of Guizotia oleifera, *DC.*

POLYMNIA FRONDOSA, *Bruce.* Syn. of Guizotia oleifera, *DC.*

POLYNEMUS, a genus of fishes, placed by Cuvier in his third division of the Percidæ, the general form of the body somewhat resembling that of the perch. Considerable interest is attached to the Polynemi on account of their yielding isinglass. This fact was first made known by Dr. Cantor. The species best known, he says is the Polynemus risua of Hamilton (P longifilis, Cuvier; the Tupsee, or Mango fish, of the Anglo-Indians): this inhabits the Bay of Bengal and the estuaries of the Ganges, but enters the mouths of the rivers even higher up than Calcutta during the breeding season (April and May), when the fish is considered in its highest perfection, and is generally sought as a great delicacy. This species is the smallest, for its length seldom exceeds eight or nine inches, and one inch and a half or two inches in depth." It is remarkable for the great length of filaments, or free rays, of the pectoral fins, these being about twice the length of the body, and seven in number on each side. P. aureus and P. topsui of Hamilton, Dr. Cantor states, are closely allied to this species. "Polynemus sele, *Hamilton* (P. plebius, *Broussonnais*; P. lineatus, *Lacepede*), is the Suleah fish first mentioned in Parbury's 'Oriental Herald,' as yielding isinglass. This species, as well as another closely allied to P. quadrifilis, *Cuvier*, which was dissected, figured and described, under the name of P. Salliah (Saccolih), appears to be equally plentiful, in shoals, all the year round, in the estuaries of the Ganges, and is appreciated by Europeans for its excellent flavour: both species attain a a size from three to four feet in length, and eight to ten inches in depth," (*Contor.*) Besides the species found on the coast of the mainland, two other species of Polynemus, P. heæanemus and P. heptadactylus, have been discovered off the coast of Java. On the coast of Africa and in the West Indies, also, certain species of the present genus are found. One of the African species is confounded by Cuvier with the Indian P. longifilis, and the mistake has been rectified by Mr. Bennett. It appears that this species (which is in all probability the Pentanemus of Artedion, on which Linnæus established his P. quinquarius) differs from the Mango fish of India in the number of free rays to the pectoral fins, the latter having seven rays, and the African species only five. Messrs. Cuvier and Valenciennes, not having found any species of Polynemus with so few as five free rays, and those longer than the body, imagine that the P. quinquarius was founded on a mutilated specimen.

The species of the Polynemus, or paradise fish, are known for their excellence as articles of food. Of these the Mango fish or tupsee mutchee of the Bengalees (Polynemus risua, *Buch.*,) is a familiar instance, though this is remarkable as being without a swimming-bladder; while the other species have it large and stout. The species occur in the seas of warm climates; five are described by Dr. Buchanan in his Gangetic fishes, but only two are of considerable size, occurring in the estuary of the Hooghly, and probably in those of the Ganges. One of these, with another large species, is also described by Dr. Russell in his work on the fishes of the Madras coast. That figured in his tab. 184 and called maga-booshee is Polynemus uronemus of Cuvier, while the maga-jellee, tab. 183, named P. tetradactylus by Shaw is probably P. teris of Buchanan. Both, but especially the first, Russell says, are esteemed for the table and called Roeball by the English. Dr. McClelland ascertained that the species affording the isinglass, is the Polynemus sele of Buchanan, Sele or sulea of the Bengalese, described but not figured in his work on the Gangetic fishes (p. 226.) Dr. M. has, however, published in the Journal of the Asiatic Society of Bengal, a figure from Dr. Buchanan's unpublished collection of drawings, which are kept at the East India Company's Botanic garden at Calcutta. This figure, he states, conveys a good representation of the Sele, about the half size of a specimen, from which he obtained sixty-six grains of Isinglass. Dr. Buchanan describes the Sele as affording a light nourishing food, like most of the fishes which he has called Bola, but as being inferior to many of them in flavour. It is common in the estuaries of the Ganges, and is often found weighing from twenty to twenty-four pounds; and may perhaps be the Emoi of Otaheiti, the Polynemus lineatus of Lacepede, the P. plebius of Broussonet. This, according to Block, is by the English called king-fish, and is the Kalamin, TAM., of John, from Tranquebar, and abundant in the Kistna and Godavery. Buchanan further states, that the Sele has a strong resemblance to the abovenamed "maga booshee" of Dr. Russell. An anonymous author stated that from half a pound to three quarters of a pound of isinglass may be obtained from each fish, and McClelland supposed either that P. sele attains a much larger size than twenty-four pounds, the limit given to it by Buchanan, or that isinglass is also afforded by a far larger species, namely, P. tetradactylus, telia, or teriya bhangan. This is identical with the "maga-jelle" of the Coromandel coast, and which Buchanan often saw six feet long in the Calcutta bazaar, and was informed, sometimes equalled 320 pounds avoirdupois in weight. It is considered by the natives as a wholesome diet although seldom used by Europeans. Dr. McClelland says he has frequently seen them of a uniform size, that must have weighed from fifty to a hundred pounds at least, loading whole cavalcades of carts on their way to the Calcutta bazaar during the cold season. Both the Sele and the "teria bhangan" must consequently be very common there from November to March. P. Sele is supposed to be a variety of P. lineatus, which is said to be common on all the shores to the eastward; but if so, Dr. M. says, it seems strange that the Chinese should send for it to the Hooghly. The same might, however, be said of the cod, which, though caught in abundance on the coasts of Great Britain, is also diligently sought for on the banks of Newfoundland. He also inquires whether Polynemus emoi and P. plebius, supposed by Buchanan to correspond with his Sele, contain the same valuable substance, and whether either of Russell's species, the abovenamed maga-booshee and maga-jelle (Indian fishes, 183-184), yield it. The species of this genus, furnish a considerable portion of the isinglass of Southern and Eastern Asia, viz:

Polynemus heptadactylus. Total length 4½ inches. Inhabits Penang, Batavia, Cheribon and Samarang.

Polynemus hexanemus, Cuv. and Val., 4 inches long. Inhabits Penang, Batavia, Samarang and Pasuruan.

Polynemus indicus, Shaw.

P. sele,	*Buchanan.*	P. lineatus,	*McClelland.*
P. uronemus,	*Cuv., Val.*	P. gelatinosus,	"
P. ploteus,	*McClelland.*		
Lukwan,	ARRACAN.	Roe-ball,	ENG.
Katha, the young,	BURM.	Ikan kurow,	MALAY.
King fish,	ENG.	Walan kala,	TAM.

The total length of the fish is 3 feet. It inhabits the seas of Penang, Singapore, Malay peninsula, Surabaya, Estuaries of the Ganges, Vizagapatam, Madras and Pondicherry. The structure of the air-vessel of this species is the most striking character by which it may at once be distinguished from P. plebius. Its membrane is silvery thick; the general form oval. It occupies the whole length of the stomach terminating behind in a very sharp point, which penetrates the thick of the tail, over the first interspinal of the anal. At Penang single individuals occur at all seasons: but numbers are taken from June to August. The weight is commonly from 4 to 6 lb. seldom exceeding 20. The air-vessel of a good sized fish, when dried and ready for the market in China, weighs upwards of 2 oz., is considered very good isinglass, and fetches 25 to 30 dollars per pecul. The fish itself is valued as an article of food, though less so than P. tetradactylus. Mr. O'Riley estimated that 2,000 lbs. of isinglass from this fish, might be obtained annually off Amherst alone. Mr. Blundell said that the largest sounds were exported from Rangoon, and that they sell there at about half a rupee a pound. Major Bogle wrote that about 10,000 of the fish, large and small, were taken annually in Arracan and that the sounds sold there for about a third of a rupee per pound: the Chinese exported them to Penang where they are said to bring more than a rupee a pound.

Polynemus plebius, Broussonet; Linne; Bloch; Shaw; Cuv. and Val.

P. lineatus,	*Lacepede.*	P. commersonii,	*Shaw.*
P. niloticus,	*Shaw.*	Bynni,	*Bruce.*
Roe-ball,	ENG.	Pole kala,	TAM.

This fish attains to 4 feet as its full size. It inhabits the Coromandel coast, Otaheite, Isle of France and Isle of Tanna. Its value as a fish yielding isinglass requires to be ascertained.

Polynemus tetradactylus, Shaw.

Polynemus teria,	*Gray.*	P. quadrifilis,	*Cantor.*
Triglia asiatica,	*Linne.*	Maga jelle,	*Russell.*
P. salliah,	*Cantor.*		
Roe-ball,	ENG.	Yerra kala,	TAM.

Inhabits seas of Penang, Singapore, Malay peninsula, Lancavy, Bay of Bengal, Gangetic estuaries, Australia, China, Bantam, Batavia, Tjilatjap, Samarang, Surabaya; Bangkallang. The species has no air-vessel.

The true cod has not been seen on the Chinese coast, but several species of Serranus (as Plectropoma susuki, Serranus shihpan, megachir, &c.,) generally called shippan by the natives, and garoupa by foreigners, are common about Macao, and considered the most delicate flavoured of any fish in the market. Another a common and delicious fish is the Polynemus tetradactylus or bynni-carp, usual called salmon by foreigners: isinglass is prepared from its skin. The pomfret, or stangyu of the Chinese (Stromateus argenteus), is a good pan-fish, but not so delicate as the sole-fish, many species of which abound in the shallows of the Bogue. Two or three species of mackerel, the Sciæna lucida, an Ophiocephalus, the mullet, the white-rice fish and a kind of shad, complete the list of good table fish found in the markets of Canton. Several of the genera Arius, Otolithus Umbrina, Lobotes, Polynemus, furnish isinglass in abundance, P. tetradactylus is valued both for food and for its large sounds. The isinglass, or fish-glue, made by the Chinese from the sounds and noses of some sorts of fish, as the bynnicarp, or Polynemus is much used in cookery, and the manufacture of false pearls. —*Royle on Isinglass, passim.* See *Isinglass,* as *Fish Maws, Fish sounds, or Air Bladders*; *William's Middle Kingdom, Vol.* ii, *pp.* 110, 169, 270, 272, 401; *Cantor, Fishes.*

POLYNEMIDÆ, a family of fishes comprising 21 Polynemus, 1 Pentanemus, 1 Galeoides.

POLYNESIA. By modern geographers, Polynesia, in its widest extension, has been understood to include the numerous islands which lie in the Pacific to the east of the Philippines, Moluccas, and Australia, and stretch away to within a few degrees of the west coast of America. So defined, this oceanic region is ethnographically distributed into Melanesia, Micronesia, and Polynesia Proper. Melanesia or the area of the Black, or Papuan, *i.e.* frizzly-haired, population—includes Papua, or New Guinea, the longest island in the world, and all that continuous insular reach south of the equator, from New Ireland to New Caledonia. Micronesia comprises the Pelew islands, the Carolines, the Marianne, or Ladrone, and the Tarawa, or Kingsmill groups. Polynesia Proper, extending eastward from Tarawa to Waiho, or Easter Isle, inclusive, and from Hawaii north to New Zealand south of the equator, comprehends the whole of the intermediate island-world, with the exception perhaps of the Fiji group. Micronesia, or the Pelew-Tarawa region is covered by the brown race, and Melanesia is the area of the black race, and there is the intermediate and ambiguous Fiji islands. Among the inhabitants of Polynesia Proper of the ethnographical legislators, a similarity of race, language, religion, customs, and government, sufficiently attest identity of origin. Ethnologists indeed regard it as clearly established, that the Polynesian Proper are sprung from the Malay family. This bold and enterprising pirate-people, issuing from Sumatra, their primitive settlement, founded Singhapura, A.D. 1160, and about a century afterwards, Malacca. The first arrival of hindoos in the Indian Archipelago, if we may trust Javanese annals, occurred about A.D. 1278. The Malay exodus from the same insular region to Polynesia is conjectured to have taken place "after the hindoo influence began to prevail there, and before the arrival of the mahomedan traders and settlers from Arabia. The presence of the Black or Papuan element in the various islands of Polynesia is explicable on the hypothesis that the Indian Archipelago and Malay Peninsula were primitively inhabited by a dark race, exterminated or absorbed by a brown race of Indians, connected perhaps with the wooly-haired tribes still said to exist " in the mountain range which traverses the eastern side of the Indo-Chinese peninsula." In support of this, or a not dissimilar hypothesis, Professor Latham refers us to a proximately black variety among the existing populations of Protonesia the Malaccan Peninsula and Indian Archipelago, from whose inferior social position and restriction to the interior and more impracticable parts of the island, he concludes that the Protonesian Blacks are the descendants of the older occupants. The population of all the islands of the Pacific, continental group is presumed to date from Oceanian migration, which has been laid down in the following order—Malayan, Protonesian, Papuan, Polynesian. A well- known writer classes the inhabitants of the Archipelago into two great races, totally different in their physical aspect and in their moral character. He says:— ' in the Malay we have the full extent of the Polynesian race (extending from Marianna to Easter Island and from Hawaii to new Zealand) with no greater variety in the Malay language than is to be met with in European languages derived from the same source. The second race are distinguished by the usual Ethiopian features, and occupy New Holland, New Guinea, New Caledonia, and the Fiji. The physical conformation of the Papuan, and particularly the squareness of the head, distinguishes him from the African negro, and authorises the supposition of his being indigenous to these countries.' The writer here quoted assumes the correctness of the proposition ' that one island has supplied another with population based upon the principle of contiguity,' and deduces therefrom that Torres Straits, being the narrowest portion of the ocean which separates Australia from New Guinea, constitutes a reason for deriving the Australian source from the Papuans. It is difficult to define the extent of early occupancy, and to determine where this migration ceased on the continent, since there are physical evidences, as well as other indications of a strong character, which denote that Tasmania and Australia consisted formerly of an undivided terra firma. The Papuan race are clearly either from the Moluccas or an adjoining island, where the negro characteristics are shown to have been more strongly developed than those to be met with around the continent of New Holland; and although the island of New Guinea, from its situation and importance, has enjoyed the advantages of certain civilising influences at a comparatively early period, it has nevertheless retained the strongest features of its settlement throughout a varied intermixture. In the natives of New Guinea we have almost generally the woolly head, sometimes frizzled, and occasionally in pipelike knots, the thick lips and squat noses, which indicate their negro connection, while their colour ranges from the sallow hue of the Sandwich to the dark copper of the Bornese.

The face is suggestive of the Mongol type, being square and angular; and in many parts of the island of New Guinea the obliquity of vision common to the Chinese is apparent. Recent investigations would seem to denote also that they are frequently distinguished by a Jewish cast of features ; so that, instead of their presenting indications of a pure nation, as well as the distinctive type of a great race, there is abundant evidence to the contrary. Coming in all probability from one of the small western islands in the route from the north-west or the Moluccas (originally peopled from the Philippines), the Papuan race are found to spread over a large area, and extend round the Caroline islands. Blaksland states that the geographical boundary of the Papuan is coincident with the north-west monsoon, which is the present one, extending from the equator to 10° or 15° north latitude, and in longitude from Sumatra to the Fiji islands, from which circumstance and their ignorance in navigation the inference is that they have travelled from the west into the Pacific only so far as the prevailing winds allowed. Beyond the Fiji the brown Polynesian race or some intermediate type extends over the Pacific. The descriptions of these latter, agree exactly with the characters of the brown indigenes of Gilolo and Ceram.

Polynesia presents the first appearance of isolation, in the languages of New Guinea, Australia, &c. *i. e.*, the Negrito tongues. The philological evidence of their being akin, either to the Malay or Tamil languages, is at present indefinite and inconclusive. In the Polynesian Islands alone, real dialects of a common tongue do exist, but there the number of words common to such dialects and to the languages of the Archipelago, is so trifling that it refutes at once the notion of a common origin. In Malay, the most familiar words for the head, the shoulder, the face, a limb, a hair or pile, brother, house, elephant, the sun, the day, to speak and to talk, are all Sanskrit. In Javanese, Sanskrit furnishes words for the head, the shoulders, the throat, the hand, the face, father, brother, son, daughter, woman, house, buffalo, elephant, with synonymes for the hog and dog, the sun, the moon, the sea, and a mountain. In the language of Bali, the name for the sun in most familiar use is Sanskrit, and a word of the same language is the only one in use for the numeral ten. It is on the same principle that Mr. Crawfurd accounts for the existence of a similar class of Malayan words in the Tagala of the Philippine although the whole number of Malayan words does not exceed one-fiftieth part of the language. Head, brain, hand, finger, elbow, hair, feather, child, sea, moon, rain, to speak, to die, to give, to love, are examples. Some personal pronouns are found in the Polynesian dialects, where, in a vocabulary of five thousand words a hundred Malayan terms do not exist. A sentence of Malay can be constructed without the assistance of Javanese words, or of Javanese without the help of Malay words. These two languages can be written or spoken without the least difficulty, without a word of Sanskrit or Arabic. The Malay and Javanese, although a large proportion of their words be in common, are distinct languages, and their Sanskrit and Arabic elements are extrinsic and unessential. When this test is applied to the Polynesian languages we find an opposite result. A sentence in the Maori and Tahitan can be written in words common to both, and without the help of one word of the Malayan which they contain, just as a sentence of Welsh or Irish can be constructed without the help of Latin, although of this language they contain, at least, as large a proportion of words as the Maori or Tahitan do of Malayan.

Wilhelm von Humboldt is supposed to have established the connexion between the Polynesian languages and the Malay or the language of Malacca, Java and Sumatra, and that this Malay language itself bears the character of the non-Iranian branch of the Japhetic family. Whether the Papua languages, spoken in Australia and New Guinea and by the aborigines of Borneo, of the Peninsula of Malacca and of some small Polynesian islands, be a primitive type of the same stock as the Malay which afterwards in many parts superceded it, is a point that must remain uncertain until we receive a Papua grammar. Asia (with the exception of China and Tibet), the whole of Europe and probably of America and the Polynesian islands (at least in their secondary stock) seem to belong to one great original family, divided into the Iranian and Turanian branches, Bunsen calls this definitively the Japhetic race. In many parts we know that the Turanian race has preceded the Iranian : its language certainly represents an anterior step or preceding degree of development. In some parts we find that the Turanian race succeeded to a still older native element. By the method of examining languages through their grammatic forms rather than by separate words Frederich Schlegel showed the intimate historical connexion between the Sanscrit, the Persian, the Greek, the Roman, and the Germanic languages. In the Polynesian Islands alone, real dialects of a common tongue do exist, but there the number of words common to such dialects, and to the languages of the Archipelago, is so trifling that it refutes at once the notion of a common origin.

Amongst the Indian flora are many temperate genera and species which are common to N. America west of the Rocky mountains, besides many tropical species that are also Malayan and west Polynesian. Polynesians affix a sacred character to a species of the banyan, called by them the ava tree.—*Wal-*

lace, ii, *p.* 227; *Westminster Review*, *No.* xlii, *April* 1862, *pp.* 304-306.

POLYODON a genus of fishes of the order Cheiroptera as under—

ORDER II.—Chondrostei.

Fam. I.—Acipenseridæ.

Acipenser ruthenus, *L.*, Black Sea, Caspian, Sea of Azof, Arctic.
glaber, *Fitz.*, Black Sea, Sea of Azof, Russia, N. W. America.
brandtii, *Gthr.*, Black and Caspian Seas.
huso, *L.*, Black Sea, Sea of Azof.
sinensis, *Gray*, China.
stellatus, *Pall.*, Black Sea, Sea of Azof.
guldenstadtii, *Brdt. & R.*, Rivers of Russian Empire.
sturis, *L.*, Mediterranean, W. and N. Europe. N. America.

Fam. II.—Polyodontidæ.

Polyodon folium, *Lacep.*, Mississippi, Yang tse kiang.
gladius. *Martens*, Yang tse kiang.

POLYPE, a class of animals one kind of which produce coral. They are so called because this class of the animal kingdom lives in masses, formed by an aggregation of individuals, called a polypedom; and, in which, there is a central habitation called a polypary, common to all the individuals and where there exists in some respects a community of vitality. The polypary is the stem or central axis and it is covered with a skin or membrane partly gelatinous partly calcareous. It is the coral of commerce. The polypes that make corals are chiefly Anthipathes glaberrima, Madrepora corymbosa; M. pocillifera; Gorgonia tuberculata, two species of Astrea, Leiopathes glaberrima and L. Lamarckii. The brain coral is called Meandrina. The walls formed by polypi are always perpendicular. When still alive in the sea, the rough surface is seen dotted with red spots, which are the polype or coral insects and a minute examination detects thousands of them, each inhabiting permanently a little cell of its own. Many of the polype or coral insects have a little parasol shaped cover for the head; the arms are furnished with eight claws, are long compared with the body and are generally seen extended as if reaching for food. Some of the kinds of coral resemble gigantic plants with flowers and leaves. Some grow like a tree with leafless branches, and others spread out fan-like, into broad flat surfaces.

POLYPHEMA JACA, LOUR. Syn. of Artocarpus integrifolius.

POLYPI also Polypiaria, see Polype.

POLYPLECTRON EMPHANUM, see Pavo japonensis.

POLYPLECTRON TIBETANUM, see Pavo japonensis.

POLYPODIUM a genus of plants of the order polypodiaceæ. The species are

excavatum, *Roxb.*, Molluccas.
glabrum, *Roxb.*, Bengal.
horsfieldii, *R. Br.*, Penang.
lucidum, *Roxb.*, Nepal.
mucronatum, *Roxb.*, Sylhet.
pertusum, *Roxb.*, Soonderbuns.
phyllitidis, *Linn.*, Chittagong.
proliferum, *Roxb.*, Nepal.
semisagittatum, *Roxb.*, Soonderbuns.
sophoroides, *Roxb.*, Molluccas.
tenerum, *Roxb.*, Sylhet.
tridactylum, *Wall.*, Khassya.
wallichii, *R. Br.*,—— ?

A large terrestrial Reed fern with hollow stems like a reed, is often used by the natives of Tenasserim instead of quills for pens. In Calcutta, the hindoos boil the young tops of a Polypodium with their shrimp curries.—*Mason*; *Hooker*.

POLYPODIUM GIGANTEUM. A tree fern is very rare but is occasionally seen in the southern provinces of Tenasserim resembling a small palm. Griffith found the same species in Assam. The natives have but one name for both the cycas and tree fern.—*Mason.* See Ferns.

POLYPODIUM PERTUSUM, Pitted polypod. In Tenasserim, this fern is often found in company with the preceding species; and may be easily recognized by its creeping habit, and by the margins of the upper parts of its fronds being rolled together when in fructification.—*Mason.*

POLYPODIUM PROLIFERUM, is the only species of fern that the Soane valley presents at one season of the year. The rocks are then elegantly fringed with it.—*Hooker*, *Him. Jour.*, *Vol.* i, *p.* 50.

POLYPODIUM QUERCIFOLIUM, Oak-leaved polypod. In some parts of the forests of Tenasserim the trunks of almost every ten tree have a great abundance of this large speci of polypod growing upon them. The barr fronds are cordate, and stemless; but t fertile ones stand on long slightly winged stem and are gashed like the leaves of an Engli oak.—*Mason.* See Ferns.

POLYPODIUM SEKOUR, grows on th lower range of the hills, near Jowalla mukke Its dried roots are white, resembling slices pears.—*Dr. Honigberger*, *p.* 330.

POLYPODIUM TAXIFOLIUM.

Wellipanna kelangu, MAL. | Kadehou maa, SA

Rheede says that the leaves of this plan reduced to powder, and taken with honey, a powerful emmenagogues, and bring on abortion He therefore adds, Mulieres, ergo, cavete vobi —*Hort. Mal.*, *par.* 12, *p.* 25; *in Ainsli Mat. Med.*, *p.* 134.

POLYPODIUM VULGARE, *Bisfay.* Th common fern; it is officinal at Lahore, whether i is brought from the hills. The Hakims use it t purge away the black bile in melancholy also i flatulent colic. They think it injurious to the liver. The root is brought to Ajmere from Arabia viâ Bombay: considered heating and given in flatulence and indigestion; not considered poisonous in any quantity: one seer costs four rupees.—*Dr. Honigberger*, *p.* 330; *Irvine*.

POLYPORUS, a genus of fungi causing dry rot. Some grow to a very large size, as, for instance, Polyporus fomentarius, on poplars near Iskardo, exceeding in dimensions anything which this species exhibits in Europe.

POLYPORUS ANTHELMINTICUS.

Chu-tan,	CHIN.	Thau-mo,	BURM.
Wa-mo,	BURM.		

This fungus grows in China, on bamboo. It is about the size of a pullet's egg, it is used as an anthelmintic.—*Smith*, *p.* 175.

POLYPORUS FRAXINEUS, see Polyporus meladerma.

POLYPORUS DESTRUCTOR, see Dry rot.

POLYPORUS FOMENTARIUS, see Fungi.

POLYPORUS IGNIARIUS.

Chi,	CHIN.	Ling-chi-ts'au,	CHIN.

Many sorts of fungi having some degree of luminosity in the dark, occur in China.—*Smith*.

POLYPORUS MELADERMA, *Sect.* Apus, (*Fries' Syst.*, *p.* 359.)—Its size is remarkable; although not unprecedented, P. squamosus has been met with in Scotland with a circumference of 7 feet 5 inches, and weighing 34 lbs. avoirdupois; and P. fraxineus has been met with in England measuring the enormous size of 42 inches across: the same dimensions in the Assam species being 35 inches.

POLYSPORA AXILLARIS grows in the same situations, with the Enkianthus reticulatus. This plant is very highly prized by the Chinese. It flowers in February and March, about the time of their new year, and men bring the branches down from the hills in great quantities for the decoration of their houses. The flowers are unexpanded when they are gathered, but by being placed in water, they very soon bloom in the houses, and they remain for more than a fortnight as fresh and beautiful as if they had been taken up with their roots in the most careful manner. Even the more beautiful amongst the native orchids are only found at a considerable elevation. The tops of the highest hills are covered in the summer and autumn months with the purple Arundina sinensis and the yellow Spathoglottis Fortuni. The fir (Pinus sinensis) is common all along the coast of China; Cunninghamia sinensis is rare in Hong-kong, although frequently met with on the mainland; the tallow tree is also indigenous, but no use is made of its fruit. Many kinds of the fig tribe are common, and one, the Ficus nitida, a kind of banyan, sometimes forms a very ornamental tree.—*Fortune's Wanderings*, *pp.* 21-2.

POLYTHEISM. There seem to be three sources from which the ancient Polytheists drew their numerous objects of worship. First, the sun, moon and stars, or host of heaven as they are called by the Hebrew writers, were worshipped by men in the rudest state of society; secondly, the visible works of the Almighty, as reason advanced, gave them an allegorical god of the sea, god of fire, goddess of love; and lastly, in some few cases, the conqueror and law-maker, the scourge and friend of mankind, have been raised to that rank. On the banks of the Nile it was easier, said the Greeks, to find a god than a man. It is not easy to understand the feelings which gave rise to their worship of the cats, dogs, crocodiles, ibises, serpents, and the rest. In some cases perhaps it was the usefulness of the animal, and in some cases its strangeness. Thus the dog and jackal devoured the carcases which, if left to rot in the streets, might bring disease upon the inhabitants.

In a recent number of 'The Fortnightly Review,' we have a remarkably interesting sketch of the different phases of religious belief in Berar. The writer justly supposes the superstitious and ceremonial rites which obtain in that province, situated as it is in the very heart of India, will afford a fair sample of hinduism as a whole. Although it is true that in certain parts of the country certain forms of worship are more prevalent than in others, as for instance Saivism and Demonolatry characterize the southern portion of the peninsula rather than the northern, yet in the whole country from the Himalaya to Cape Comorin, there is scarcely a district of any extent where each phase of worship has not its representatives. Frequently indeed, the same individual represents in his own practice a philosophic system of worship together with a Fetich cultus, which we might conceive could exist only among the lowest tribes of savages: Thus, in the Madras presidency, tbe Smarta brahman who professes an electic Pantheism, will be certain in almost every instance to be a worshipper of the mystic fossils known in Sanskrit as the Salagram and Banam. These small stones he most jealously guards, and devoutly adores. They have probably been handed down as heir-looms, and have been the household gods of his family for generations, or he has perhaps purchased them but recently for some extravagant sum from a wandering devotee who has brought them from the valley of the Nerbudda. Mr. Lyall gives the following classification of forms of worship existing side by side in Berar :—

> The worship of mere stocks and stones and of local configurations, grotesque or unusual.

The worship of things inanimate which are gifted with mysterious motion.
The worship of animals which are feared.
The worship of visible things animate or inanimate, which are directly or indirectly useful and profitable, or which possess any incomprehensible function or property.
The worship of a *Deo*, or spirit, a thing without form, haunting solitary places.
The worship of dead relatives and other deceased persons.
The worship of famous persons at shrines.
The worship of the same as demi-gods or subordinate deities.
The worship of local incarnations
The worship of departmental deities
The worship of the ancient incarnations.

It would be no difficult matter to find instances of each and all of these varied forms of worship within almost any circle of five miles radius in the south of the Madras Presidency. Under the first head, we should find everywhere prevailing the fetich worship of the Salagram and Banam. Under the second head we should first find river worship. In the Tanjore and Trichinopoly districts for instance, certain days are set apart for the special worship of the river Kaveri as a goddess, and offerings of flowers and fruits are thrown into the stream. Under the same head comes the worship of the heavenly bodies, more especially to the sun, 'which rejoiceth as a giant to run his course.' Trees with their branches waving in response to the winds, and soughing mysteriously, are everywhere feared or worshipped. The sacred fig tree is associated with snake worship and adored by barren women, who hope thereby to become fruitful; the tamarind and the utiya are feared as the haunts of devils; while the Tulasi and the Bilva are sacred respectively to Vishnu and Siva. The animal most widely worshipped in the south next to the snake is the monkey. It is allowed to levy black mail with impunity in every bazaar, while whole troops are attached to all large temples, and are daily fed by pious hindoos. The worship of this animal doubtless originated in a superstitious dread of its grotesque resemblance to man—but strange to say, it is now, like the deadly cobra, very generally regarded as a benefactor or bestower of boons, and many a hindoo makes it his patron deity and invokes it on all occasions of danger or difficulty. In the next class we may place the worship of the cow, and the fetich worship of tools. In the Tamil country, one day is especially set apart for the latter worship which is known as Ayuta Puja. The dread of the solitary which leads the superstitious to feel the glen, the forest and the wilderness haunted, and which gives to darkness its horrors, is common to all men; but it seems to reign supreme in India. The small heap of stones on the wide plain, the hanging chain on the weird-looking tree, the rags floating from the bush are signs well known to the hindoo traveller causing him to hasten onwards muttering the charm which on so many previous occasions he has found efficacious. The ghosts of the recently deceased are also much dreaded, even by the highest castes. Brahmins indeed never allow their sick to die within the house, but when they are in articulo mortis, they are carried forth to die in the open air. The spirit of the deceased would otherwise, it is supposed, haunt the house and work harm to the inmates. After every funeral, offerings are paid to the manes. A house in which a suicide or murder has been committed is shut up, and is often allowed to go to ruin, no one being found hardy enongh to occupy it from fear of the perturbed spirit. One of the demons most widely feared in the south is the supposed manes of a general of the king of Madura, who in his life time, was noted for his prowess, but who is said to have met with a violent death. There are many villages in the Tanjore, Trichinopoly and Madura districts where shrines are erected to his memory. In Tinnevelly an English officer who was killed in 1809 has been canonized, and yearly offerings of arrack and cigars are made at his shrine.

Legends are everywhere plentiful of "the gods having come down in the likeness of men." In many places living men are looked upon as the deity incarnate, and receive divine honours. Till a few months ago, in 1872, a man was worshipped as an incarnation of Siva at the brahmin town of Triviar in the Tanjore district. He wandered about perfectly naked, and without any ostensible means of livelihood. The oldest inhabitant declared that he had not changed in any way during the last sixty years. He was reputed to be at least two hundred years old, and it was thought would never die. He went by the name of Al Kondan or the God-possessed, and there were many superstitious stories afloat of judgment which had overtaken tahsildars and other officials who had vainly endeavoured to seize and punish him [illegible] an offender against public decency. A shrine is now erected over his grave, he has been admitted to the highest honours in the local pantheon, and rumour states that he will soon rise again to life. The god worshipped [illegible] Trichinopoly under the name of Mathabhut or Tayumanaver, *i. e.*, he who became a mother, is also a supposed incarnation of Siva who appeared in the form of a mother to aid [illegible] solitary woman overtaken by the pains [illegible] labour. The temple erected to this incarnation on the Trichinopoly rock is one [illegible] the most noteworthy edifices in south India. Of departmental deities, perhaps the most generally adored in the south are Ammai, the goddess of small pox, Laksmi who is supposed to grant offspring, Kama or Manmatha, the hindoo cupid, Ganesa, the god of learning and of thieves, and Saraswati, the goddess of eloquence.

In many popular observances, the ancient incarnations and personifications of the hindoo scriptures are commemorated and reverenced. Thus, during thunderstorms, the pious avert the threatening bolt by muttering over the names of the hero Arjuna and invoking his aid. Draupadi the wife of the five Pandava is especially honoured, many shrines being erected to her memory. The anniversaries of the birthdays of Rama and of Krishna are yearly festivals, nearly every incident of their history is in like manner commemorated. Their names are constantly on the lips of the people; a hindoo does not sneeze without immediately afterwards repeating 'Krishna, Krishna!' and whenever he has a few moments leisure he profitably employs it by muttering over the sacred name of Rama. Mr. Lyall remarks, that the beliefs of the people are the reflections of their political and social history throughout many generations, and it is not unreasonable to suppose that as English rule has introduced method, law and order where before were only anarchy, lawlessness, insecurity, and precarious exposure to the caprice of despots, the people will come to have juster notions of what should be the attributes of deity, and they will be less ready to excuse follies, inconsistencies and injustice in their gods, which they would no longer tolerate in an earthly magistrate.

POMACEÆ, *Juss.*, the apple tribe of plants form a tribe of Rosaceæ in the system of De Candolle, but by many botanists they are separated into a distinct family. They mostly inhabit the north temperate zone and the great mountainous range of India. They are chiefly remarkable for their edible fruit when cultivated, abounding in saccharine matter with a pleasant acidity. In a wild state, they are austere or astringent and acid. By distillation of the seeds of some of the Pomaceæ a very little Hydrocyanic acid is obtained. A wild apple, which bears a small austere fruit like the Siberian crab was found in the Bhootea country in East Nepal.—*Royle*; *Hooker's Him. Journ.*, *Vol.* i, *p.* 205. See Eriobotrya japonica, Loquat, Pyrus cydonia.

POMACENTUS. The gaudiest fish live among the coral reefs, the species of the Chetodon, the Balistinæ and Glyphosodon. A Pomacentrus is of the richest azure blue: the Glyphitdodon and Theropon are striped and banded.—*Colld.*

POMATORHINUS, a genus of birds of the sub-family Timalinæ. The E. Indian species are

P. ferruginosus. *Blyth.*, S. E. Himalaya, Nepal, Sikkim.
P. schisticeps, *Hodgs.*, Nepal to Arakan.
P. ruficollis, *Hodgs.*, S.E. Himalaya, Khassya.
P. leucogaster, *Gould.*, N. W. Himalaya to Tenasserim.
P. horsfieldii, *Sykes*, Hills of S. India.
P. erythrogenys, *Gould*, Himalaya.
P. hypoleucus, *Blyth*, Arakan.
P. mclellandi, *Jerdon*, Khassya.
P. isidorei, *Lesson*, N. Guinea.
P. borneensis, *Cab.*, Borneo.
P. musicus, *Swinhoe*, China.
P. stridulus, *Swinhoe*, China.
P. melanura? *Jerdon*.

POMEGRANATE, Punica granatum.

Rana ruman,	AR.	Anaar,	PERS.
Ngan-shih-liu,	CHIN.	Rumaas,	PORT.
Grenades,	FR.	Dadima,	SANS.
Granatapfel,	GER.	Delunghidie,	SINGH.
Anaar; darim,	GUZ., HIND.	Granadas,	SP.
Granati,	IT.	Madalum palam,	TAM.
Gangsalan,	JAV.	Dadima pandu,	TEL.
Dalima,	MALAY.	Nar,	TURK.

This shrub is common in the warmer parts of the temperate zone. Pomegranates when ripe, are about the size of an orange, are covered with a hard, light brown rind, and contain a reddish, seedy, juicy pulp. The rind of the pomegranate is exported from Bombay to England, where it is used in medicine. In China, dried pomegranates are said to be used for dyeing yellow; the rind is also a tanning substance. The pomegranate is grown throughout southern Asia. In Kandahar, the fruit grows of large size, beautiful red colour, and of great lusciousness. There are six or seven sorts; those of Jelalabad are famous, the husk of the fruit, which is very acrid, and is used in dyeing, and in medicine an astringent: the root bark has similar properties. Dried pomegranates are said to be used in Tunis for dyeing yellow; the rind is also a tanning substance.

Pomegranate peel.

Shih-lui-pi, CHIN.

Used in China as an astringent.

Pomegranate seeds.

Anardana, HIND.

Used in India medicinally.

POMERANZEN, GER., RUS. Citrus aurantium, *Linn.*

POMERANEZU, RUS. . Orange.

POMERANZEN, GER. Orange.

POMME-SPINEUSE, FR. Thorn apple.

POMPHRET, Stromateus argenteus.

Vowal meen,	TAM.	Hulva mahie,	DUK.

The pomfret fish is much valued by Europeans in India. In the Straits Settlements as well as at Madras, S. argenteus, *Bloch.*, is denominated the "white pomfret." In abundance and excellence it vies with S. sinensis. At Penang this species is as abundant as the preceding, but probably from its inferior size it is considered somewhat inferior in quality. At the Sandheads it occurs rarely. The various pomfrets, are much valued by Europeans. Stromateus niger, the black pomfret, is taken abundantly along the coasts of India, and is largely dried for export to the interior. S. sinensis is, par excellence, the "white pomfret" of the Straits Settlements and Madras, and "pample blanche" of Pondicherry. It is justly renowned for its flavour, but it requires to be used when freshly taken. In the Straits and on the Coromandel Coast it is abundant at all seasons. At the Sandheads in the Bay of Bengal, (21° N. L.) it occurs, but less numerously. Dr. Russell considered it very inferior to the "black" or Stromateus niger, *Bloch.* It is very abundant on the Tavoy coast, and in a smooth sea may be seen deep in the water in great numbers, but they are very shy of the hook. They are considered one of the best fish for the table.—*Russell, p.* 34; *Mason*; *Ains. Mat. Med., p.* 155.

POMLI, Tam. Woman.

POMME SPINEUSE, Fr. Thorn-apple.

POMPONIUS MELA, who wrote De Situ Orbis, states that in the furthest east of Asia are the Indians, Seres, and Scythians. The Indians and Scythians occupy the two extremities, the Seres are in the middle.—*Yule Cathay, Vol.* ii, *p.* 153.

POMPOON, a river near Neema Nowada near Futwah, in the Patna district.

PON, see Swastika.

PO-NA, or Banu, the Fa-la-na of Hwen Thsang.

PONAM TAGERA, Maleal. Cassia sophora, *Linn.*

PONANY, a river in Coimbatore, lat. 10° 19′, long. 77° 6′ N. W. W., flows into Indian Ocean, length, 128 m. Navigable for canoes as far as Palghat, 63 m. from the sea.

PONASO, Uria? Ganjam and Gumsur, the common jack tree, Artocarpus integrifolia. —*Captain Macdonald.*

PONASSA, also Tamidalu, Tel. See Natchenny.

PONA-VERI, Tam. Cassia sophora, *Linn.*

PONATOO, Tam., Singh. The germinating seeds of the palmyra, are boiled and eaten in Ceylon as a vegetable.

PONCHA, Hind. Ankle ornaments for children.

PONDA, Hind. Saccharum violaceum.

PONDICHERRY, on the Coromandel Coast, the chief town of the French possessions in India, and residence of the Governor General, is in lat. 11° 56′ N., long. 79° 54′ E. Pondicherry was founded by Mantin in 1674, and afterwards became the seat of the French Government in India, but it afterwards fell in 1760, and with it the dominions of the French in India. Pondicherry was taken by Colonel Coote on the 14th January 1760, after a prolonged defence. All its defences were razed to the ground. Pondicherry was captured on the 15th January 1776. The area of the French establishments in India comprises 50,950 hectares divided as follows: Pondicherry 29,122; Karical 13,515; Mahe 5,909; Yanoun 1,439; Chandernagore 940, and the eight plots of ground belonging to the French at Masulipatam, Calicut, Surat, Balasore, Dacca, Cassambazar, Joogdi and Patna comprise twenty-five hectares. According to statistical tables drawn up in 1868, the land under cultivation amounts to 35,716 hectares. The land which though capable of cultivation but which is still untouched amounted to 15,234, while ten thousand hectares are reckoned to be unfitted for cultivation. Pondicherry consists of three districts, that of Pondicherry is composed of the town and eleven villages, that of Villanoor having forty-five villages and that of Bahour, thirty-six. The most important streams that run through the territory of Pondicherry are Gingy which is fed by the Arincoupom and the Chonnambar rivers and the other is the Ponnear. Karical is divided into five districts, viz., Karical, Tirnoular, Nellajandour, Nedouncaudo and Kotchery. They comprise one hundred and seven villages. Within the French territories nine new canals and fifty tanks, some of which are very large, have been constructed within the last few years.

PONDIGUL SLATE, a dark black monumental marble, is procurable in any quantity at the village of Pondigul, distant from Masulipatam about 70 miles, and from Hyderabad about 90 miles, situated on the Guntoor side of the river Kistnah, and in the Guntoor district. Slabs from 5½ feet by 3 feet and from 2 inches thick are to be had at but little cost and labour, and there are good bandy roads in most directions, but the cheaper and more feasible mode of conveyance would be, on flat-bottomed boats or rafts down the Kistnah to Masulipatam, from whence it could be shipped to all parts.—*Mr. J. S. Stricke, Kimedy,* 9*th August* 1850.

PONERIDÆ, *Smith.*, a family of insects of the order hymenoptera, comprising the genera

odontomachus, *Latr.*
typhlopode, *Westw.*
myrmica, *Latr.*
ponera, *Latr.*
crematogaster, *Lund.*
pseudomyrma, *Gure.*
atta, *St. Farg.*
pheidole, *Westw.*
meranoplus, *Smith.*
cataulacus, *Smith.*

In the genus Ponera the neuters and females are armed with a sting. The peduncle of the abdomen is formed of a single knot; antennæ in these individuals thickened at the tip; mandibles triangular; head subtriangular.

Dr. Jerdon has described :—

P. sculpta.	P. rufipes.
P. stenocheilos.	P. pumila.
P. affinis.	P. processionalis.

—*Jerdon.*

PONG, see Maha radza weng.

PONG, TAM., MALEAL. Pongamia glabra, it grows to about eighteen inches in diameter, and twenty feet in height, and spreads its branches to a great extent. The native carpenters prefer this very heavy and remarkably strong wood. for the knees of vessels, and also for general uses where strength is required. The trunk of the tree is applied to the uses of the block-maker, for shivers, blocks, &c.—*Edye's Mal. and Can.*

PONGA of Rheede, MAL.? Pongamia glabra.

PONGA, —— ? Dalbergia frondosa.

PONGAH, TAM.? A Travancore wood of a brown colour, specific gravity 0·988. Used for building houses.—*Colonel Frith.*

PONGAL, the 1st day of the Tamil year, a Tamil feast day of the 12th January when the sun enters Capricorn, the greatest of the unsectarian festivals of the hindoos. The Pongal is nothing else but the pagan feast for the birth of Mithras. The last presents the allegory of the regeneration of the sun; and that of Pongal is for the return of this planet. The renewal of the solar year has been always celebrated with great solemnity among all nations. Mr. Garrett in his Classical Dictionary says the Pongal is the greatest of the unsectarian festivals of the hindoos. It is celebrated at their astronomical new year when the sun enters Capricorn about the 11th January, and lasts three days; during which the hindoos employ themselves in mutual visits and compliments, something in the same manner as the Europeans do on the first day of the year. The feast of the Pongal is a season of rejoicing for two special reasons. The first is, that the month of Magha, *i. e.*, December—January, every day in which is unlucky, is now over; and the other, that it is succeeded by a month, each day of which is lucky. For the purpose of averting the evil effect of the baleful month of Magha, about four o'clock in the morning, a sort of Sannyasi, *i. e.*, penitents, go from door to door of every house, beating on a plate of iron or copper which produces a piercing sound. All who sleep, being thus roused, are counselled to take wise precautions, and to guard against the evil presages of the month, by expiatory offerings, and sacrifices to Siva, who presides over it. With this view, every morning, the women scour a space of about two feet square before the door of the house, upon which they draw several white lines with flowers; and upon these they place several little balls of cowdung, sticking in each a citron blossom. These little balls are probably designed to represent Vighnesvara, the remover of obstacles whom they desire to propitiate with the flower. Each day these little lumps of cowdung, with their flowers, are picked up and preserved in a private place, till the last day of the month Magha; and when that comes, the women, who are alone charged with this ceremony, put the whole in a basket, and march from the house, with musical instruments before them, clapping their hands, till they reach some waste place where they dispose of the relics. Then, with the first day of the new month begins the festival, the first day of which is called the Bhogi Pongal, *i. e.*, Indra's Pongal, and it is kept by inviting the near relations to an entertainment, which passes off with hilarity and mirth. The second day is called Surya Pongal, *i. e.*, Pongal of the sun, because it is set apart in honour of the sun. Married women, after purifying themselves by bathing, which they perform by plunging into the water without taking off their clothes, and coming out all wet, set about boiling rice with milk, in the open air, and not under any cover; and when it begins to simmer, they make a loud cry, all at once, repeating the words, Pongal ! Pongal ! The vessel is then lifted off the fire, and set before the idol of Vighnesvara, which is placed close by, and after having been offered to the image, part of the rice is given to the cow; and the remainder distributed among the people. This is the great day of visits among the hindoos. The salutation begins with the question, "has the milk boiled?" to which the answer is, "it has boiled;" and from this festival takes its name "Pongal," *i. e.*, "boiling." The third day is called the Pongal of cows. On it they mix in a great vessel filled with water, some saffron, cotton seeds, and leaves of the margosa tree; and then going several times round all the cows and oxen belonging to the house, they sprinkle them with the water, as they turn to the four cardinal points; and make the Hashtanga, or prostration of the eight members, before them four times. This ceremony is performed by the men only. Next the cows are all dressed out, their horns being painted with various colours, and garlands of flowers and foliage put round their necks and over their backs. They likewise add strings of cocoanuts and other fruits, which are soon shaken off by the brisk motion of the animals, which these trappings occasion, and are picked up by children and others, who follow the cattle on purpose, and greedily eat what they gather, as something sacred. The cattle then, being driven in herds through the villages, and made to scamper about from side to side by the jarring noise of many sounding instruments, are, during the remainder of the day, allowed to feed at large without a keeper; and whatever trespass they commit are suffered to pass without notice or restraint. At the conclusion of the festival they take the idols from the temples, and carry them in pomp to the place where the cattle have been collected. The singing girls of the temple, named Devadasi, who are found ceremonies are also not wanting here.

No particular god presides upon the occasion, although nominally the feast is in honour of Indra through whose means the paddy grew, and ripened till it become fit for food. On the eve of the celebration of the festival houses are cleaned, broken roofs are repaired, the rude external decorations of the walls are painted afresh, and the sacred signs of the Vishnuvites are carefully picked out above the threshold. The potter plies his wheel incessantly, for every hindoo house must be furnished with new utensils. The rice-man is busy with cadjan and style, buying up new grain from needy cultivators, for in every house new rice only may be used. Parents, who, during the past year, have given a daughter in marriage, and seen her settled in her new house, send her large quantities of grain, fruits, and household stuffs, that the Pongol may be kept without touching the small capital of the young couple. Though the feast professedly extends over seven days, the first four only are of importance. The first is termed Bhogi Pongol, or Indra Pongol, that is the Pongol of Indra and joy, *i. e.*, "may Indra, the lord of sky and of rain, give us joy." In the spirit of such words the day is devoted to visiting and hospitality. The second is the great day of the feast, and is called the great Pongol, and the Pongol of the sun. In explaining the details of the ceremonies of this day, it may be well to remember that the word Pongol signifies "boiling." The deity, invoked is the sun, but practically Pulliar Swami or the Belly God is master of the ceremonies. A square of ground in the yard of the house is consecrated with cow-dung, and a ball of the same holy material is set up to represent the deity, and to him incense is burned and invocations are offered. But the grand consecrating power of the scene resides in the new cooking pots and their contents. New rice must be used, and it is mixed with milk, sugar, green gram, and other niceties for the palate. The process of cooking is watched with great interest, and when the snowy froth rises to the surface, the house resounds with the cry "Pongol, O! Pongol, it boils, it boils." This operation must be performed in the open air, and is a thank-offering to the sun, by whose power the grain has grown and ripened for the use of of men. This rice is then presented to the cow-dung deity, a portion of it is given to the cows of the family, and then the feast begins, and friends and relatives and servants take part in the festive proceedings. In the evening in their best attire the people proceed on a round of calls. They salute one another with the grave inquiry "has it boiled?" and receive the answer, "it is boiled?" Chat and music follow, every form of hindoo amusement is put in requisition, and the festivity is often prolonged far into the night. The third day is called Madu Pongol or the Pongol of cattle. These animals, so useful in the agriculture of the East, are treated to a gala day. They are washed and rubbed down; their horns are gilded or painted; garlands of fruits and flowers are suspended from their necks; incense, prayers and handsful of Pongol rice are presented to them. They are then loosed from their stall and are driven forth with drums and horn, and are allowed at will to wander over pasture or plain; and after a time they are driven home to the drudgery of another year. The fourth day is called Cunnoo Pongol, or Pongol of calves. On this day all that was done to the cows and bullocks on the previous day falls to the lot of the calves.—*Sonnerat's Voyage, p.* 143; *Madras Newspaper quoting Garrett's Classical Dictionary*; *Abbe Dubois.*

PONGAMIA, a genus of plants, mostly trees, of the order Fabaceæ, section Dalbergieæ: the following East Indian species are known:

glabra, *Vent.*, British India, Burmah.
marginata, *Grah.*, Khassya.
uliginosa, *DC.*, Pen. India, Pen. Malacca, Beng.
sericea, *Vent.*, Java.
heterocarpa, *Wall.*, Burmah.
atropurpurea, *Wall.*, Burmah.
ovalifolia, *W. & A.*, Peninsula of India.
elliptica, *Wight's Ic.*

PONGAMIA ATROPURPUREA, *Wall.*

Dark-purple pongamia.

This very large tree is very common about Moulmain, abundant in Tenasserim provinces, and, though vastly inferior to a multitude of others, Wallich thought it of sufficient beauty, to give it a place among his splendid engravings of rare Indian plants. Flower a beautiful purple.—*Mason*; *Malcom's Travels in South Eastern Asia, Vol.* i, *p.* 191.

PONGAMIA GLABRA, *Vent, W. & A., Ic.*

Galedupa indica, *Roxb.*, *Rh.*
Dolichos arborea, *Roxb.*
Robinia mitis, *Linn.*
Dalbergia arborea, *Willde*, *Rheede.*

Kurinja, Karung,	Beng.	Sook-chain,	Panj.
Tha-won,	Burm.	Karanj-bara,	„
Kanuga, Kongay,	Can.	Karanja	Sans.
Smooth leaved pongamia,		Naktamala,	„
Rara,	Kangra.	Mogul karanda,	Singh.
Papree, paphri	Kumaon.	Pongam, Punga,	Tam.
Kurunj,	Mahr.	Kanuga,	Tel.
Pongam,	Maleal.	Kranuga, Kaggera,	„

This graceful tree grows all over India and in the two peninsulas, attaining a height of 40 to 50 feet. It grows in Kumaon in swamps and low lands. In good soil it attains a large size, and has beautifully varnished green leaves all the year round. It is very common in southern India, generally on the banks of streams but also flourishing equally well in the arid plains of the Carnatic and on the sub-alpine tracts of Mysore. It is common on the Bombay side, in forests chiefly, near and under the ghats, and will generally be found skirting streams, its wood is white and firm and is used by the natives. In Ganjam and Gumsur, its extreme height is 36 feet, circumference 4½ feet, and height from the ground to the intersection of the first branch 22 feet. The tree is very common there, but seems to be used only for firewood. It is excellent for avenues; the oil extracted from the fruit is used medicinally for itch and other cutaneous diseases and is also employed as lamp oil. In Coimbatore, the wood is said to be only fit for fuel, though Dr. Roxburgh states that it is light and white and serves for a variety of purposes. Dr. Gibson thinks it may be of some use for household purposes. The boughs and leaves are extensively used as a strong manure, for sugar-cane especially. The bitter oil is much used on the Bombay side in the manufacture of native felt, and has great curative powers in itch and mange. The seeds yield an oil called Karanj oil, which solidifies at 55°. This oil is of a pale brownish colour, has a slight smell, which becomes more evident in the darker coloured samples than in the pale sherry coloured. The seed is bean-shaped, and produced in a flat pod: the pods grow several together. The flower is pink and white of the shape of a bean-flower or blossom. The oil is used for burning in native lamps and in large quantities for boiling with dammer to soften it for the seams and bottom of ships. It is also often used by native practitioners for the cure of itch. A maund of seeds costs 1 Rupee 8 annas, and the extraction of the oil by heat costs 8 annas: the oil produced amounts to 6¾ seers per maund. —*Drs. Wight, Voigt, Gibson and Cleghorn*; *Simmond's Com. Prod.*; *Captain Macdonald*; *Mr. Latham*; *Captain Beddome, p.* 23; *M. E. J. R.*; *Mr. Thompson*; *Powell's Hand-book, Vol.* i, *p.* 343.

PONGAMIA, *Species*, *Brandis*.

Thinwin, BURM.

Not uncommon in the dry forests, in the plains, and on the hills of British Burmah. The heart wood, which is black and tough but rather small, is used there for the cross pieces of arrows, the teeth being made of Sha (Acacia catechu), Myoukkhyau, (Blackwellia tomentosa), and Gyo (Schleichera trijuga). A cubic foot weighs 60 lbs. In a full grown tree on good soil the average length of the trunk to the first branch is 20 feet and average girth measured at 6 feet from the ground is 6 feet. It sells at 12 annas per cubic foot.—*Dr. Brandis*; *Cal. Cat. Ex.*, 1862.

PONGAMIA, *Species*, *Brandis*.

Thit-pa-gan, BURM.

A soft wood of British Burmah, said to be useless. In a full-grown tree on good soil the average length of the trunk to the first branch is 40 feet and average girth measured at 6 feet from the ground is 9 feet. It sells at 4 annas per cubic foot.—*Dr. Brandis*; *Cal. Cat. Ex.*, 1862.

PONGANA, or Minari—? Pongamia glabra.

PONGELION—? Ailanthus malabaricus.

PONGHU, TAM. ?? In Travancore, a wood of a brown colour; specific gravity 0·960, 3 feet in circumference, used for building.—*Col. Frith.*

PONGHUJ, BENG. Nelumbium speciosum, *Willd.*

PONGKANATU WANLOO. TEL. Barber.

PONGO——? See Simiadæ.

PONGOLAM, MALEAL. Putranjiva roxburghii, *Wall.*

PONI, TAM. Felis catus, the Cat.

PONI-AMMA, one of the Amman gods of S. India, meaning gold-mother.

PONIKA, TEL. Saccharum munja, *R.*

PONNA, MALEAL., TEL. Calophyllum inophyllum, *Linn.*

PONNAGAM, MALEAL. Rottlera tinctoria, *Roxb.*

PONNAGANTI KURA, TEL. Alternanthera sessilis, *R. Br.*—Achyranthes triandra, *R.* i, 678—*W. Ic.* 727—*Rheede*, x, 11.

PONNA MARM, MALEAL., and Pune marm, TAM. Calophyllum inophyllum.

PONNAM, in Malabar. See Kumari.

PONNAM-TAGERA. Cassia sophora.

PONNANG COTE, TAM. Sapindus emarginatus.

PONNA PU, TEL. Calophyllum inophyllum.

PONNE TREE OIL, ANGLO-TAM. Oil of Pongamia glabra.

PONNU, TAM. Gold.

PONNUKU, TEL. Gyrocarpus asiaticus, *Willde.*

PON-PADRIA MARAM, TAM. Bignonia chelonoides.

PONPATHERA, TAM. In Tinnevelly, wood of a whitey brown colour; specific gravity 0·683. Used for building purposes.—*Col. Frith.*

PON-PO, see Swastika.

PONPOSO KOMAREE, URIA? A tree in Ganjam and Gumsur, extreme height 30 feet, circumference 2 feet, and height from the ground to the intersection of the first branch, 8 feet.—*Captain Macdonald.*

PONT, Punt, CHIN. A linear measure,

the tenth part of the covid, equal to nearly 1½ inch.—*Simmond's Dict.*

PONTA LETSHI, Maleal. Syn. of Lawsonia alba, *Lam.*

PONTEDERA, a genus of the Pontederaceæ.

PONTEDERA DILATATA. This large species is found in the neighbourhood of Rangoon, and may exist in the Tenasserim provinces.—*Mason.*

PONTEDERA VAGINALIS, *Linn.*, *Roxb.*

Nouka,	Beng.	Niru kancha,	Tel.
Karim gala,	Maleal.	Niru kacha,	„

This perennial plant grows in moist places in Bengal and peninsular India. It is used in medicine. The margins of many wild jungle streams in Tenasserim, are pimpled with this small species of the pontedera,

> “A bonnie wee flower a'wild in the wuds,
> Like a wee twinkling star high up in the cluds,
> Which opens its cups sealed up in the dew,
> And spreads out its leaves of a beautiful blue.”—
> —*Mason.*

PONTONIA, see Palemonidæ.

PONTOPHILUS, a genus of shrimps. the Egeon, of *Risso.*

PONTUS and Cappadocia in Asia Minor: their original inhabitants were the Lud or Ludi, as far as the Halys, where the historical Lydians were seated. The Lud or Ludi were a Semitic race. See Lud or Ludi.

PONUKU GADDI, Tel. Thyridstachyum perforatum, *Nees.*—Rottbollia per. *R.* i, 356, *Cor.* 182.

PONUKU, or Kummara ponuku, Tel. Gyrocarpus asiaticus, *Wild.*—G. jacquini, *B.* 678. *R.* i, 445; *Cor.*

PONWAR, Hind. Cassia occidentalis and C. tora.

POOAH, or Poee, fibre, is the Kienki, of the Lepchi: and the Yenki by the Lomboo. It is the Boehmeria frutescens, grows to the height of six or eight feet: and the fibre when properly dressed, is quite equal to the best flax of Europe, being used for fishing nets, game bags, twine and ropes, is considered well adapted for making cloth and canvas, has great strength and endures wet well. Occurs near Simla. Pooah fibre, or Pooah hemp is called “Pooah” also by the Parbuttia. It is not cultivated, but grows wild and abundantly in the valleys throughout the mountains of Eastern Nepal and Sikkim, at the foot of the hills striking the tarai to the elevation of 1,000 or 1,200 feet and within the mountains up to 3,000 feet. Dr. Falconer recognised this plant, as common from Gurhwal to the Sikkim hills; from the Ganges to Burrampooter. In the outer hills of Gurhwal Kumaon it is called Poee. It does not grow in the forest but is chiefly found in open clear places, and in some situations overruns the abandoned fields of the hill people, within the elevations which suit it. It sheds its leaves in the winter; throws them out in April and May; and flowers and seeds in August and September. The exact period altering of necessity with the elevation.—*Royle, p.* 368; *Simmonds' Dict.* See Boehmeria, Fibrous Plants.

POODEENA, Hind. Mentha verticulata, M. viridis. Mint.

POO-ARASOO, Can. Thespesia populnea, *Lam.*

POOCHAY-COTTA-MARAM, Tam. Sapindus emarginatus.

POODALUM, Tam. Trichosanthes anguina.

POODOOCOTTA, a small independent chieftainship, in the Madura collectorate, its chief being styled the Rajah Tondaman-Bahadoor. See Jalicut.

POODINA, Beng., Hind. Mint, Mentha viridis.

POODY VAGA, Tam.? A Travancore wood of a brown colour, specific gravity 0·400, 4 to 10 feet in circumference, 40 feet long; strong, never splits; used by wheelwrights.—*Colon Frith.*

POOG, Beng., Hind. Artocarpus integrifolia? also Areca catechu.

POOI, Beng., Hind., also Pooin-shak or Pootika, Beng. Basella cordifolia.

POOJA WIPOO, a ceremony celebrated with splendour in Trevandrum. Coomarasamy (the son of Siva), who was kept at Cooma Coil near Puttmanabapuram, is brought t Trevandrum for the celebration of the Dassa feast. It costs the Sirkar 3,000 fanam annually in cash exclusive of his travelli expenses. The god is supposed to recei these 3,000 fanams, in consideration of t difficult task he has to perform in crossi the three great rivers, Neyour of Neya tencuray, Tambrapoorni of Cooliteray, and t Caramanayaur of Trevandrum. This dei having lost caste, because he married a g of the Coorava caste by name Vulley, a one of the Parava caste by name Thaivayana is not allowed entrance inside Padhmanab swamy pagoda, but is made to reside in a p goda outside the fort near Chalay called Ar Chalay. After the close of the ceremony, t the celebration of which his presence is invit the god receives the fee of three thousa fanams, and is taken back to his pagoda Padhmanabapuram, escorted by a company the Nair brigade, a good number of pago girls, the tahsildar, and some petty officia and is not disturbed till the next feast. Dan ing girls, belonging to many of the pagodas South Travancore, also grace the occasion wi their agreeable presence and remarkable dan ing, creating during their short stay of te days, a great deal of disturbance by their im moral and obscene conduct, and thereby giving a good deal of trouble to the Police authorities. On the day that this ceremony closes. His Highness the Maharaja proceeds in his royal car to Poojeperah.

POOJA, Sans. Worship. From pooja, to honour or serve.

POOJAKA, Sans. A worshipper.

POOLA, Hind? Phyllanthus multiflorus, also Bombax malabarica.

POOLCHI PALLAM, Tam. Antidesma acida, *Linn.*

POOLEE-YAREELAH—? Oxalis corniculata.

POOLEJ, see Khiraj.

POOLIARAY —— ? Oxalis corniculata.

POOLI, Tam. Tamarind. Tamarindus indica.

POOL-I-SIRAT, Pers., the bridge between Heaven and Hell.

POOLOOC-ODIAL, Singh. A name in Ceylon for the young shoots of the palmyrah palm boiled, when eaten raw, they are termed odial; but are also called Kelingoo or roots. —*Simmond's Dict.*

POOLYETTY, Tam.? A Travancore wood of a black colour, specific gravity 0·858, 2 to 8 feet in circumference; a strong wood used for furniture.—*Colonel Frith.*

POOLYMUNGU, Tam., of Madras. Hibiscus cannabinus, *Linn.*, *Roxb.*, *W. & A.*

POOMPLEMOOS, Malay. Citrus decumana, *Linn.*, *W. & A.*, *Roxb.* The Shaddock.

POON or Peon, Malay., a commercial term, derived from the Malay language but applied to the timber of several distinct trees, used for masts and spars. The Calysaocion angustifolia, which grows in Canara and Sunda, in ravines of the ghauts and below in sheltered valleys—is used for "Poon" spars, and ought to be conserved everywhere and largely increased. Another of the supposed Poon spar trees, is the Calophyllum inophyllum, *Linn.*, *Roxb.*; a beautiful tree, which grows in the western part of Ceylon, where it is employed for the masts and cross sticks of Yettra dhonies and fishing boats and poles of bullock carts. A cubic foot of it, there, weighs 40 lbs. Dr. Wight says, that this tree is rare in Coimbatore, and that the wood is coarse-grained, but very strong and durable, and on the coast is used in ship-building. In the alpine forests, it attains a great size and furnishes the poon spars so valuable for shipping; but, so far as he could learn, there are two or three species of Calophyllum used for the same purpose under the general name of poon. It grows well in sandy tracts close to the sea, where few others thrive. Drs. Gibson and Cleghorn are of opinion that the Poon spars of commerce, are obtained from the Calophyllum angustifolium, and their decision is of great weight. Dr. Gibson's words are, that to the best of his knowledge, Poon spars are furnished by Calophyllum angustifolium, which is a magnificent tree in the ravines of the southern ghauts. Major Drury who long resided in Travancore, does not in his "Useful plants," name the Calophyllum inophyllum (Ponna, Maleal and Tel.: Pinnay, Tam.,) as furnishing any of the Poon spars of commerce, but he adds that one kind of East Indian Tacamahaca is produced by Calophyllum inophyllum, though C. calaba and C. tacamahaca also furnish other kinds of Tacamahaca wood. Also, in 1850, in the proceedings of the Madras Central Committee, for the Exhibition of 1851, the Poon of commerce was supposed by Dr. Wight to be from the Dillenia pentagyna, "Rowadan," Tel., a large timber tree, a native of the Northern Circars; which flowers in March and April. The similarity of native names between this and Calophyllum inophyllum led Dr. Wight to suspect that some mistake had arisen. He observes that the wood of Dillenia pentagyna is said to be exceedingly strong and very durable, even when buried under ground, and, it is a stately forest tree, common on the face of the W. ghauts. Dr. Wight was, at that time, satisfied that D. pentagyna is the tree which furnishes the Poon spars, being a tall, and Calophyllum inophyllum a short, stunted, tree. At the Madras Exhibition of 1855, Dr. Cleghorn in the Jury Reports, noticing Sterculia fœtida, Pinari maram, Tam., Guruppu badam chettu, Tel., as a large tree in Mysore and on the western coast of the peninsula, adds that it is one of the trees believed to furnish the smaller Poon spars, and Major Drury, in Useful Plants, repeats that it furnished some of the masts known as Poon spars. Until botanical inquirers who visit the forests finally determine the trees which furnish all the Poon woods of commerce, it would be useless to pursue the subject further, here. The tendency of the evidence, therefore, is to establish Calophyllum angustifolia, C. inophyllum, Calysaccion angustifolia, Dillenia pentagyna and Sterculia fœtida, as trees which produce Poon woods of commerce. The Bintangor wood of Penang, Malacca and Singapore, seems, also, to be the Calophyllum angustifolia, and, Dr. Cleghorn, in his forest reports seems to have no doubt that C. angustifolia, produces the Poon of Coorg, Mysore and Canara, where, he says, the trees are becoming very scarce, and the timber is consequently more valuable than teak. He enjoins their strictest conservation. In a special report on Poon spars, Dr. Cleghorn mentions that these are supplied entirely from Canara and Coorg. He tells us that in the ghats of Coorg and Malabar, the best timber has been cut away and the wood contractor is felling in more remote localities.

Teak, blackwood and Poon spars are every year becoming more scarce in accessible localities. There may, however, have arisen some of all this doubt, from several trees having similar Tamil and Malealum names. Thus, Poongum maram, TAM. Poongana, MALEAL, is the Pongamia glabra. Ponna, is the MALEAL, Pinnay maram, TAM.? Poonnay maram, TAM., of Calophyllum inophyllum. Pinnari, TAM., Sterculia fœtida, and Pinnay maram, TAM., Dillenia pentagyna.

Poon wood, as imported from the East Indies, into Britain, very nearly resembles a dull coloured and greyish specimen of mahogany, and would be useful for any purpose to which such kind of mahogany is applicable; besides having a greater degree of strength and stiffness compared with its weight. The Poon-wood, or Peon-wood of Singapore is of a light porous texture, and light greyish cedar colour; it is there used in ship building for planks and make excellent spars. Dr. Roxburgh says, Calophyllum angustifolium, is a native of Penang and of countries eastward of the Bay of Bengal, and yields the straight spars commonly called Poon, which in those countries are used for the masts of ships. Tredgold says its texture is porous, but uniform; and the mean weight of a cubic foot in the dry state is 405 lbs. The cohesive force of Poon is from 10,000 to 14,700 lbs. per square inch, the mean weight of the modulus of elasticity for bars of an inch square is 1,689,800 lbs. The specific gravity, and the relative strength, stiffness, and resilient power compared with Riga fir, as 1,000, from Mr. Fincham's experiments are, as under :—

Specific gravity.	Strength	Stiffness.	Resilience.	
579	1380	1270	1400	Barlow.
647	1226	1230	1146	Fincham.
613	1303	1250	1273	Mean of both.

From whence it appears that it is superior to Riga fir in the properties required for mast wood. Colonel Frith noticing a Poon in Travancore, says it is of a brown colour, specific gravity 0·623, 2 to 4 feet in circumference and 80 feet long and there used for masts. Poon is used for the decks, masts and yards of ships, and it appears to be well adapted for these purposes, both by its strength and lightness.

Mr. Edye, writing on the Poon spars generally, says that the light-red peon from the forests of Coromandel and Mysore, which can be procured at the port of Mangalore, on the Malabar coast, is considered the best of the growth of India, for the general purposes of lower masts, top-masts, and yards. The poon masts, as to strength, compared with Riga, &c., spars for masts, are superior to any; the weight of those of the proper sort is about the same as Riga fir, and their durability is very great; a set of lower masts would probably last for fifteen or twenty years. Mr. Edye, while in Canara, Malabar and Ceylon, thus described the following kinds of Poon, viz. :—

Cheru-puna in Tamil and Malayala, which is the small-leaf peon. Cheru in Tamil means bastard. This wood is the real mast peon, which is preferred for the masts of ships or vessels, Peon, or Puna, he says, consists of five sorts, all of which are similar in shape and growth; (*a*) the largest sort is of a light bright colour, and may be had at Mangalore, from the forests of Corumcul, in Canara, where it grows to a length of one hundred and fifty feet. At Mangalore, he procured a tree of this sort that would have made a foremast for the Leander, sixty gun ship, in one piece, for the sum of 1,300 rupees, or 149£ sterling. Poon, he adds, grows in the forests of Cochin and Travancore, but it is of a very inferior quality to that before stated; (*b*) one sort is named the Karapa puna, which is dark peon: (*c*) another, Mallai puna, meaning the hill peon; and another sort, (*d*) the Vallai puna, or the white peon, this sort is small, not more than twelve or eighteen inches in diameter, and eighteen or twenty feet long. In Canara, another sort, (*e*) named Merchie puna, grows to twenty-eight inches, or three feet in diameter, and from thirty to fifty feet long; and is much like the American birch. It is generally defective and not durable, consequently it is never brought from the hills, for, when felled, it opens and splits at the top and butt for many feet in length. The weight of the peon may be said to be from forty to forty-eight pounds the cubic foot; but the lightest he had met with was thirty-four and three-quarters, and the heaviest fifty pounds, the cubic foot, when dry. The leaf of this tree is small and oval, about two by one and a half inches broad, and the fruit grows in bunches, it is about the size of coffee-berries; from this the natives extract oil, which is used for various native purposes. (*Note*—Cheru means bastard.)

Puna, in Ceylon, is, he adds, the wood commonly called Peon in England. It is used for masts, yards, &c. This is the wood so much spoken of by persons from Ceylon, and it certainly is of a good quality, and superior to that of Malabar: but, from its small dimensions, its scarcity, and the trouble in obtaining it, is of little consideration. The largest said to have been found was eighteen inches in diameter, and sixty feet in height; but the largest Edye could discover was not more than nine inches in diameter, and thirty-five feet high. In quality it is much the same as the first sort in Malabar, which may be obtained at Mangalore from the native merchants at all the times when the coast is open (viz. from November to April) of three feet in diameter, and one hundred and ten feet long, for the sum of 150£ sterling.

Vellie puna, a Malabar and Canara tree, known in Malabar as the white or kat puna. It grows to about eighteen inches in diameter and eighteen feet high; and is used by the native carpenters for the frames of vessels. It grows curved, and is not durable. It is not found in any quantity in the forests.

Vellai puna pinu, the Tamil name of a Malabar and Canara tree, which is the white peon pinu: it can be obtained on all parts of the coast of Malabar. It grows to seventy and eighty feet long, and two to three feet in diameter; the natives use it for the masts and yards of dowes and country vessels. It is more like the American white pine, and the upright yellow wood at the Cape of Good Hope (Antinaquatis), than any wood he had seen.

Puna balle in Tamil, and Punga marum in Malayala, is a beautiful tree and of much value; it grows to about two and a half feet in diameter, and from ten to fifteen feet long, spreading its branches, to a great extent, and into curves of various dimensions, which are valuable for native uses, particularly in building country vessels. It produces a fruit from which oil is extracted, and is used for lamps, &c. The Arabs prefer this oil to any other to mix with chunam, for the purpose of covering the bottoms of their vessels to preserve them from worms; it is also used for the purpose of curing rheumatic pains, by being applied warm with friction.—*Edye, Forests of Malabar and Canara, and Timbers of Ceylon*; *Major Drury's Useful Plants*; *Mr. Mendis, Drs. Roxburgh, Wight, Voigt, Gibson, and Cleghorn*; *Tredgold*; *Colonel Frith*; *Mr. Rohde's MSS.* See Poreal paini.

POONA, a river of Shahabad in Kotah.

POONA, a large town and military cantonment in the Bombay presidency, above the ghauts and about seventy miles East from Bombay. The provinces of Aurungabad and Beejapore, are arranged into two portions termed the Poona and the Southern districts, the latter with its head quarters at Belgaum; but to each of these two divisions there is likewise allotted the command of the immediately adjoining portions of the level land in the Concan. The Poona division is similar to that of Belgaum in the distribution of its force; of the soldiers in the command nearly the whole of them are in the province of Aurungabad from 1,700 to 2,300 feet above the level of the sea. Poona is about 1,750 feet above the sea, the annual fall of rain is 20 inches, the mean temperature is from 55° to 96°, and the rock is greenstone, and greenstone amygdaloid. One of the finest views of the city of Poona and the surrounding country is to be obtained from the fort of Parbuttali, once a Mahratta stronghold, now a hindoo temple. The approach leads through a shady avenue of tamarind, mango, and cocoanut trees, to a small lake with an island, clothed with fruit-trees to the very margin of the calm and glassy water, in which are reflected the broad leaves of the plantain and palm, festooned with a woodbine-like creeper. This place, until the year 1817, was the city in which the Peshwas of the Mahrattas resided. A battle was fought there between the British and the Peshwa on the 16th November 1817, and the city was taken on the 19th November. See Hindoo, India, Kali, Kunbi, Mahratta, Nameshwar, Purundhur, Peshwa, Reddi, Satti. Tripati.

POONAC, Tam., a name for the cake left after expressing the oil from the cocoanut pulp, It is used as a manure, and for feeding stock. —*Simmond's Dict.*

POONAG, in Bombay, the female plant of Calysaccion longifolium, *Roxb.*, *W.*

POONAG also Poonaga, Beng., Sansc. Alpinia nutans.

POONAHLITE, a mineral occurring crystallised in long slender crystals. Primary form a right rhombic prism. Fracture uneven, colourless. Hardness 5·0 to 5·5. Transparent, translucent. Lustre vitreous. Found in Poonah in the East Indies. The following is an analysis by Gmelin in 100 parts.

Silica	45·120	Soda, with trace of potash	00·657
Alumina	30·446	Water	13·386
Lime	10·197		

—*Eng Cyc.*

POONATA, Singh. See Palmyra wood; Porcupine wood.

POONAY-KALLI, Tam. Mucuna prurita.

POONAY-OIL, or Poon-seed-oil, a bitter lampoil, obtained from the seeds of Calophyllum inophyllum, which yield about 60 per cent. of their weight of oil. It is also called Pinnay-cottay-oil.—*Simmond's Dict.*

POONCANDAY-MARAM, Tam.?

POONEER, Tam. A very light white coloured earthy matter containing a great proportion of carbonate of soda, and from which, as well as from the Over Munnoo, soda is prepared. Pooneer is employed in making glass, in dyeing blue and scarlet and also by the chucklers in dyeing leather red.—*Ains. Mat. Med.*, *p.* 192.

POONGA or KURUNJ OIL.

Kurunj ka tel,	Hind.	Kanoogoo noona,	Tel.
Poonga yennai,	Tam.		

This oil, which in some parts of the country is used to a large extent in adulterating lamp oil, is expressed from the seeds of Dalbergia arborea or Pongamia glabra, common in most parts of the Madras Presidency. In North Arcot, Bellary, and the Nuggur Division of Mysore, the oil is procurable at Rs. 2-8-0 per maund. It is chiefly used as a lamp oil by the poorer classes.—*M. E. J. R.*

POONGGEE, HIND., a musical instrument. Of this there are two varieties, one made of leather and sometimes accompanies the kunchnee-ka-taefa; the other of pumpkin, usually played upon by jugglers and snake-dancers, &c.

POONGUM-MARAM, TAM. Pongamia glabra.

POONGYEE, BURM., a buddhist monk of Burmah,

POONKEE, TEL. Gyrocarpus jacquini, grows in the Godavery forests, has a wood soft and light, much used for making cowrie boxes and toys, takes paint and varnish well. Tella poonkee, the Givotea rottleriformis, is used also for the same purposes.—*Captain Beddome.*

POONNACOO KEERA, TAM. Melochia corchorifolia.—*Linn.*

POON-NAG, also Poon-naga, BENG., HIND. Rottlera tinctoria.

POONNAG-CHAMPA, BENG. Alpinia nutans.

POONNAY, TAM. In Tinnevelly, a wood of a deep straw colour, used for building purposes.—*Colonel Frith.*

POON-OOZ, see Kush or Cush.

POON-SEED OIL, Oil of Calophyllum inophyllum.—*Linn.*

POONTUREKA, BENG., HIND. Nelumbium speciosum.

POONAM, TAM. The full moon, amongst hindoos a holiday. The poonum, or last day of the month Cartica, is the Macara sancranti, or autumnal equinox, when the sun enters the zodiacal sign Macara, or Pisces. On this day the rana of Mewar and chiefs proceed in state to the Chougan, and play at ball on horseback. The entire last half of the month Cartica, from Amavus (the ides) to the Poonum, is sacred to Vishnu; who is declared by the Puranas to represent the sun, and whose worship, that of water, and the floating-lights placed thereon, —all objects emblematic of fecundity,—indicate the adoration of the powers of nature: clearly proving all mythology to be universally founded on an astronomical basis.

POONURNUBA, BENG. Boerhaavia diffusa.

POONYANI, a river of the Malabar coast. The western or Malabar ghauts extend nearly north and south from Candeish to Cape Comorin or from 21° to 8°, and form a nearly unbroken chain, except at the chasm nearly sixteen miles in breadth, which opens into the valley of Coimbatore, and through which the river Poonyani escapes into the sea.—*Royle, Ill. Him. Bot., p.* 6.

POON-YET, BURM. Calophyllum species.

POOR, HIND., (lit. full), a ceremony so called.

POORALLEE, a river of Beloochistan about 100 miles long. It rises in Jhalawan province about lat. 27° 23′, long. 66° 21′, runs southerly through Lus province into the Indian Ocean, in lat. 25° 23′, long. 66° 20′; near Sonmeanee. From the bund N. of Lyaree, the river has no bed. As it fills, during the rains, the bund is swept away, and the water inundates the plain, which is here about five miles broad.

POORANA OIL, see Oils.

POORANA or the Pooranas, are sacred books of the hindoos. Most of the Pooranas contain portions of historical as well as geographical knowledge. Every Purana treats of five subjects: the creation of the universe; its progress, and the renovation of the world; the genealogy of gods and heroes, chronology, according to a fabulous system; and heroic history, containing the achievements of demigods and heroes. Since each purana contains a cosmogony, both mythological and heroic history, the works which bear that title may not unaptly be compared to the Grecian theogonies. The Genesis of India, commences with an event described in the history of almost all nations, the deluge, which, though treated with the fancy peculiar to the orientals, is not the less entitled to attention. The essence of the extract from the Agni Pooran is this. "When ocean quitted his bounds and caused universal destruction by Brimha's command, Vaivaswata Menu (Noah), who dwelt near the Himalaya mountains, was giving water to the gods in the Kritmala river, when a small fish fell into his hand. A voice commanded him to preserve it. The fish expanded to an enormous size. Menu, with his sons and their wives, and the sages, with the seed of every living thing, entered into a vessel which was fastened to a horn on the head of the fish, and thus they were preserved." In this fable the grand northern chain is given as that to which the abode of the great patriarch of mankind approximated. In the Bhavishya it is stated, that "Vaivaswata (sun-born) Menu ruled at the mountain Soomeru. Of his seed was Cacoosta rajah, who obtained sovereignity at Ayodia and his descendants filled the land and spread over the earth. Sumeru is the term by which the hindoos designate the north pole of the earth. But they have also a mountain with this same appellation of pre-eminence of Meru, 'the hill,' with the prefix Soo, 'good, sacred,' the sacred hill. To the south of Soomeru are the mountains Himawun, Hemcoota, and Nissida; to the north are the countries Nil, Suwet, and Singie. Between Hemachil and the ocean the land is Bharatkhand, called Coocarma Bhoomi, (land of vice, opposed to Aryaverta, or land of virtue), in which the seven grand ranges are Mahendrachil, Mulliachil, Sujrachil, Sactimun, Rikyachil, Vindyachil, and Paryatra. The sacred mountain Soomeru is claimed by the brahmins as the abode of Mahadeva, Adiswar, or Baghes; by the Jains, as the abode of Adinat'h, the first Jiniswara, or Jain lord. Here they say he taught mankind the arts of agriculture and civilized life. The Greeks claimed it as the abode of Bacchus; and hence the Grecian fable of this god being taken from the thigh of Jupiter, confounding meros (thigh) with the meru (hill) of this Indian deity. In this vicinity the followers of Alexander had their Saturnalia, drank to excess of the wine from its indigenous vines, and bound their brows with ivy (vela), sacred to the Baghes of the east and west, whose votaries alike indulge in strong drink. These traditions appear to point to one spot, and to one individual, in the early history of mankind, when the hindoo and the Greek approach a common focus; for there is little doubt that Adinath, Adiswara, Osiris, Baghes, Bacchus, Menu, Mines, designate the patriarch of mankind, Noah. The hindoos can at this time give only a very general idea of the site of Meru; but they appear to localise it in a space of which Bamian, Cabul, and Ghizni, would be the exterior points. The former of the cities is known to possess remains of the religion of Budha, in its caves and colossal statues. The Paropamisan Alexandria is near Bamian; but the Meru and Nyssa of Alexander are placed more to the eastward by the Greek writers, and according to the cautious Arrian between the Cophas and Indus. Authority localizes it between Peshâwur and Jellalabad.—*Essay on the Sanscrit and Pracrit Languages, by H. T. Colebrooke, Esq.*; *As. Res.*, *Vol.* vii, *p.* 202; *Tod's Rajasthan*, *Vol.* i, *pp.* 20-22. See Purana.

POORANA, Sans. Old.

POORANA, Sans., from pree to fill.

POORASUM, Tam. Butea frondosa.

POOREE, Sans. A house, a palace.

POOREEAN, also Pooreean kay choontee, Hind. A ceremony.

POORI, a town in Orissa.

POORNA BABA, also called Poonurbuda, a river near Singaon in Dinagepoor.

POORNA, a river of the W. Ghauts, lat. 20° 50,' long. 73° 44' W., disembogues into the Indian Ocean, length 60 miles.

POORNABHISHIKTA, Sans., from poorna, full, and abhishikta anointed.

POORNAH, a tributary to the Taptee river. It rises in lat. 21° 35', long. 77° 41' runs S., 65 miles, W., 25 miles into the Taptee, length 160 miles.

POOROHITA, Sans., from pooras to go before, and hita, good. Every brahman may perform the ceremonies of his religion. The priest, called a poorohita, is, however, called in to assist in the shraddha, the ten ceremonies called sungskaru, and in those at the offering of a temple.—*Ward's Views of the Hindoos*, *Vol.* ii, *p.* 15.

POOROO, Uria. Conocarpus latifolia, *Roxb.*

POOROOHOOTA, Sans., from pooroo, fulness, and hoo, to call.

POOROOSHA, Sans. A male, from pree, to fill or nourish.

POORSH, the standard measure of the Rajpootanah desert, is from six to seven feet, or the average height of a man, to the tip of his finger, the hand being raised vertically over the head. It is derived from poorosha, 'man.'-*Tod's Rajasthan*, *Vol.* ii, *p.* 307.

POORU or Poora, Sans., also Pur, Hind.

PUR, Poor, Pore, Sans. Ur or Oor or Ore. Tam. A town.

POORUNDURA or Poorandara, Sans., from poora, a house, and dree, to cut.

POORUSHCHARANA or Poorushcharana, Sans., from pooru, before, and charana, practice.

POORUN, a ceremony.

POORAWAT, see Baba.

POORVAVAT, Sans., from poorva, a cause, and vat.

POOSAKA, Jav. An heirloom.

POOSHEENI, or Pusini, Tel. Cucurbita maxima.

POOSHKARA SHANTEE, Sans., from pooshkara, the evil fortune attending a person who shall die when an unlucky day, an unlucky lunar day, and an evil planet all unite, and shantee, to pacify or produce peace.

POOSHPAVULEE, Sans., from pooshpa, a flower, and avulee, a row.

POOSHPU-DHANWA, Sans., from pooshpa, a flower, and dhanwa, a bow.

POOSHPAKA, Sans., from pooshp, to expand.

POOSHTEE also Pooshana, Sans., from poosh, to cherish.

POOSTPA, also Asvudum, Sans. Thespesia populnea, *Lam.* The fruit.

POOTA, Tam. Large fishmaws.

POO-TA-LA, or great temple, near Zhe-hol, in Tartary, with the town of Zhe-hol in the distance taken from a hill on the emperor's park. The smaller buildings which surround this large fabric are the habitations of the priests, or lamas, about eight hundred of which are attached to this temple.—*Baron Macartney's*, *Embassy*, *Vol.* i, *p.* 27.

POO-TOO is an island about forty miles from Chusan, inhabited solely by celibate priests, no woman resides on the island, which is covered with temples of all descriptions, many of them very handsome, but one in particular, which was built by the emperor of China. The island is not large, and is laid out like a vast garden, with squares and walks, bridges, &c.—*Marryat's Indian Archipelago, p.* 151.

POOTOOR, see Navakire.

POOTROONGIE, ? a new oil.

POOTSAKAI, Tel. Colocynth.

POOTTA-TANNIM-MARAM, Tam. Careya arborea.

POOTUNA-BADHA, Sans. Badha means to kill.

POOUNAM, Maleal. Bassia latifolia, *Willd*

POOVANDIE, Tam. Sapindus emarginatus

POOVATHOO, a substance used in dyeing.

POOVOO MARAM, Tam. Schleichera trijuga.

POOVARASA, Tam. Thespesia populnea, *Lam.*

POOVERSOO, Tam. Thespesia populnea? In Tinnevelly, wood of a red colour; specific gravity 0·860. Used for making bandies.—*Colonel Frith.*

POPAL, Hind. Saxifraga ligulata.

POPAT BUTI, Hind. Heliotropium europæum.

POPE, the title of the religious sovereign of the Romish sect of Christians. The whole number of Popes from St. Peter to Pius IX, is 257. Of these, 82 are venerated as saints, 33 having been martyred: 104 have been Romans, and 103 natives of other parts of Italy; 15 Frenchmen; 9 Greeks; 7 Germans; 5 Asiatics; 3 Africans; 3 Spaniards; 2 Dalmatians; 1 Hebrew; 1 Thracian; 1 Dutchman; 1 Portuguese; 1 Candiot; and 1 Englishman. The name most commonly borne has been John: the 23rd and last was a Neapolitan, raised to the chair in 1410. Nine Pontiffs have reigned less than 1 month, thirty less than 1 year, and eleven more than 20 years. Only five have occupied the Pontifical chair over 23 years. These are: St. Peter, who was Supreme Pastor 25 years, 2 months, 7 days; Silvester I., 23 years, 10 months, 27 days; Hadrian I., 23 years, 10 months, 17 days; Pius VI., 24 years, 8 months, 14 days; Pius IX., who celebrated his 25th year in the Pontifical chair, June 16th, 1871.

POPLAR.

Popelier,	Dut.	Pioppa,	It.
Peuplier,	Fr.	Populus,	Lat.
Pappel, Pappelhaum,	Ger.	Alamo,	Sp.

Trees, of the populus genus of plants, grow in Europe and in the colder parts of S. Asia. The Aspen, P. tremula, is found in the valley of the Yang-tsze and other parts of China. The Euphrates poplar, P. euphratica grows in the Panjab, as also does P. alba, the white poplar the Balsam-poplar or P. balsamifera, the Himalayan poplar; P. ciliata, the Italian poplar, P. nigra. See Populus.

POPLAR LEAVED FIG TREE, Eng. Ficus religiosa, *Linn., Roxb., Rh.*

POPLAR LEAVED HIBISCUS. Thespesia populnea.

POPELIER, Dut. Poplar.

POPHAM, Sir Home. A naval officer of the British Service, employed in 1802 as ambassador to the States of Arabia.

POPLAH, Duk. Physalis angulata.

POPOLZYE, an Affghan tribe, see Kufelzye.

POPPO, see Papuans.

POPPY.

The plant.

Aboo-nom,	Arab.	Post,	Hind.
Khas-khas abiaz,	„	Papaver somniferum,	Lat.
Khas-khas-aswad,	„	Bunga-pion,	Malay.
Pasto,	Beng.	Chasa chasa,	Sans.
Ying-tsze-suh,	Chin.	Apayanam,	„
Poppy, Garden poppy,	Eng.	Kasa kasa,	Tam., Tel.

The poppy is cultivated in Egypt, Central Africa, Asia Minor, Persia, in British India and in China, for its products, viz: the opium or concrete juice, its capsules or poppy heads, the seed called poppy seed, and for the poppy seed oil, but of these opium is by far the most important.

The Capsules.

Post, Hind.

In medicine they are employed for their anodyne properties, in fomentations for inflamed surfaces, and a syrup is prepared from them to allay cough, &c. In upper India an intoxicating liquor is prepared by heating the capsules of the poppy with jaggery and water.

The dried juice.

Afyun,	Ar., Hind., Malay., Pers.	Opium,	Eng.
Bein,	Burm.	Sher-i-khas-khas,	Pers.
Afim,	Dekh.	Abini.	Tam.

Opium is obtained from the poppy in Asia Minor, Egypt, Persia, S. E. of Asia and in China. It is used medicinally as a narcotic and soporific, and morphia and other drugs are prepared from it. It is also in British India taken internally as a nervine stimulant in the form of pills or in a compound called majoon; the Rajput races make a watery solution of it, called kussumbha. Colonel Tod observes that in his time a Rajput inebriated with spirituous substance was a rare sight: but a more destructive and recent vice had usurped much of the honours of the Manwar-piala or "invitatio cup," which had been degraded from the pur "flower," to an infusion of the poppy, destructive of every quality. Of this pernicious habi he uses the words which the historian o German manners applies to the tribes of th Weser and Elbe, in respect to their love o strong drink: "indulge it, and you need no employ the terror of your arms; their ow vices will subdue them." The Chinese mod of using opium is by smoking a preparation o it called Chandoo, a soft black treacle like mas In Madras there are about six opium smoking shops. The opium of British India is chiefly manufactured in Hindustan, Malwa, Berar, and Mysore, and is largely exported to China. In the year 1872–3, the revenue of British India, derived from opium was 9½ millions sterling.

In a paper by Dr. Smyttan, inspector of opium at Bombay, which was lately read before the Medical Society of Calcutta, an account is given of the varieties of East-Indian opium, and a comparison drawn between the quantity of morphia afforded by Bengal, Malwa, and Turkey opium respectively, from a series of experiments made by himself and Dr. Maxwell at Bombay and by Dr. Jameson in Calcutta, Dr. S. observes, that good Turkey opium is said to contain nearly three times the quantity of morphia found to be procurable from the product of the Bengal provinces. The best produce of the Malwa districts, he adds, differs from Bengal opium, both in appearance and quality, quite as much as the Turkey opium does, and that while the latter yielded 6½ per cent. of morphia, the Malwa afforded 6 per cent., the Bengal about half as much, but some fine specimens of Bareilly opium, no less than 8½ per cent. of morphia. Still further to the north-west than Bareilly, he made some opium at Saharunpore which in colour smell, and general appearance, resembled the Turkey, or rather Persian opium, more closely than any that he had seen. The opium cultivated in the hills, as also that in the plains of the Seikh country, is also, when unadulterated of a superior quality. Indeed if it were an object to make the best opium for the European market, there is no doubt that Malwa and the north-western provinces of India would be best suited for the experiments as the climate during the season of cultivation most nearly resembles that of the provinces where the best Persian (commonly called) opium is made.

Poppy Oil.

Khush-khash-ka tel,	HIND	Cas-cas yennai,	TAM.
Minak bunga madat,	MAL.	Gasa-gasa nuna,	TEL.

In Malwa and the opium districts, the drying oil obtained from the seed is more extensively used than any other, both in lamps and as food. At Bhopaul the oil is procurable at the rate of Rs. 4-8 per maund of 25lbs. or £40-6 per ton. By simple exposure to the rays of the sun in shallow vessels, this oil is rendered perfectly colourless. It is much prized by European artists. There are two varieties of seed white and black, (or rather blue gray color) but they yield an oil precisely similar. The seeds would yield by expression about 50 per cent. of a bland and very valuable oil, of a pale golden colour, fluid to within 10° of the freezing point of water. It dries easily, is inodorous, of agreeable flavour, and partially soluble in alcohol. The seed is worth about 61*s.* in the English market. It is expressed by means of a heavy circular stone, placed on its edge, made to revolve by a long lever, and the apparatus is worked by draught bullocks. *Mr. Bingham.*

Poppy Seed.

Kushkash.	AR.	Kuknar,	PERS.
Caysagusa,	CAN.	Chosa,	SANS.
Ying suh,	CHIN.	Abinatta,	SINGH.
Khash-khash,	HIND., PERS.	Casa casa,	TAM.
Papavero,	IT.	Gassa-gassa,	TEL.
Kes,	JAP.		

The seed has no narcotic qualities, but has a sweet taste, and is used, parched, by the lower class of natives as a food, it is also much used by the sweetmeat-makers as an addition in their wares. This and the seed of the Teel (Sesamum orientale) are the only oil seeds, with the exception of the cocoanut, which are used for that purpose. It produces, under the native method, a clear, limpid oil, which burns very quickly. About 30 per cent. of oil is generally extracted, and the cake is then sold as a food to the poorer classes. The oil sells at about 5 seers per rupee at Shahabad. The production of this seed is only limited by the production of the poppy. In Oudh each ryot sows from 2 to 4 beegahs in the month of October. The oil is extracted by the common native press. The cost of the seed is 10 seers for the rupee, and the oil sells for 3 seers for the rupee; two-fifths of the weight of the seed employed is about the proportion of oil yielded by the native process. The poppy seed is eaten by the natives made into sweetmeats, provided the opium is extracted from the seed vessel, otherwise it is bitter and narcotic, and under these circumstances the oil extracted is also bitter. The oil is used for cooking and burning." It is a bland drying oil, extensively used in the Madras presidency, and some other parts of India, than any other, both in lamps and for food.

Poppy seeds are employed in medicine for the preparation of a sedative decoction and syrup. In India they are used by the natives in sweetmeats, and by some classes of the hindoos at some of their festivals. Poppy seeds are exported from Bombay to England and France.—*Royle, Ill. Him. Bot., p.* 67; *E. J. R.*; *Powell's Hand-book, Vol.* i, *p.* 421; *Simmond's Dict.*

POPULUS ALBA, *Linn.*

Rikkan,	CHENAB, KANGRA.	Chita bagnoo,	JHELUM.
Prasti, sannan,	,,	Fras, jangli frast,	KANGRA.
Chanuni,	,,	Mal,	SUTLEJ., KANAWAR.
White poplar	ENG.	Spelda, sperda,	TR.INDUS.
Safeda, baid,	HIND.		

The white poplar is found in the Sutlej valley between Rampur and Sungnam. It grows to a considerable size in parts of the basins of the Jhelam and Chenab, and is occasional on the Sutlej, ranging from 4,000 to

8,500 feet, reaching 9,000 in Tibet. Trees of 6 and even 8 feet in girth and 50 or occasionally 70 in height are seen, but they are mostly considerably smaller than these sizes. Of thousands of specimens, Dr. Stewart had never seen one in fruit. Wild trees are often seen uprooted by the wind. The tree is also common, planted in parts at least of Affghanistan to 9,200 in Tibet, (*Thomson*), is not uncommon, planted at Peshawar, and grows at Lahore, is cultivated in Trans-Indus and in Cabul. The tree grows to a large size in Pangi, and is used for roofing in Ladakh and Lahaul. It is propagated by cuttings. The timber is white and soft, but not strong or durable, and is not valued. In Affghanistan it (with perhaps that of P. fastigiata,) is used for manufacturing the round boxes in which grapes are exported to India.—*Dr. Thomson's Travels, p.* 207 ; *Cleghorn's Report* ; *Kulloo and Kangra, p.* 64 ; *Powell's Punjab Products, Vol.* i, *p.* 385 ; *Dr. J. L. Stewart's Punjab Plants, p.* 203.

POPULUS BALSAMIFERA, *Linn.*

Yarpa, CHENAB.
Balsam poplar, ENG.
Berfa, makal, maghal, LAD.
Maal, changma, PANGI.

On the Chenab, river both Populus balsamifera, 'yarpa,' and P. nigra, are planted near villages, but in much smaller numbers than the willow. Dr. Stewart says P. balsamifera is common, planted in Lahoul at 9 to 10,000 feet, and in Ladak up to 14,000 feet, in Spiti to 12,500 feet, and probably on the Sutlej. Aitchison mentions that in Lahoul it is never cut, as it is supposed to be the abode of the dewa (deity,) and festivals are held under some of the finer specimens, which reach 50 feet in height. In Ladak they reach 60 or 70 feet, and Dr. Stewart has there noted a plank of the wood 2½ feet broad, and seen one tree of 9 feet girth.—*Dr. J. L. Stewart's Punjab, Plants, p.* 204 ; *Dr. Cleghorn's Punjab Report.*

POPULUS CILIATA, *Wall.*

Chalonwa, BEAS, SUTLEJ.
Rikkan ;Ban-frastoo, CHEN.
Flassoo ; Chanoon ; pabe „
Himalayan poplar, ENG.
Poplar, „
Pahari peepul, HIND.
Safeda, HIND.
Shawa, JHEELUM
Bagnoo ; Phalja, „
Sulali ; Dudfras, KANGRA.
Palach ; falah, PUNJAB.
Phalja, „
Chalon, tallon ; falah, RAVI.
Kramali, SUTLEJ.

This grows in the Sutlej valley between Rampur and Sungnan at an elevation of 6,000 feet. It is common wild in the Punjab Himalaya up to the Indus at from 4,000 to 10,000 feet. Occasionally reaching 10 feet in girth, and from its leaves resembling those of the pipal, Ficus religiosa, is frequently called by that name by men from the plains. The wood is soft and not valued, but is used for water troughs, and in Hazara occasionally for gunstocks. In some places the leaves are given as fodder. There is a plentiful floss round the seeds, the coma of which has at times been recommended for paper-making, &c.—*Dr. Cleghorn's Punjab Report, p.* 64 ; *Dr. J. L. Stewart's Punjab Plants, p.* 204.

POPULUS EUPHRATICA, *Oliv.*

Hodung, Hotung, LADAK.
Bhan ; Labhan, PUSHTU.
Bahan ;PUSH..SUTL.TR.-IND.
Safeda; Sperawan, „

The tree, originally discovered on the banks of the Euphrates, has been found by Griffith, and more recently by Dr. Stocks and others, to be abundant on the banks of the Indus, in Sind and Multan, also at intervals along the valley of the Indus, within the mountains, but it appears to be far from common there and to confine itself to hot sandy places. In several parts of Nubra it is common enough, but only, so far as Dr. Thomson observed, on the south side of the Shayuk. It is thus remarkable for its extended distribution. This is also remarkable for the very changeable shape of its leaves, which vary from broadly deltoid and coarsely toothed, to narrow-linear and quite entire. The leaves of the full-grown tree are generally broad and much toothed, while young plants have very narrow leaves ; the shoots of pollared plants, which are common, the tree being much used for fuel, are also narrow. The wood, being white, (and so not flesh-coloured), is preferred for constructive purposes by hindoos, and for the same reason the twigs are used by them as tooth-sticks. The wood is rarely used for boats in Sind, but is said to be largely so employed on the Euphrates, &c. It is also employed for fuel in the south (in part even for steamers, although from its lightness it is not very suitable), and in parts of Tibet where it grows, up to 10,500 feet, it furnishes much firewood. In Sind the bark is given as a vermifuge, and the liber is employed as a gun-match. The timber is good, not very hard, white or yellow, suitable for turning. The tree grows on the banks of the Indus and Chenab. The twigs are exported and sold at Lahore and elsewhere for tooth brushes. The Euphrates poplar, is common in clumps, on the Sutlej bank, but does not grow large and is generally crooked. It flowers in February, and throws up root-shoots with great rapidity. The wood is objected to for steam fuel, owing to the great emission of sparks which endanger the awning of the boat.—*Dr. Thompson's Travels in Western Himalaya and Thibet, p.* 189 ; *Dr. J. L. Stewart,* M, D. ; *Dr. Cleghorn, in Punjab Report Koolloo and Kangra* ; *Powell.*

POPULUS NIGRA, *Linn.*

var. P. pyramidalis.

Frast, prast, farsh, CHENAB.
Mokhal, Paskhu, „
Italian Poplar, ENG.
Safeda, HIND.
Chang-ma ; Yarpa ; Yulatt, LADAK.
Kabool ; Kaool, „
Kramali Biuns, SUTLEJ.

This tree is commonly planted in Kashmir, on the Chenab, at from 3,000 to 11,500 feet, and on the Sutlej and in Ladak to 13,300 feet.

It is common in Affghanistan, grows luxuriantly in Kashmir where trees with 6 to 12 feet of girth and from 90 to 100 feet high are to be seen: a spirit is distilled from the bark,—*Dr. Thompson's Travels in Western Himalaya and Thibet, p.* 207; *Dr. J. L. Stewart's Punjab Plants, pp.* 205-6.

POPULZYE, an affghan tribe. See Affghan, Durani.

POR, see Greeks of Asia.

PORACCHI, in his Isolario, published at Padua in 1570 gives an account of the inhabitants of Batech, which Sir J. E. Tennant surmises to be Batticaloa. He describes them at being constantly at war with their neighbours, eating the flesh of their prisoners, and selling their scalps at high prices.—*Tennent's Ceylon, p.* 2.

PORAL, HIND. Heracleum, *sp.*

PORCELAIN.

Tse-ki,	CHIN.	Cheni-kam,	GUZ., HIND.

A very fine species of earthenware, white, semi-transparent, and sometimes beautifully coloured and gilt. Chinese porcelain, which is of an exceedingly fine texture, has long been renowned; but British porcelain, although unable to boast of such fine specimens of costly workmanship, has risen to be a matter of great importance. Dresden has long been famous for the beauty of its porcelain productions; but the finest and most magnificent specimens of European China, have been produced at Sevres in France. Sir John Davis has condensed all the important information concerning the materials and manufacture of porcelain,—a name given by the Portuguese to the semi-transparent cups they saw on their arrival, from their resemblance to the lustrous nacre of sea-shells, or porcellana, for they supposed it to be a composition of egg-shells, fish-glue, and scales—a good instance of the off-hand descriptions travellers formerly indulged in, just as Chinese writers now describe things new to them; as, for instance, when they call caoutchouc elephant's skin.

The Kaolin or Kau-ling. *i. e.*, high ridge, the name of a hill near Jauchaufu, is obtained from the disintegrated granite in that region, and is nearly pure felspar, or such as contains no metallic substance; by slow decomposition the alkali and part of the silex is removed, and water imbibed. An analysis of the clay used in Europe, which probably does not differ materially from that employed in China, shows the constituents to be silica 43, alumine 36, water 19, and a trace of magnesia and carbonate of lime.

The petuntse, or pehtuntsz, is nearly pure quartz, and the best is of the Chinese, brought from Hwuichau in Nganhwui, but is procurable elsewhere; it is reduced to an impalpable powder by toilsome processes, and formed into cakes to sell to the manufacturers.

Steatite or soap-stone called hawh shih, is also employed, and some forms of carbonate and sulphate of lime, which are mixed in to produce an inferior article, though still among the best now manufactured; the soap-stone ware is more brittle than the other, but fine, white, and very light. The proportions of the ingredients vary according to the desired fineness of the ware.

After the paste or biscuit is thoroughly mixed and formed into the required shape, the dishes are painted by workmen, each of whom takes a single colour and a single part of the picture. The whole surface of the dish is sometimes covered with gay figures, but the most common decorations consist of heroes, statesmen, &c., in different attitudes and costumes, and sentences beautifully written referring to them and their times. Most of the inscriptions and figures seen upon mantel-piece ornaments, tea-cups, and jars, are of this nature, explaining some event in the life, or a panegyric upon the personage there represented; this affords an opportunity for persons to show their scholarship in explaining the quotation. The colours used on the fine porcelain have long been admired, and DesGuignes, who made many endeavours to procure samples of them and ascertain the mode of mixing them, has given the composition of some of the principal colours, but at present there is probably little to learn from them in this branch. After the workmen have finished the painting, the pieces are covered with a liquid mixture of alkali, obtained from burning ferns with the quartzose petuntse, after which they are baked. The best articles are surrounded with a case lined with sand in order to protect them from the flame, and as the furnaces are only about six or eight feet square, the closest attention can be paid to the condition of the ware, and the exact time ascertained for reducing the heat and opening the kiln. Some of the pieces brought from the interior are perfectly white, and the patterns are afterwards painted and fixed on them according to the fancy of the customer. The finest specimens are from the kilns of King-teh-chin in Kiangse.

Black China-ware, the Ow-mi-ew, ornamented with gold, is very much prized in China: to make this ware they mix three ounces of azure, and seven of the oil of stones; this is laid on the ware, and when perfectly dry, it is baked, after which the gold is laid on, and the vessel is re-baked.

Cracked porcelain, the To-wi-kie, China-ware is highly prized under the cognomen of cracked porcelain. It is prepared simply by varnishing the vessels with a whitish ash-coloured varnish, made from calcined transparent white pebbles; this has the property of marbling and veining the ware, and giving it an appearance as if it had been fractured into many pieces, which had been carefully reunited.

Chinese red colour, used in the porcelain painting, is made from Taow-fau, or copperas; their mode of preparation is by putting a pound of copperas into a crucible, over which another crucible is luted, having a small hole in it, which is lightly covered over: around these they pile charcoal, and enclose the whole within bricks when they fire the charcoal, and as soon as the fumes, issuing from the aperture in the crucible, become of a light colour, a small quantity of the copperas is taken therefrom, laid upon fir-wood, and moistened with water; if the colour then prove to be a bright red, they remove the fire, if not, they allow the copperas to remain subjected to the heat until it assumes that colour, and then remove the fire. When the crucibles are cool, a cake is found in the lower one, but the finest colour is entrusted on its sides and on the bottom of the upper crucible, which is kept separate from the cake; the pound of copperas produces about four ounces of colour.

Chinese white colour also used in painting porcelain, is made from calcined transparent flint, to an ounce of the powder of which they add an equal quantity of white lead.

Chinese green a beautiful colour is prepared with one part of powdered calcined flint, two parts of white lead, and six parts of the scales of well hammered copper.

Chinese violet is produced by adding an additional quantity of the prepared white to the green.

Chinese yellow is made by combining equal portions of prepared white and red. All these various colours are used by the China-ware painters, having been previously dissolved in gum-water, to which they occasionally add saltpetre, copperas, or white lead. The colours are laid on after the first baking and varnishing of the China ware, but the beauty and depth of the colouring is imperceptible until after the second taking.—*Williams' Middle Kingdom, Vol.* ii. *pp.* 116-117. See Pottery.

PORCELAIN CLAY; Porcelain earths.

Kao-lin, Chin.

Porcelain clay occurs a few miles to the north of Mangalore, associated with laterite. See Clay, Kaolin.

PORCELAINS, Fr. Cowries. See Cypræidæ.

PORCELAIN SHELLS, see Cypræidæ.

PORCELAIN TOWER OF NANKING, is now nothing more than a ruined heap of broken bricks and pieces of mouldings, and ornamental tiles of bright colours.—*Frere's Antipodes*, *p.* 278.

PORCELLANEN, Ger., the Cowry shell. Cypræidæ.

PORCINE DEER, of Pennant. Hyelaphus porcinus. *Sundev.*

PORCUPINE, of Europe, Asia and Africa, is a name given to several species of the genera Hystrix, Atherura, and in America of genera of the group Cercolabinæ or Philodendreæ more or less arboreal. In British India, the species are known as the Indian porcupine, the Bengal porcupine, the crestless porcupine, and the Malay porcupine: the crested porcupine belongs to Europe and the African porcupine is the H. Africæ-australis, *Peters*. Of Ceylon porcupines, Dr. Kelaart is quite certain of Hystrix leucura, *Sykes*, (H. Kirautirostris). Mr. Blyth compared it with Waterhouse's description, and it quite corresponds; so that H. zeylonensis makes a second species of the genus in Ceylon. He terms it H. etava. In Ceylon it is destructive to the young cocoanut palms, to which it is a pernicious and persevering, but withal so crafty, a visitor, that it is with difficulty any trap can be so disguised, or any bait made so alluring, as to lead to its capture. The usual expedient in Ceylon is to place some of its favourite food at the extremity of a trench, so narrow as to prevent the porcupine turning, whilst the direction of his quills effectually bars his retreat backwards. On a newly planted cocoanut tope, at Hang-welle, within a few miles of Colombo, Sir J.E. Tennent had heard of as many as twenty-seven being thus captured in a single night; but such success is rare. The more ordinary expedient is to smoke them out by burning straw at the apertures of their burrows. At Ootacamund, on the continent of the Dekhan, spring guns have been used with great success by the Superintendent of the Horticultural Gardens, placing them so as to sweep the runs of the porcupines. A planter on the Neilgherries recommends that a musket or single barrel pistol, be procured and an iron rat-trap; the gun must be placed so that on being discharged the shot will sweep the gap or entrance. In this position it must be firmly fastened. The trap is then to be set, the compressed spring let in between the trigger and trigger guard of the piece, and tied to a peg—then a string blackened with ink, attached to the plate of the trap is stretched loosely along the gun and across the gap and fastened—so that nothing can pass in without touching it. As the cord is loose, the animal in entering gets well opposite the gun before it tightens and springs the trap, the piece having been placed on full cock is of course fired by the rising of the trap spring. A pistol is much better than a gun, because the latter has to be set horizontally, in which case it is very liable to miss or only wound the animal it is set for; a pistol can be placed vertically in which case it cannot but hit anything passing through the gap under it. Sambur, which are given to walking along estate roads may also be got to commit suicide in this manner, only for them, the touch string must be tied low so that the feet and not the nose of the animal strike it, or the ball will most likely go under the neck and not between its ribs. For ordinary Sambur the gun must shoot 3 feet off the level of the road. In setting a gun, one must remember that the last thing done is to full cock the piece, or an accident would be very liable. In setting the hammer should rest on the nipple, and not at the half cock as then in case of the traps accidentally springing, the lock will be damaged. An old hat or piece of wax cloth should cover the lock to keep off the damp. The flesh is esteemed a delicacy in Ceylon, and in consistency, colour, and flavour it very much resembles young pork. Baron de Bode found the dried dung and bristles of numerous porcupines in the cells beneath the ruins of the palace of Jemshid, in Persepolis, but no living animals: and was informed that these animals occupy the cold cells only during the heats of summer, and migrate to the south in thousands so soon as the cold weather commences, travelling direct over hill and dale by the shortest route.

Atherura fasciculata, the Malayan porcupine, is found on the Tipperah hills and thence southwards to the Malayan peninsula. It has a much larger tail than the true porcupines, ending in a tuft of long bristles. The spines of the back are less elongated.

Hystrix bengalensis, Blyth.

H. malabarica, *Sclater*.	Bengal porcupine, Eng.

Found in Travancore, Cochin, S. Malabar, Bengal, Assam, and Arakan. Length head and body 28 inches, tail 8 inches. In Malabar, its flesh is more esteemed than that of the common variety.

Hystrix leucura, Sykes, Blyth, Elliot.

H. hirsutirostris,	*Brandt*.	H. cristata indica,	*Gray*. *Hard*.
H. zeylanensis,	*Blyth*.		
Sajru,	Beng.	Sarsel,	Hind.
Yea,	Can.	Salendra,	Mahr.
Indian porupine,	Eng.	Dumsi,	Nepal.
Boigu,	Gond.	Yeddu pandi.	Tel.
Say, Sahi, Sayal,	Hind.		

This porcupine is found over all India from the Himalaya to Cape Comorin, except in Bengal. It is 32 inches long and its tail is seven inches. They charge backwards on their foes and dogs often get seriously injured. The flesh is good eating.

Hystrix longicauda, Marsden, Blyth.

H. alophus,	*Hodgson*.	Acanthion javanicum,	*F. Cuv*.
H. hodgsonii,	*Gray*.		
Crestless porcupine,	Eng.	O'-e,	Lisbon.
Sathung,	Lepch.	Anchotia dunisi,	Nepal.

This lives in Nepal and Sikkim and southwards into Burmah, Malayana and the Archipelago. They are mischievous, rooting up the tuberous roots sown in the gardens, they breed in confinement, their flesh is good. It measures 22 to 24 inches from snout to vent, and stands about 8 inches high. *Porcupines* are such very destructive creatures, and it is so difficult to kill them, owing to their strictly nocturnal habits, that we are induced to give the following plan for their extinction in the hope, that some unfortunate Neilgherry tree or vegetable planter, who suffers from the ravages of porcupines may benefit by it. The writer says "I practised my plan in a good sized garden, in which I grow fruit and vegetables of various kinds, and which I cannot afford to fence in properly. Porcupines used to come night after night, and destroy my best things, so I began to consider how I could protect my produce from these nocturnal pests. I found that they prefer potatoes to any other vegetable, so I planted ½ a maund in the garden and fenced in the patch on 3 sides, with billets of firewood, leaving the fourth open. The porcupines very soon discovered their favorite food and commenced devouring the seed potatoes. I therefore at once replaced what they had eaten and shut in the open side;—they came again and the fence being strong they had some trouble in making an entrance—once in, however, they always entered the patch in the same place. As soon as I was sure of this, I set a spring gun across the gap, and next morning found porcupine No. 1 dead. I shut up the entrance, and for some days the brutes left me alone, but soon they returned and again cut through the fence, my gun was placed and at once No. 2 fell. In this way with perseverance I killed many; in fact all that came to my garden, for my vegetables were now left untouched.

"Porcupines I hear are very troublesome in tea plantations. They root up the plants to get at their thick sap root, and also the seed if there is any. I should advise tea planters, who suffer from the depredations of these animals, to sow several small patches of potatoes in different parts of their estates, and I believe with a little trouble they would soon rid their neighbourhood of the pest."—*Tennent's Sketches of the Natural History of Ceylon, pp.* 45, 46; *Jerdon's Mammals*; *Beng. As. Soc. Journ., No.* 181, *Aug.* 1847.

PORCUPINE WOOD. Wood of Cocoanut palm.

POREAL PAINI, Tam., Maleal. A timber of Malabar and Canara which may be among the best sort of the Dupi or Paini maram and next to the peons on the coast of Malabar. It might be used for small yards of vessels. At times this wood is called Puni paini by some of the northern natives: it is of a light red colour, and grows to about eighteen inches in diameter, and sixty feet long.—*Edye, Forests of Malabar and Canara.* See Poon.

POREBUNDER, is built on a creek of the sea, on the south-west coast of Guzerat. It is a large and populous town: and the inhabitants carry on a brisk trade with Bombay, Sinde, and Malabar.—*Pottinger's Travels, Beloochistan and Sind, p.* 8. See Kattywar, Volcano.

PORESH, BENG. Thespesia populnea, *Lam.*

PORIPHORA, the sponge class of animals, as under:

CLASS II.—PORIPHORA, the Sponges.
SUB-KINGDOM I.—PROTOZOA.
Tethea cranium.
„ lyncurium.
Geodia zetlandica.
Pachynmatisma johnstonia.
Halichondria.
* With a fibrous texture; the spicula, imbedded in the fibres.
†† *Branched or stalked.*
H. palmata.
oculata.
cervicornis.
hispida.
ramosa.
†† *Many formed.*
H. montagni.
columbæ.
plumosa.
fruticosa.
** With a texture like that of bread,
† *Regularly formed.*
H. infundibuliformis.
ventilabrum.
†† *Shapeless.*
‡ With spicula pointed at each end,
H. simulans.
cinerea.
albescens.
panicea.
areolata.
aculeata.
‡‡ With spicula knobbed at one end,
H. fucorum.
incrustans.
saburrata.
ægagropila.
seriata.
sanguinœa.
macularis.
hystrix.
*** With a hard, solid, homogenous texture,
H. coailita.
virgultoso.
hirsuta.
suberea.
mammillaris.
ficus.
carnosa.
sevosa.
maculans.
**** Of doubtful place.
H. aurea.
conus.
rigida.
perlevis.
Cliona.
ciliata.
gorgoniodes.
gracilis.
howesii.
northumbrica.
alderi.
corallinoides.
lobata.
vastifica.
Spongia species.

PORILA SAPARA, or Pachchari, TEL. Dalbergia paniculata, *R.*

PORLU GADI, TEL. Hœmanthus cordifolia, *R.*

POROCH, RUS. Gunpowder.

PORPESSO, Phocæna communis.

PORPHYRY, a crystaline rock containing crystals of minerals.

PORPHYRIO HYACINTHINUS. See Rallidæ.

PORPOISES. This class of mammals of the family Delphinidæ belongs to the following order, viz.

ORDER. Cetacea. The whale tribe.

Cetæ, *Auctorum.* | Mutalata, *Owen.*

Fam. DELPHINIDÆ. Porpoises.

Delphinus perniger, *Ell. Blyth.*, Black Dolphin of Bay of Bengal.
Delphinus plumbeus, *Dussumier*, Plumbeous dolphin of Malabar coast.
Delphinus eurynome, *Gray*, Bengal Bay.
Delphinus godama, Bengal Bay.
Delphinus sandama, *Owen*, Bengal Bay.
Delphinus lentiginosus, *Owen*, Bengal Bay.
Delphinus maculiventer, *Owen*, Bengal Bay.
Delphinus fusiformis, *Owen*, Bengal Bay.
Delphinus pomeegra, *Owen*, Bengal Bay.
Steno frontatus, *Cuvier*, Bengal Bay.
Steno attenatus, *Gray*, Bengal Bay.
Neomeris phocœnoides, *Duss.*, Bengal Bay.
Platanista Gangetica, *Jerd.*

Delphinus rostratus, *Shaw Hardw.*

Susu, Sishuk,	BENG.	Susa, sons,	HIND.
Gangetic porpoise,	ENG.	Sisumar,	SANSC.

Ganges, Jumna, Gogra, Brahmaputra.
Platanista Indi, *Blyth*, porpoise of the River Indus.
Globiocephalus Indicus, *Blyth*, Indian Ca'ing Whale, Bay of Bengal.
Catodon macrocephalus, *Blyth*, Bay of Bengal, near Ceylon.

Fam. BALENIDÆ, or Whales.

Balænoptera Indica, *Blyth*, Indian Fin Whale of Bay of Bengal, Indian Ocean.
Balæna mysticetus, Greenland Whale, Northern seas.
Balæna Japonica, Japan Whale of Japan and Northern seas.
Balæna Australis of the S. seas.
Balæna Antartica „ „
Physeter simus, *Owen*, Euphysetes simus, Bay of Bengal.
Phocæna brevirostris, Bengal Bay.

Sub-Order. Sirenia. Herbivorous Cetacea.

Halicore dugong, *Jerd.*, Dugong; Duyang trichechus, *Erxl. Bly.*, *F. Cuv.*

H. Cetacea, *Illiger.* | H. Indica, *Desmarest.*
Talla Maha, SINGH.

Ceylon, Andamans, Malayana, Singapore, Marine lagoons of Malabar.
Halicore tabernaculi *Ruppell*, Red Sea.
Halicore Australis, Australia.

PORPRANG, HIND. Glinus lotoides also Convolvulus pluricaulis. It is the Gandibuti of the Beas valley.

PORSIA of the Baori is the Buck-antilope, of Antilope Arabica, *Hemprich.*

PORSUNGA— ? Thespesia populnea.

PORT CANNING, a new town, formed at the Mutlah creek. About a million sterling was expended up to 1868, and a railway was formed. It was not successful. Its object was to avoid the perilous navigation of the Hooghly.

PORT ESSINGTON, see Arroe or Arru islands, India.

PORTALAY-KAIANTAGHERIE, TAM. Wedelia calendulacea.

PORTAX PICTUS, *Jerdon.* The Nilgai.

Antilope trago-camelus, *Pallas.*
Damalis rizia, *H. Smith.*
Tragelaphus hippelaphus, *Ogilby.*

Maravi,	CAN.	Nilgai; Nil; Lil,	HIND.
Gurayi; Guriya,	GOND.	Rui,	MAHR.
Roz; Rojh,	HIND.	Manu-potu,	TEL.

The male nilgai, probably the hippelaphus of Aristotle, is of an iron gray-colour, in length 6½ to 7 feet; the female is smaller and of a tawny or light brown-colour. The male at the shoulder is 4⅓ to 4½ feet. It is found throughout India, but not in Ceylon, nor in the countries to the East of the Bay of Bengal.—*Jerdon's Mammals, p.* 273.

PORTIA, TAM.? A small Palghat tree; wood of a brown colour, used for musket-stocks, probably the Thespesia populnea.—*Col. Frith.* See Avenues.

PORTIA TREE, Thespesia popúlnea, *Lam.*

The oil.

Paris pippul ka tel,	HIND.	Ganga raji nuna,	TEL.
Purasum yennei,	TAM.		

This deep red coloured and somewhat thick oil is obtained from the seeds: the portia tree grows in great abundance in the vicinity of Madras, and other parts of the Presidency. It is extensively planted as an avenue tree, for which its quick growth and the beauty of its flowers render it a favourite. The wood is capable of being worked when fresh cut and is used for boat building and cabinet work. The juice of the tree is used on the western coast, as a remedy for various cutaneous affections, and the oil, which is yet unknown to the natives, might probably be of use in similar cases. Its expense precludes its use otherwise than medicinally.—*M. E. J. R.*

PORTO KOORWAN, URIA.? A tree of Ganjam and Gumsur, of extreme height 20 feet, circumference 1 foot, and height from ground to the intersection of the first branch 5 feet. Chiefly remarkable on account of its seeds, called here Indrajebbo, which are used medicinally and held in great estimation. The juice of the leaves is given to young cattle to destroy worms. The bark is also used medicinally. The tree abounds.—*Captain Macdonald.*

PORTO NOVO, on the Coromandel Coast, in lat. 11° 31′ N., is a place of considerable trade.

PORTUGAL, a kingdom in Europe which made extended and continuous efforts to obtain power in the E. Indies and to christianize its people. Its chief agents were Albuquerque a soldier and Xavier a priest, but of all their possessions, Goa and Damaun on the west coast of the peninsula and Macao in China alone remain. Their first arrival in India was about the year 1495, under Bartholomew Dias, followed by Vasco de Gama, Cabral, Almeyda and Albuquerque who was recalled in 1516. Ceylon was occupied by the Portuguese in 1596, was taken possession of by the Dutch in 1658, and by the British in 1797. The Dutch nation first came to the Eastern Archipelago as the servants of the Portuguese. As D'Abreu progressed in the Archipelago, he erected white pillars of discovery which he called Padroe. It was a device of the Dutch to circumvent the Roman Catholics of Ceylon by prohibiting the use of the Portuguese language, being that of the priests educated and sent from Goa: the attempt was, however, unsuccessful; and it is somewhat curious that at the present time the Portuguese language is in almost universal use in all the towns in the maritime provinces of Ceylon, and that Dutch is not only almost extinct, but the descendants of the Dutch have betaken themselves to speak the language of Portugal.

In 1873, in Madras, the people who are descendants of Portuguese, continue to use that language amongst themselves, and this is also the case in Calcutta and Bombay. The people of mixed European Portuguese and Indian descent are generally very dark. Dabul or Debul, a seaport town on the Malabar coast, eight miles south of Severndroog, was burned about 1508, by the Portuguese viceroy Almeyda. He came to India, in 1505, the successor of Dias, Vasco de Gama and Cabral. On his arrival, he concluded a defensive treaty with the king of Vijianuggur, but the Venetians who up to that time had monopolized the trade with India, jealous of the growing power of the Portuguese, instigated the king of Egypt to oppose their progress. He accordingly sent a fleet under Mir Hukum, who, in conjunction with the fleet of Guzerat, bore down upon Lorenzo, son of Almeyda, and defeated him in 1508, Lorenzo falling in the fight. Almeyda, to avenge his son's death burnt the port of Dabul, and defeated the enemy in the harbour of Diu, and then concluded a treaty.

In 1509, the Portuguese leader Sequiera entered the Eastern Archipelago. In 1510, Alfonso Albuquerque visited Sumatra, and in

1511, took Malacca, which he fortified, and sent out Antonio d'Abreu to search for the Spice Islands. On his way eastward, D'Abreu touched at Agasai (Gresik) in Java. In 1511, the Portuguese visited Bantam. Ludovisco Barthema was the first European who described Java from personal observation, but some of his statements as to the cannibal propensities of the inhabitants are questionable. In 1596, the Dutch, under Houtmann first arrived off Bantam, and found the native king at war with the Portuguese. They lent him aid, on condition of having land allotted at Jacatra for a factory. The earliest expedition sailed from Holland in 1594, under Houtmann, who visited Bantam and then Madura, where he had to pay 2,000 rixdollars to liberate some of his crew. On the 3rd of March 1599, he arrived off Hitu-Lama. War then ensued between the Spanish, Portuguese, and Dutch, which lasted till 1610, when the Dutch remained masters of these seas and monopolized the lucrative trade. The British tried to enter on that trade but they too were finally driven off. In 1610, the Dutch fortified the village of Jacatra which they named Batavia. In 1619, this was destroyed, but it was after rebuilt by Mr. Bolt, the Dutch governor-general, and this was the beginning of the present town of Batavia. In 1811, when France overran Holland, the flag of France was hoisted at Batavia, but in the same year the British captured it, only to restore it, on the 19th August 1816. Java up to the 13th century was partly hindoo, partly budd'hist, partly mahomedan, but in the 15th century, mahomedanism took the lead, and in 1475 a mahomedan prince took the throne at the overthrow of the great kingdom of Majapahit, which had dominion over the whole of Java, and the eastern parts of Sumatra. In 1749, the reigning prince abdicated in favour of the Dutch East India Company. Seven years prior to that event, the sovereignty had been divided into a spiritual head, the "Susunan" or "object of adoration," whose descendants now reside at Surakarta near Solo, and a second prince who was styled sultan, and whose descendants reside at Jokyokarta, both of them highly pensioned. Portuguese is spoken in the territory of Goa in a few families, outside of this it is a corrupted dialect. It is also spoken at Macao. The Portuguese have still their towns and districts on the western coast of India, Goa, Damaun and Diu. About 1,500 square miles and 408,596 of population.—*Bikmore, pp.* 22—26. See Acheen, India, Kathi or Katti, Kattyawar, Kho, Kol and Koli, Ladrones, Perim, Parejos, Ribeiro or Ribeyro, Saugor island, Siam, Singapore, Wijao.

PORTUGUESE MAN OF WAR, one of the Acalephæ, is the Holothuria physalis *Linn.*, the Physalia pelagica, *Lam.*, also Ph. careivella, and Ph. utriculus. It has an inflated vesicle or bladder, glowing in delicate crimson tints which rises over and floats upon the waves, whilst the long tentacula, of a deep purple colour extend beneath as snares for capturing its prey. Their bladder is generally supposed to collapse in tempestuous weather, but Dr. Bennett says it always remains inflated. The tentaculæ sting.—*Bennett, pp.* 5 .˙. 6.

PORTULACACEÆ, *Lindl.* The Purslane tribe of plants comprising 6 gen., 13 species, viz., 3 Trianthema; 5 Portulaca; 2 Talinum; 1 Calandrinia, 1 Portulacaria; 1 Claytonia.

PORTULACA, a genus of the Portulacaceæ. Some species are pretty annuals with succulent leaves, and very brilliantly coloured flowers, red, purple, yellow, white, &c., they are easily grown from seeds, and if well watered and kept in the shade, will blossom throughout the hot season; the hybrids, between the white, and dark colours are remarkably pretty. These pretty little succulent annuals open their flowers in the sun. It is raised from seed, requires a sandy soil, requiring little care as regards soil; should be watered sparingly at all times.—*Riddell*; *Jaffrey.*

PORTULACA MERIDIANA, *Linn.*, syn. of Portulaca quadrifida, *Roxb.*, *Linn.*

PORTULACA OLERACEA, *Linn.*, *Roxb.*

Baklat-ul-hakima,	AR.	Kari chira,	MALEAL.
Buro loonia,	BENG.	Turuk, kherefah,	PERS.
Mya-byeet,	BURM.	Lonika, loonia,	SANS.
Dooda-gorai,	CAN.	Genda-kola,	SINGH.
Ma-ch'i-hien,	CHIN.	Karil-kiray,	TAM.
Common Purslane,	ENG.	Cori kiray,	„
Small do.	„	Paropoo-kiray,	„
Kulfa, lunia,	HIND.	Pedda pael kura,	TEL.
Lunak, lunyan, kurfa, khoorsa; moncha, kundar,	„	Boddu-pavili kura,	
		Gunga pavili kura,	„

This is common in India, and eaten by the hindoos; a common weed; but cultivated by the market gardeners; used as spinach and in curries; almost tasteless, acts as a refrigerent and alterative in scurvy and liver disease. Seeds said to be vermifuge, in Cochin China the seed is considered emollient and diuretic. Considered by natives cool and dry; also aperient. Useful in disorders of mucous membrane and difficulty of breathing fevers.—*Ainslie, p.* 253; *O'Sh. p.* 353; *Jaffrey*; *Powell's Hand-book, Vol. p.* 336.

PORTULACA QUADRIFIDA, *L.*, *R.*, *W.* & *A.*

Portulaca meridiana, *Linn.*
Illecebrum verticulatum, *Burm*, *Rheede.*

Bucklut-ul-mobarik,	AR.	Sanpelkire,	TAM.
Choroly ke baji,	„	Posserie kiray,	„
Chowli; Choli,	DUK.	Passelie kirai,	„
Creeping purslane,	ENG.	Sanpel kura,	T
Nila chira,	MALEAL.	Batsali kura,	„
Limak: Kaksha,	PANJ.	Goddu pavili,	„
Oopadyki,	SANS.	Pedda pavili,	„

A small troublesome weed with fleshy leaves used as greens, common everywhere. Fres leaves, bruised, are prescribed as an external application in erysipelas, and an infusion given in dysuria.—*O'Shaughnessy, p.* 353; *Jaffrey*; *Dr. J. L. Stewart.* See Vegetables of Southern India.

PORTUNIDÆ, a family of Brachyurous crustacea, generally known by the name of Paddling crabs; for the most part essentially swimmers, and often live at sea. The following East Indian genera are arranged under the tribe by M. Milne-Edwards:—

Portunus integrifrons, (Cancer navigator (?) *Herbst.* Carapace pubescent: length about 2 inches. It is a native of the Indian Ocean.

Lupea tranquebarica, (Cancer olivaceus, *Herbst.*: C. serratus (?) *Forsk.* Portunus serratus, *R. Ruppell*; P. tranquebaricus, *Fabr.* This is the largest known portunian, it is six or eight inches in length, of a grayish-green Asiatic seas.

Lupea pelagica, (Cancer pelagicus, *Linn.* Cancer reticulatus and Cancer cedonulii, *Herbst.* Portunus pelagicus, *Fabr.*) Length from three to four inches. Colour grayish-green with yellow spots, found in the Red Sea and the whole Indian Ocean.

Lupea sanguinolenta, Indian Ocean.

Platyonychus bipustulatus, Latreille. Length from two to five inches. It is found in the Indian Ocean.—*Eng. Cyc.*

PORUS. This was the name given by the Greeks to the race of the Puru or Paurava kings to which, in the time of Alexander, two princely races belonged. They were the first purely Indian race known to Europe. Porus is a corruption of Puar, once the most powerful and conspicuous tribes in India; classically written Pramara, the dynasty which ruled at Oojein for ages. The Porus who ruled in the direction of Hastinapura offered a determined resistance to Alexander with 4,000 horse, and 30,000 foot of the Kshetria tribe. They were defeated by Alexander's 11,000 virgins. In the time of Augustus Cæsar, a letter in Greek praying for assistance was received at Rome from a king of this name, on the Indus. See Hindoo, Chandragupta, Kama.

PORSYA of the Baori, the Buck antelope, of Antelope Arabica, Gazella bennettii, *Jerdon.*

PORZANA BAILLONII, (Crex baillonii; 'Baillon's Crake,') of Europe, Asia to Japan, all Africa: exceedingly common in India.

PORZANA MARUETTA, (Crex porzana; 'Spotted Crake,') of Europe, Asia, N. Africa: common in India.

PORZANA PUSILLA, (Crex pusilla; 'Little Crake,') of Europe, N. Africa, W. Asia, Japan: Nepal, (Hodgson.)

POSEN, also Feder kiel, Ger. Quills.

POSH, Hind., Pers. A cover; Palang-posh, a bed-cover; Sir-posh, a lid.

POSH, Hind. A flower.

Khair-posh, Hind. Villarsia nymphoides.

Pam-posh, Hind. Nelumbium speciosum.

Saz-posh, Hind. Lavatera cachemiriana.

POSHA, Hind. A plant of the Compositæ.

POSHKAR, Hind. Ligularia, *sp.*

POSHKHUR. A holy lake in Malwa.

POSHM-WANLOO. A wandering Tiling tribe of sudra mendicants, on the banks of the Bhimah, who move about with a small temple with an idol called Poch-amma, the small-pox goddess.

POSOQUERIA DUMETORUM. Randia dumetorum.

POSSERI properly Pasara Kire, also Passeli Kire, Tam. Portulaca quadrifida.

POSOQUERIA ULIGONISA, *Roxb.* Randia uliginosa, *DC.*, *W. & A.*, *Ic.*

POST, Hind., Sans. The poppy, Papaver somniferum, also in the higher provinces of India, an intoxicating liquor, prepared by beating the husks or capsules of the poppy with jaggery and water.—*Ainslie's Mat. Med.*, *p.* 267.

POST, Hind., Pers. Bark of a tree, rind of a fruit; skin of the animal body.

POSTAL, or Sangal, Hind., of Kashmir, Taxus baccata, common yew.

POST-I-ANAR, Hind. Bark of stem of Punica granatum.

POSTANS, Captain T., Bombay Army, Political Agent in Upper Sind from 1839 to 1842. Author of an accouut of Sind, translated from Persian historians.—Bl. As. Trans. vol. vii, 297. Account of Jain temple at Badrasir, and ruins of Bodra Nagri in Cutch.—Ibid, 431. Account of Girnar.—Ibid, 865. On the rivers Nile and Indus.—Lond. As. Trans., vol. vii, 273. Personal observations in Sind, 1, vol. 8vo.—Lond. 1843. Route through Cutch, &c.—Lond. Geo. Trans. 1844, vol. xiv, part 2, 193. Memoir on Shikarpore.—Bl. As. Trans. 1841, vol. x, 17. Trade maintained in Cutch, Bhooj, with the east coast of Africa.—Bom. Geo. Trans., vol. i, 169. Report on the Munchar Lake, and Arral and Narra Rivers.—Ibid, vol. iii, 122. On the Kamphatir of Dawodhar in Cutch.—Lond. As. Trans., vol. v, 263. Account of the Temple of Somnauth.—*Dr. Buist.*

POST BIRUNI PUSTA, Hind, Pistacia vera.

POSTI or Postil, Kashm. Taxus baccata. The Himalayan yew.

POST-I-BER, Hind. Bark of Zizyphus jujuba.

POST-I-JHAND, bark of the jungle bush, Prosopis spicigera.

POST-I-KIKAR. Bark of Acacia arabica.

POST-I-TURANJ, lime-peel, Citrus aurantium.

POSTIN, a body coat, a fur cloak or coat, a sheepskin coat or vest, much worn in Affghanistan. The very chilly wear postins, (body coats,) or long cloaks, lined with sheepskin or Astracan wool. Handsome furs are very much admired in these regions; the expense confines them to the upper classes. A cloak may cost up to 40*l*. or 45*l*. These articles are made in numbers throughout Affghanistan; the largest may weigh from twenty to twenty-five pounds. The leather is tanned to a state of wonderful softness, and then intricately stitched and embroidered. The best cost from 6*l*. to 8*l*.; the coarse imitations made in Sind seldom fetch more than 8*s*. or 10*s*.—*Burton's Scinde, Vol.* ii, *p*. 40.

POST KHAR, HIND. An artificial hand with a long handle for scratching the back.

POTAMOGETON CRISPUS, *Linn.*

Sawal,	LAD.	Chusbal.	LADAK.

Not uncommon in the Punjab plains, and apparently abundant at 9,000 to 11,000 feet. in Ladak. It is probably one of those plants used in refining sugar here as elsewhere. In Ladak it is used as fodder.—*Dr. J. L. Stewart's Punjab Plants, p.* 241.

POTAMPHILUS BARBATUS, *Kuh.* Syn. of Cynogale bennetti, *Gray.*

POTARI, TEL. Kydia fraterna, *R.* iii, 189; *Cor.* 216—*W. & A.* 258;—*W. Ic.* 880.

POTARI, BENG. Abutilon indicum, *G. Don.*

POTASCH, RUS. Potash.

POTASH.

Shih-kien; Hwui-kien,	CHIN.
Potaske,	DAN.
Jhar ka Namak,	DUK.
Salt of Tartar; Salt of worm wood,	ENG.
Potashes; Pearl ashes,	„
Impure carbonate of potash,	„
Sub-carbonate of potash,	„
Potassa,	FR.
Carbonate de potasse,	„
Pottasche,	GER.
Kohlensaures kali,	„
Jowkshar,	GUZ.
Khar jowkshar,	HIND.
Potassa,	IT.
Carbonas potassæ,	LAT.
Kali preparatum,	„
Khar,	PERS.
Potasch,	RUS.
Manu-uppu,	TAM., TEL.

Potash is a commercial term commonly applied to an impure carbonate of potash, obtained by the incineration of wood, lixiviating the ashes in barrels, first with cold, and then with hot water, filtering the ley, and evaporating it to dryness in an iron pot. This constitutes the potash of commerce, which is in hard irregular masses or fragments, of a light bluish gray colour, somewhat caustic alkaline taste, inodorous, and very deliquescent. Potash is of great importance in arts, being used in the soap and gass manufactures, the rectification of spirit, bleaching, in medicine, and for other purposes. It is procurable in most Indian bazaars. Apart from the question of exportation however, the ready and plentiful sources of both potash and soda in India is a question of great interest, especially in connection with the manufacture of glass and soap. This is prepared on the great scale by subjecting to the action of flame crude or black potash, the black salt of American manufacturers Instead of fusing it to make the potashes of commerce, the alkaline mass is transferred to a large ovenshaped or reverberatory furnace, where the flame is made to play over it; and being well stirred about, the black impurities are burnt out, and the mass becomes a caustic salt of a white colour with a tinge of blue, and constitutes the pearlash of commerce.

Russian potash yields 772 parts of caustic hydrate; it used to be very impure, but is now more carefully prepared. The hindoos of the Malabar coast, as well as the Singhalese, who do not use Over Munnoo (impure carbonate of soda), in bleaching and washing linen, employ for these purposes, the ashes of burnt vegetables (chiefly cocoanut leaves), which can only, in this way, be of service, from the potash they contain. No manufacture of potash upon an extensive scale has ever been attempted in India. The common source of it is the ashes of land plants, and the English market is supplied from Russia and America. If attention were directed to the manufacture of this salt in India, it would form a very valuable article of export. A source of pearl ash, and one very interesting to us, seeing the enormous quantities of saltpetre all over the country, is nitrate of potash and charcoal, a sample of pearl ash from a refined saltpetre got from the Gunpowder Manufactory, and the gram plant, charcoal, also used in that establishment, was, after one crystalization, found superior to the best Russian or American article, giving by the alkalimeter 94 per cent. of pure carbonate. As this salt is obtained by the burning of vegetables, it must have been known at very early times. Dioscorides describes it as ashes of vine-twigs Cineris lixivium (Pliny xxxviii, c. 51.) The Arabs are usually supposed to have been the first to make known this alkali (al-kali); in countries where forests are abundant, as N. America, Russia, Sweden, Poland, wood is piled in heaps an burnt on the surface of the ground, in a plac sheltered from the wind. The ashes whic are left consist of a soluble and insoluble portio The soluble part is made up of the carb, together with the sulphate, phosphate, and silicat of potash, and the chlorides of potassium an of sodium; and the insoluble portion of carbonate and sub-phosphate of lime, alumina, silica the oxides of iron and manganese, and a littl carbonaceous matter that had escaped incineration. In China, it is prepared by burnin composite, polygonaceous and other inlan plants. The ash is made into a thick mass by the addition of some kind of meal and is sold a an alkali for raising bread, cleaning clothes, &c.—*Royle, Hindoo Medicine*; *Faulkner*; *Ains. Mat. Med., p.* 193; *P. M. C. C.*; *Smith's Mat. Med.*

POTASH, bitartrate of

Bitartrate of potash,	ENG.	Potassæ bitartras,	LAT.
Supertartrate of potash,	„	Tartrate acide de potasse,	FR.
Cream of Tartar,	„	Doppelt-wein saures kali,	GER.
Argol Tartar,	„		
Tartarum,	LAT.		

This must have been known ever since wine has been made from the grape, in the juice of which it exists. During the fermentation of wine, sugar disappears and alcohol is formed, and the salt not being soluble in this, is deposited on the bottom and sides of casks, as a crystalline crust, which, according to the colour of the wine, forms either red or white tartar or argol. This was known to the ancients, and is the Fæx vini of Diosc., v, c. 13. Its nature was determined by Scheele in 1769. It is largely purified both at Montpelier and at Venice: in commerce it is in white crystaline crusts, formed of clusters of small crystals aggregated together, which are hard and gritty under the teeth, dissolve but slowly in the mouth, and have an acid and rather pleasant taste.—*Royle*; *Hindoo Med., p.* 97.

POTASH, Nitrate of.

Abkir,	AR.	Shora,	DUK.
I-an dzeing,	BURM.	Nitre; Saltpetre,	ENG.
Siau-shiah,	CHIN.	Baji shora,	HIND.
Mangsiau,	„	Sandawa,	MALAY.
Yen-siau; Ho-siau,	„	Pottli uppu,	TAM.
Ti-shwang,	„		

This occurs as a natural product in Egypt, India and China, in the form of a natural white efflorescence of the soil. It is collected, purified by solution, filteration and crystallization. In this process, the soil is removed to the depth of about an inch, and treated with water, which dissolves the soluble salts. The solution is made in large basins or tanks; rapid evaporation takes place under the influence of the solar heat, and is completed by means of artificial heat: as the solution cools, a considerable quantity of nitrate of potash is deposited in large crystals. This forms rough Indian nitre. The mother-liquor is thrown away; but it contains a considerable quantity of nitrate of lime and magnesia, and might still furnish nitre if mixed with potash salts. Bengal and the neighbourhood of Patna are the sources of the largest portion of the saltpetre supplied to the European market from the Hooghly, but the Madras presidency furnishes large quantities of the best quality. In Hungary there are saltpetre pits, and in some parts of Spain the soil becomes incrusted with this substance. Nitre is also obtained from certain natural caverns occurring in the limestone rocks of the island of Ceylon: the walls become covered with a nitrous efflorescence, which is detached, during six months of the year, with picks, together with a small portion of the rock which contains felspar, and this is doubtless the origin of the potash. The fragments are pounded, mixed with an equal portion of wood-ashes, and water is poured upon the mixture. The nitrates of the earths part with their acid to the potash in the ashes, and the earths are precipitated as carbonates of lime and magnesia. The clear decanted lie, containing the nitre of the ashes as well as that of the rock, is evaporated in pits exposed to the sun, and then in pans by the action of fire. The crude saltpetre, which crystallizes in cooling, is then fit for exportation. Similar caves exist in Italy, on the coast of the Adriatic, in North America, Africa, Teneriffe, &c. In France, nitre was formerly produced artificially in what are termed nitre-beds, by the oxidation of ammonia in the presence of a powerful base. Animal refuse of all kinds was mixed with old mortar, or hydrate of lime and earth, and the mixture was placed in heaps under a cover of some kind, to keep off the rain, but with free exposure to air. The heaps were watered from time to time with stale urine, and the mass was turned over in order to expose fresh surface to the air. When a considerable quantity of the salt had been formed, the mixture was lixivated, in troughs of oak-wood. The rough nitre as imported into Great Britain from the East Indies, is in broken crystals of a brown colour, and more or less deliquescent. The loss which it sustains in refining is termed the refraction, and can only be ascertained by analysis: but it is not easy to obtain a fair sample of a cargo. See Saltpetre.

POTASH, Sulphate of.

Sulphate of potash,	ENG.	Potassæ sulphas,	LAT.
Sulfate de potasse,	FR.	Kali vitriolatum,	„
Schwefel saures,	GER.	Sal polychrestum,	„

This is employed medicinally.

POTASZ, POL. Potash.

POTATO.

Yang-shu; Tu-yu,	CHIN.	Batata,	PORT.
Ho-lan-shu,	„	Jabloki semlenue,	RUS.
Aardappel,	DUT.	Patata,	„
Pomme-de-terre,	FR.	Ruta innala,	SINGH.
Kartoffel,	GER.	Patatas manchegas,	SP.
Puttata, Alu,	GUZ. HIND.	Patata,	„
Pomi-di-terra Patate,	IT.	Wallarai kelangu,	TAM.
Ubi, kantang,	MALAY.	Ooralay gadda,	TEL.
Seb-zamini, Alu,	PERS.		

The potato plant is a native of America but, since the early part of the eighteenth century it has been introduced into Europe, Africa, Asia, and Australia. Sir John Malcolm claims to have introduced it into Persia, about the early part of the 19th century. It was not grown by the Burmese up to 1862. Potatoes that had been sent to Cabul by Captain Wade, from Loodiana, had been planted by the nawab, and promised very well. In Persia they have long become common, having been introduced by Sir John Malcolm. Baron Hugel first introduced them into Kashmir, and sent them thence into Little Thibet. He forwarded since, two hundred rupees worth of potatoes, which were planted in the valley. In British India, the planting has been extending since the early part of this century, but the root is still only used by Europeans. The Dutch and the Roman Catholic priests introduced it into China, where, also, the Europeans are the chief consumers. It is now largely grown in the Mysore, and in various parts of the Dekhan, by planting the tubers.

The potato plant belongs to the natural order Solanaceæ, and is closely related to the tobacco plant, belladonna, henbane, night shade, and other poisonous narcotics. In it, however, the poisonous qualities are confined to the parts above ground, including any of the tubers which may be exposed to the light in growing. It is a native of South America, and is still found wild in the mountainous regions of Chili, Peru, and Buenos Ayres. It has also been found in Mexico and in the Southern States, but was probably introduced there by the first Spanish settlers. Samples brought from the Carolinas were first grown by Sir Walter Raleigh in the south of Ireland in 1586. In that country, where both soil and climate are favourable to its growth, it rapidly came into favour; but in England, Scotland, and France a prejudice long existed against it, owing to the poisonous nature of the other plants of the same order, and for a century and a half it was only cultivated in flower-gardens. Even in 1725, the few potato plants in the gardens about Edinburgh were left in the same spot from year to year. In 1728, however, Thomas Prentice, a Scotch day-labourer, in Stirlingshire, began to cultivate the plant for food, and sold to his neighbours what he did not require for his own use. They bought willingly, and he soon made a small fortune, and lived for sixty-four years a happy witness to the effects of the blessing which he had been instrumental in conferring upon the country. In England the potato was taken into favour much earlier, and its field culture rapidly extended as its excellent qualities became known. A strange objection was at first made by some, who denied the lawfulness of eating potatoes because the plant was not mentioned in the Bible. In France it was not until a time of scarcity during the revolution that its culture became general.

Potatoes should be planted in rows about one foot apart and five or six inches deep; the space between each row, if ground can be spared, eighteen inches, otherwise not less than a foot. The ground should be light and loamy, and as little infested with white ants as possible. They can be sown at the commencement of the rains, and a spot should be selected where the water cannot lodge, but be easily let off; which may be done by keeping the end of the channel between the ridges open. At this season, plant on the top of the ridges, and do not water them unless necessary, as too much water makes them run to stalk. If the ground have not been well ploughed previous to the rains setting in, and all the weeds destroyed, the chance is the crop will fail; but should the ground be ready, take the potatoes, intended for the seed, and cut them into pieces, taking care that each slice has at least two eyes in it; and as you cut the slices, whilst fresh, dip the cut side of each into wood-ashes, and let them dry well, which takes place in a few hours: this prevents the white ant's attacks. Sow each slice from nine to twelve inches apart, and place by the side of each a small clove of garlic, which in some measure tends to prevent the attack of a large grub very destructive to the plant. Dr. Riddell thinks this insect's eggs must be in the manure when added to the soil, and has little doubt but that if the manure was previously worked up with the soil two or three times during the hot season, and exposed to the heat of the sun, the eggs would be destroyed; or the same purpose might be effected with a little fresh lime. He is sure the caterpillar does not travel to the plant. The finest crops in the Dekhan are however sown from the beginning of October to the latter end of December, and this last crop will be found the most productive. Fine crops of potatoes have been grown where hemp has been first sown, and when about two feet high ploughed up into the ground. If, when the potatoes are about flowering, you perceive any of the stalks wither, carefully open the earth and look for a grub, which you may be certain is feeding upon it—of course destroy it. When these grubs are very numerous, it is necessary to search all the drooping plants daily: his idea is, that the larvæ is brought with the manure, and is the deposit of a beetle—however, nothing can be done but destroying them. He has heard recommended a bag with a small quantity of assafœtida to be placed in the water-course, as a remedy, when the plants were being irrigated. Another insect deposits its egg on the stalk of the plant. In the rains a small caterpillar eats its way into the stalk above the ground, when the plant immediately droops: the remedy is to remove the whole. Be careful at all seasons to keep the stalks well earthed up, and let the potatoes have a moderate supply of water—of course the season must be your guide. One year, at Kunhur, he raised a very fine crop o potatoes during the rains, by sowing them o ridges, and only watered them at first in consequence of want of rain: they were sown in the beginning of July, and a few taken up in the latter end of September. Some of the potatoes weighed from five to seven ounces, and were equal to any seen grown on the hills. In the latter end of August by way of experiment, he tore off shoots from the lower end of the stalks, when they were abundant, and planted them in rows, the same distance as for seed;

and in November, on taking them up, was gratified by finding four or five large potatoes produced by each stalk, the size of a duck egg. This plan he strongly recommends to those persons who may not be able to get fresh seed after the rains. He did not find that the rows of potatoes from which the slips were taken produced fewer potatoes in consequence, as he weighed the whole and kept a memorandum in his journal.—*Riddell*; *Canadian Naturalist*; *Vigne's Personal Narrative*, *pp*. 173-4.

POTATO-STARCH or Potato arrow-root, also called Potato-flour, forms a white and somewhat glistening powder, which crackles like genuine Maranta arrow-root, when pressed between the fingers. It is sometimes called British or English arrow-root, and is prepared by rasping and grinding the well-cleaned tubers of Solanum tuberosum into a pulp.

POTE. Glass beads.

POTEE, Tam. Round red cakes of cotton. An inferior kind is impregnated with the red colouring-matter of the prickly pear, and a better kind is made by impregnating the cotton with the kaysur flower, the weeping Nycthanthes arbortristris, but the best is from the safflower, Carthamus tinctorius. The Potee forms a ready and durable substitute for red ink.

POTE-KA-LUCH'CH'HA, Hind. A necklace of strings of black glass beads.

POTEMKIN, see Kherson.

POTENTILLA, a genus of plants of the order Rosaceæ, of which several species grow or are cultivated in the East Indies.

argentea, *L.*, Europe.
atro-sanguinea, Europe.
denticulosa, *Royle*, N. India.
discolor, *Jacq.*, Kanawar.
inglisii, *Royle*, N. W. Himalaya.
leschenaultiana, *W. Ic.*
micropetala, *Don.*. Nepaul.
mooniana, *W. Ic.*

Potentilla atrosanguinea, a herbaceous plant, is handsome when in flower: they grow in any garden soil, the colours of the species are various, and easily raised from seed, or by dividing the roots, the shrubby species grow from two to three feet high. Potentilla denticulosa, is common in the plains of Northern India in the cold season, at elevations of 4,000 to 5,000 feet in the Himalayas; two other species are found in the Neilgherries. Potentilla discolor, *Jacq.*, appears to be frequent in Kanawar, Spiti, and Ladak, from 11,500 to 15,000 feet. The under surface of the leaves is covered with a fine dust, which when the plant is shaken, causes violent sneezing.—*Drs. J. L. Stewart, M. D.*; *Riddell*; *Royle*, *p*. 202; *O'Shaughnessy*, *p*. 325.

POTENTILLA INGLISII, *Royle*.

var. P. fruticosa, *L*.

Spang, Jha, Merino, Chenab. | Pinjung, Penma, Lad.

Dr. Stewart says this is not uncommon in the higher parts of the Chenab basin, where its fragrant leaves, &c., are used as a substitute for tea. It also grows in Spiti and Ladak, occurring in the latter up to over 10,000 feet. It is browsed by sheep.—*Dr. J. L. Stewart, M.D.*

POTENTILLA NEPALENSIS, *Hook*.

Rattanjot, Sutlej.

Dr. Stewart says this is not uncommon in the Punjab Himalaya at 6,000 or 7,000 feet. Its reddish root is exported to the plains, as one of the roots called ruttanjot, but the roots of Venca rosea, *L.*, and Onosma echioides, *L.*, receive the same name. They are employed in dyeing wool, and are officinal, being considered depurative, and they are used externally in the Yunani system, the ashes being applied with oil to burns.—*Dr. J. L. Stewart, M.D.*

POTENTILLA TORMENTILLA.

Πενταφυλλον μελαν, *Diosc. Theopr.*

A native of Europe, and officinal; the root is very rich in tannic acid.—*O'Shaughnessy*, *p*. 325.

POTERAMMA, see Hindu or Hindoo.

POTERIE, Fr. Earthenware.

POTERIUM SANGUISORBA, *W.* Common Burnet of Britain.

POTHI, Hind. Elsholtzia polystachya.

POTHI, a book, a Hindi or Sanscrit book.

POTHOS, of this genus of plants Wight gives Pothos decursiva, heterophylla, officinalis, peepla, pertusa, scandens.—*W. Ic.*

POTHOS OFFICINALIS, *Roxb*.

Scindapsus officinalis, *Schott*.

Gaj-pipul, Beng. | Vushira, Sans.

A large creeper, the fruit cut in thin transverse slices is the guj-pipul of the bazaars, and highly esteemed as a stimulant tonic.—*Roxb.*, ii, *p*. 101; *O'Shaughnessy*, *p*. 626.

POTI BATSALI KOORA, Tel. Basella cordifolia, *Lam*. B. alba, *Linn.*, *Rheede*, *Roxb*.

POTI GILIGICHCHA, Tel. Crotalaria retusa, *L.*—*R.* iii, 272—*W. & A.*, 577; *Rh.*

POTI-NARA, Tel. Vulpes bengalensis, *Jerdon*, *Sh.*

POTIRON JAUNE, Fr. Gourd.

POTTSAT, a province of Cambodea.

POTIYA-HARN Hind., Rucervus duvaucelli, *Jerdon*.

POT-KUDAPALA, Singh. Achyranthes lanata, *Ainslie*.

POTLA KAYA or Polla kaya, Tel. Trichosanthes anguina, *L.*—*R.* iii, 701. Patola, *W.* is T. dioica, *Br.*

POTLINGA, a god of the Gonds.

POTLI KHAKISTAR, a glass polisher used by glaziers, &c., &c.

POTLUPU, Tam., Tel. Saltpetre.

POTLUT, Dut. Blacklead. Potlut-Pennen, Dut. Blacklead pencils.

POT METAL, an alloy of copper and lead. It is improved by the addition of tin and the three metals will mix in almost any proportions. Zinc may be added to Pot metal in very small quantity, but when the zinc becomes a considerable amount the copper takes up the zinc forming a kind of brass and leaves the lead at liberty, which in a great measure separates in cooling. Zinc and lead are indisposed to mix alone, though a little arsenic assists their union by "killing" the lead as in shot metal; antimony also facilitates the combination of pot metal,—7 lead, 1 antimony and 16 copper mix perfectly at the first fusion, and the mixture is harder than 4 lead and 16 copper and apparently a better metal. —*Holtzapfel's Mechanical Manipulation*; *Rhode's MSS.*

POTOOBAOLO, Uria? In Ganjam and Gumsur, a tree of extreme height 45 feet, circumference 4 feet, and height from the ground to the intersection of the first branch 12 feet. Occasionally used for bandy wheels and ploughshares. The leaves are eaten as a sort of vegetable by the hill people. Tolerably common.—*Captain Macdonald.*

POTOOR. A well in Ceylon which rises and falls with the tide. See Potur.

POTOWAR, a town containing remains of Greek sculpture.

POTRA, Hind., amongst hindoos a son begotten or adopted, amongst mahomedans, a grandson.

POT SAMMIONG, *Lep.* Arctomys bobac, *Sch.*, *Bly.*, *Pall.*

POTSTONE.

Balpam, Hind.

A mineral which was used by the Romans in the manufacture of cooking-pots. It is found and worked in the Rajmahal hills, is extensively manufactured in the Himalaya. Captain Herbert wrote on it, in As. Res., vol. xviii. Found under the laterite in the Concan, and manufactured all round Goa and Rajpoor. Dr. Gibson gave a description of it, in Bom. As. Trans., vol. i, 144, and Capt. Del Hoste in Bom. Geo. Trans., 1848. Potstone is found in various parts of India, on the western coast, at Turreva Carey in the Madras presidency, and in the ghaut country betwixt the Phoonda and Ram Ghauts. It was known to the Romans, and is described by Pliny as used in the manufacture of vessels for cooking purposes—hence its name. The mineral possesses a glistening pearly lustre and greyish tint; it contains 49 per cent. of silica, 30 of magnesia, and 6 of alumina. The stone is prepared for use by reducing it to something like the form, size, and shape desired, by a cleaver, a paned hammer, or strong knife. When a cavity is meant to be circular, it is bored out by being held against the working spindle of a single-centred native lathe. This enables them to be held on by the chuck, when they are chucked and finished in the lath in the ordinary way. Potstone speedily hardens and darkens by exposure to the air: it absorbs grease, oil, or fatty matter, freely: it is stronger than ordinary earthen-ware, stands heat better, and is pretty extensively used for culinary purposes. That sold in the Bombay bazaar is mostly brought from Goa. Indurated potstone is obtained from the Mussaye quarries, on a spur of the Kymore range, at Chynepore, also from the Quoindee quarries, from old red sandstone of the Rohtas Pass, in the Kymore range. This mineral is found in several parts of that range, and from some quarries can be had in large slabs, and in great varieties of colour. It takes a high polish, and might be used a great deal for ornamental work. Want of cheap carriage is against its being much worked. It is at present simply taken to Benares for the purpose of making images of gods for temples of private worship, or used locally. Although it has many of the qualitie of, and is called, indurated potstone by Colone Sherwill in his geological survey, he says it i not potstone, but rather a fine sandstone, staine of a dark hue, varying from greenish to dar brown (and, when polished back,) by som mineral oxide, and hardened by igneous action It is a useful stone, and deserves to be bette known.—*Cat. Ex.* 1862.

POTT, or Poti, a name of Buddha.

POTTA DELL. Singh. A soft, coarse, open grained, light Ceylon wood.

POTTA-PULLU. Cyperus inundatus.

POTTASCHE, Ger. Potash.

POTTER'S CLAY is abundant in man parts of Southern and Eastern Asia, is c various colours, chiefly reddish or grey, an becomes red when heated. Mixed with san it is formed into bricks and tiles. The clay i which the petrified trees of Burmah are foun has the appearance of fine potter's clay; an clays from the banks of the Ataran an Gyaing rivers were found, Mr. O'Riley say after several trials at the Calcutta mint, t possess every good property of the best Englis fire clays.

POTTERY. The art of making vessels c baked earth, is alluded to in the book of Jo and is also repeatedly mentioned in other par of the Scriptures. The potters of Samos wer celebrated in the time of Homer; and gre quantities of pottery have been found in Egyp tian tombs, which, to all appearance, have lai unopened since the time of the Pharaohs. I all the cairns of the Peninsula of India, article of pottery are found, and of the races wh used thus form of burial there is no recor The fragments of pottery everywhere foun among the ancient cities of India, as in thos of other parts of the world, as Brogniar has remarked, afford the best record of the early races of man, on the earth. In the exhibition of Indian pottery in 1851, numbers of the best judges greatly admired its elegant, even classical gracefulness of form. The clays which are generally employed in the more populous part of the country, contain so much oxide of iron and carbonate of lime that the vessels melt into a slag at a temperature little above that of redness. Deposits of a black stiff clay, containing much vegetable matter, occur in some districts; vessels made with it sustain a higher temperature. Clays capable of bearing great degrees of heat have, however, been discovered in different parts of India. As one great object is to have porous vessels for cooling water, the ordinary clays answer sufficiently well for this purpose; and some of the ware, as that of the tortoise shaped, expose a larger surface to the air. The hindoos, moreover, never use a polluted vessel, so no great expense will be incurred by them; thus, encouragement is wanting to improve the nature of their pottery. But very successful experiments have been made to improve the pottery in India, as by Mr. Julius Jeffreys, who succeeded in making stone ware, soda-water bottles, crucibles, fire bricks, tiles, &c., which seem to have been glazed by the silica uniting with the alkaline ashes of the furnace. Dr. O'Shaughnessy greatly improved the pottery in use in the dispensary of Calcutta, and which he glazed with the borate of lime. The glazed pottery of Pegu, of which two very large jars were sent in 1851, has long been known for its glaze not being affected by acids. Dr. Hunter sent some excellent specimens of pottery from the School of Arts at Madras, and for which a prize was awarded. The ancient potter's wheel is the instrument with which the hindoo works; and while it revolves, with the aid of his naked hands he fashions vessels of elegant forms, many of which have been admired as being of classical shapes, and some would appear almost as if they were of Etruscan origin: but there is no reason to believe that the hindoos have ever had anything but their own unerring taste to guide them. This beauty of form is equally conspicuous in the pottery of Sewan near Patna, as in that of Azimgurh or of Ahmedabad, of Mirzapore, or of Moradabad. Some of it is remarkable, also, for its extreme thinness and lightness, showing the great skill of the artist, and making it difficult to understand how it kept its shape when in a plastic state, as it is not known that the turning-lathe is used to give a finish to any of the articles. The painted pottery of Kotah, and the gilt pottery of Amroha, have also been admired. The handles and the various ornaments of the Ahmedabad pottery are no doubt attached, as in Europe, by means of slip. From the specimens of basket-work pottery sent, there is no doubt that, with better materials and a little instruction the natives could excel in this as in the forms of their pottery. If we had no other information, we might yet infer from the crucibles employed by the goldsmith, by the workers in brass, and by the makers of cast steel, that some very infusible clays are to be found in India; but recent investigations have proved that crucibles and firebricks, superior in infusibility to those made of Stourbridge clay, have been made in India; and from the white goblets of Arcot, and the light-coloured pottery of Madras, as well as from the white bricks sent from the Ceded Districts, we see that there are many useful clays without the usual admixture of iron. As connected with pottery might be mentioned the variously coloured Encaustic tiles, which have been used for the domes of some of the tombs near Delhi and Agra, as well as in Southern India; but it is not known that the art is at present practised. It was probably introduced by the mahomedans from Persia.

The Indian potter's wheel is of the simplest kind. It is a horizontal fly wheel, the frame of wood, the rim heavily laden with clay, two or three feet in diameter, weight sixty to eighty lbs., and is put in motion by the potter's hand, assisted by a stick; once set spinning, it revolves for from five or seven minutes with a perfectly steady and nearly true motion. The mass of clay to be moulded is placed on the centre of the wheel, and the potter squats before it on the ground. This machine has doubtless several defects; but it answers its purpose perfectly. The native furnace is simply an excavation in the ground of variable depth, in which the ware is placed layer by layer, with dry reeds, straw, &c., and all are burnt together. This rude system must of course give way to the European method, for the construction of all the superior kinds of vessels. The clays examined by Dr. O'Shaughnessy, occur in shapeless blocks, white, harsh to the touch, free from smell, absorb water with a loud hissing sound, and fall to pieces in slate-like layers. The moistened pieces are easily reduced to pulp under water. The earth is brown, easily reducible to pulp, very ductile and tenacious, exceedingly refractory, but burns to a deep brick colour. It gave good vessels as far as density and tenacity were concerned. By far the best clay he met with, was given by Captain Halsted, and which he procured at Singapore. It occurs there close to the beach, and can be brought to Calcutta for six annas the maund. The clay is found in thick strata. The detached masses are of a pink tint, broken into, they contain nodules of perfectly white earth. They absorb water eagerly, and yield an exceedingly soft, ductile, and tenacious paste. Ooporomee or upper wash which may be described as a strong brown tenacious or clayey loam. The best is found at a village called Monad, ten coss west of Chinsurah, and at Panchdowkie, eight coss S. W. of Kulna. The raw earth is sold at four annas the maund; but the prepared ooporomee, is worth three rupees per maund. Three months are required for its proper preparation; and ten seers of ooporomee are procured from each maund of the raw earth. There are also two other sorts of varnishing earth, prepared from this ooporomee, which are called Gad, or scum, though it is obtained at the bottom of the washing vessel, and Majaree or middle sort. All these prepared specimens—belutti, ooporomee, gad and majaree,—are obtained by washing, great care being taken to select the water of a very pure tank, no doubt to avoid saline mixtures, which would act as fluxes. The belutti when prepared, is a mixture of the yellow ochre and alumina in slightly variable proportions. A fire-brick sent to the mint by Dr. O'Shaughnessy, was prepared from material raised near the river at Colgong, and consisting of three parts of Colgong Khari clay, and one part of fuller's saboon muttee.—*The Bengal Dispensatory and Pharmacopœia, pp.* 7-18; *Royle, Arts, &c., of India, p* 478. See Porcelain.

POTTI, Tel. Short.

POTTI BUDAMA, or Kuturu budama, Tel. Bryonia scabrella, *R.*

POTTI CHANGALI ? Tel. Apluda aristata, *L.,—R.* i 324. Changali is Panicum ciliare—Potti changali would be short changali—but Apludu aristata, though often short, sometimes attains a height of several feet.

POTTI DUMPA, or Adavi nabhi, Tel. Gloriosa superba, *L.*

POTTI GILI GICHCHA, Tel. Crotalaria retusa, *Linn., Roxb.*

POTTI GUMMADI, or Budade gummadi, Tel. Cucurbita pepo, *L.*

POTTI KAKARA, Tel. Momordica charantia, *L. var.* B.

POTTI KANUPU CHERUKU, Tel. Saccharum officinarum, *L. var.* The name signifies 'short jointed cane."

POTTINGER, Sir Henry, Bart. a Bombay military officer, who was on the embassy of Sir J. Malcolm to Persia, afterwards Political Agent in Cutch and Sind, Plenipotentiary in China, Governor of Hongkong, and Cape of Good Hope, afterwards Governor of Madras 1848 to 1854. Author of Travels in Beloochistan, 1815, 1 vol. 4to.

POTTLOTH, also Reissbley, Ger. Blacklead.

POTTLUPU-DRAVAGUM, Tam. Nitric acid.

POTTOLA, Sans. Trichosanthes anguina.

POTU AGAKARA, or Agakara, Tel. Momordica dioca, *R.*

Potu kokada, Tel. Ehretia, *sp.*

Potu donda, Tel. Bryonia umbellata, *W. & A.*, 1077; Momordica umb., *R.* iii, 710.

Potu kakara, or Potu agakara, Tel. Momordica dioca, *R.*

Potu kandulu, or Kandulu, Tel. Cajanus indicus, *Spreng, var.*

Potu malle, Tel. Jasminum, *sp.*

Potu nela vemu, Tel. Justicia, *sp.*

POTU KANANG, Hind. Salvia lanata.

POTTU-PULLU, Maleal. Cyperus inundatus, *Lindl.*

Potu roga, Tel. Urtica vesicaria, *R.* iii, 587.

Potu tadi, or Tati chettu, Tel. Borassus flabelliformis, *L.—R.* iii, 790: *Cor.* 71; *Rheede* i, 10.

Potu vadla, or Madhavitige. Tel. Hiptage madablota, *Gœatn.*

Potu veduru, or Veduru gadda, Tel. Bambusa arundincea, *Willd. var.*

POTUR, a well at Jaffna in Ceylon, about 30 feet in diameter and sunk to a depth of 144 feet. Its surface is of fresh water but deeper, it is brackish and salt, and on plunging a bottle to the extreme depth, the water it brings up is highly fetid and gives off bubbles of sulphuretted hydrogen gas. Its level rises and falls a few inches once in every twelve hours, but it overflows its banks and is never reduced below a certain level, however much water is abstracted. The natives believe that the well communicates with the sea at Kieremalie near Kangesentorre, a distance of seven miles from which they affirm, that a subterranean stream flows inwards. See Potoor.

POUDRE, Fr. Gunpowder. Poudre a Pudrer, Fr. Hair powder.

POUDRE DE COLOQUINTE, Fr. Colocynth powder.

POUINDAH, A caste of traders.

POUK, Burm. Butea frondosa, also Æschynomene paludosa, Æschynomene aspera.

POUK NWAY, Burm. Butea superba, *Rox*

POUK-THA or Than-yen, Burm. D McClelland reports probably Inga bijemin Its maximum girth is 3 to 4 cubits, and maximum length 22 feet, abundant, but widel scattered, all over the Tenasserim provinc inland. When seasoned, it floats in water. I is an excellent and durable wood, would d well for handles of tools. This wood is of th same nature as Pyeng Khado (Inga xylocarpa) of which it is said to be a variety.—*Capta Dance.*

POUK THEN-MA-MAYEK KYOUK, Bur A light coloured close grained wood of Britis Burmah, much prized by Burmans. A cubi foot weighs 58 lbs. In a full grown tree o good soil the average length of the trunk to the first branch is 15 feet, and average girth measured at 6 feet from the ground is 5 feet.—*Dr. Brandis, Cal. Cat. Ex. of* 1862.

POUL, a copper coin of Bokhara, worth rather more than a farthing ; in Georgian money it is the 10th part of a chahi.—*Simmond's Dict.*

POULU, a close woollen fabric manufactured in Thibet, of various qualities and colours, used for garments.—*Simmond's Dict.*

POULTRY, to keep it is an abomination to all but the lowest of hindoos.

POUN-YA, Burm. Acetic acid.

POUPARTIA MANGIFERA. Syn. of Spondias mangifera. *Pers.*

POUPEDYRÆ.—Bignonia chelonoides.

POURANIK, Sans. A follower of the pooranas.

POUVATTI MARAM, Tam. Nephelium longanum.

POVERASI, Tam. Santa Marie, Portuguese, called by Europeans Ceylon tulip tree, the Thespesia populnea, a tree, used at times by the coach makers for wheels, &c. It is generally planted to ornament walks in gardens, and is very common : it produces a yellow flower.—*Edye, on the Timber of Ceylon.*

POWANGHUR. Badamee fort was taken by storm on the 18th February 1818 and was again captured on the 10th June 1841, and as a continuation of the same, Punalla and Powanghur were captured on the 1st December 1844.

POWAR, Malay. Cardamon.

POWAR or Puar, or Pouar, a section of the Rajputs.

POWAR KOTHUL, See Khyber.

PRABALA, Sans. Coral.

PRABANATHA. Beng. Seeds of Cassia tora.—*Ben. Phar.*

PRABASHA, a hill near ancient Kausambi, on the Jumna, about thirty miles above Allahabad. It is the only rock on the Doab of the Ganges and Jumna.—*Cunningham* ; *Tr. Hind., Vol.* i, *p.* 350.

PRABHA, see Surya.

PRABBA CHETTU, or Prabbali chettu, or Neru prabba, Tel. Calamus rotang, *L.*; *Br.* 711, "the rattan tree."

PRABHA L, in lat. 18° 58′ N., long. 73° 14′ E., in the Konkan, 5 miles N. of Chock. The fort, is 2,320 feet above the sea.

PRABHAS-WARA, see Inscriptions.

PRABHAVAL, Sans. From Prabha, splendour, brightness. The glory figured around the heads of hindoo gods.

PRABHU, Sans. A lord or master, from which comes the Burmese word Prah or Phra. A term applied to the masters of hindoo sects.

PRABHUNATH, Sans. Cassia tora, *Linn.*

PRACRIT. Dr. Caldwell, in his Comparative Grammar, remarks that by the term Gaura or Gauda, are meant the Bhasha or Pracrit or vernacular tongues spoken in Northern India, some old ones of which have since ceased to be spoken, or have merged into others. At present the languages which may be considered Gaura, are Bengali, Hindi, with its neighbour the Hindustani, Punjabi, Gujarathi, Marathi, the languages of Kashmir and Nepal, altogether nine. See Gaura or Goura, Satarupa. See Prakrit.

PRAD, Eng. Horse.

PRADATCHANAM, see Hindoo.

PRAD'HAN, or Andh, a Gond tribe.

PRADHANA, in buddhism, is nature, or concrete matter. The Pradhanika are worshippers of universal nature as the sole First Cause of all things, an atheistical creed, preceding the teaching of Sakya muni.

PRADHOSHAURATA, a fast observed by the Saiva sect of hindoos.

PRADOTYA, in hindoo mythological history, was brought down, by Sir William Jones, to B. C. 1029, the assumed epoch of Sakya, in Tibet and China. In his reign, the last Buddha appeared.—*Prinsep's Antiquities by Thomas, pp.* 2, 14.

PRADYUMNA, the incarnate Indian cupid, a son of Krishna. See Sri Sampradaya.

PRÆSTI, an ancient people governed by Portikanus, or Oxykanus, their capital Mahorta, probably the Oskana of Ptolemy. The name of Præsti given by Curtius might, according to Wilson, be applied to a people occupying the thals, or "oases," of the desert. He refers to Prastha, or Prasthala, as derived from sthala, the Sanscrit form of the vernacular thal, which is the term generally used to designate any oasis in Western India.—*Cunningham's Ancient Geog. of India, p.* 261.

PRAGBODHI MOUNTAIN, in Magadha, now the Mora Pahar.

PRAH, or Phra, see Prabhu.

PRAHLADA, a devotee of Vishnu, saved from the hands of Hiranya by Vishnu in his incarnation as Narasimha.

PRAHU, Malay, a ship or luggar also written Prow. The boats of the Straits of Malacca, China, Archipelago are the Prahu, Sampan, Lorcha, Pukat and Tongkong or Ting-King. In the Eastern Archipelago, the generic name for a boat or vessel, large or small, is Prahu, a word almost naturalised in the European languages. It belongs equally to the Malay and Javanese languages, and from these has been very widely spread to others, extending as a synonym to the principal Philippine tongues. The usual name for a canoe or skiff, both in Malay and Javanese, is sampan. The large vessels which the natives of the

Archipelago used in war or trade were called by them Jung, which is the word corrupted junk, that Europeans applied to the large vessels of the Chinese, of which the proper name is wang-kang. For a square-rigged vessel or ship, the natives have borrowed the word Kapal from the Teling people. Names vary with forms of vessels, and the uses to which they are put, and these again differ with nations or tribes so as to be innumerable. The most common pirate vessels made use of among the floating communities from the Straits to the South-Eastern groups, are the penjajap and kakap, with paduakan, and Malay boats of various size and construction.

The penjajap is a prahu of light build, straight, and very long, of various dimensions, and carrying usually two masts, with square kadjang sails. This boat is entirely open, except that aft is a kind of awning, under which the headman sits, and where the magazine of arms and ammunition is stowed away. In front it carries two guns of greater or less calibre, of which the muzzles peer through a wooden bulwark, always parallel to the line of the keel. Penjajap of large size generally carry, in addition to these, some swivel pieces, mounted along the timber parapet; while boats of inferior tonnage are armed only with two lelah, elevated on a beam or upright. From twenty to thirty rowers, sitting on benches well covered with mats, communicate to the vessel with their short oars a steady and rapid motion, the more swift in proportion as the prahu is small. Large ones, therefore, are often left hidden in some creek, or little maze of islets, while the light skiffs flying through the water, proceed on their marauding errand.

The Kakap prahu is a small light boat, provided with a rudder oar, but with no other oars or sculls. It carries only one mast, with a single quadrangular sail. Like the penjajap, it is built of very buoyant timber, the planks being held together by wooden pins, and lashed with rattans. The pirate never goes to sea with a kakap alone, and the voyager may be sure whenever he descries a kakap, that a penjajap is not far behind, moving along, perhaps, in the shadow of the high coast, or lurking behind some island, or lying within the seclusion of some woody creek. Eight or ten of the best fighters are usually chosen to man these light skiffs, which remind us of those flying proas of the Ladrones described by a French voyager in a note to Sonnerat. In calm weather the pirates row in these buoyant gallies along the shore, or mount the small rivers, confiding in their agility, and knowing well that if surprised they may fly into the woods, bear their little skiff with them, and launch it again at some spot unknown to their pursuers.

The Paduakan are native vessels having a single mast in the form of a tripod, and carrying a large lateen sail of mat. They are from twenty to fifty tons burden, and of great beam, with lofty sides, and little hold in the water. They are steered by two long rudders, which are lifted up when the vessel is moored or passing through a shallow.

The ordinary prahus made use of by the Malay pirates, at the present day, are from eight or ten tons burden, very well manned and exceedingly fast. Usually they are armed on the bows, centre, and stern with swivel pieces.

A second class, the Lanun pirate prahu of Mindanao, carries a crew of about 60 men. It has a stage or platform suspended to the mast, with grapling hooks attached to the end, which is used as a bridge for bordering a prize.

The first class Lanun pirate prahu of Mindanao carries a crew of 100 men or thereabouts. In this description of vessel, the tripod mast, the two after feet of which work on hinges, is used as a bridge in boarding.—*Kolff's Report*, 1831; *Earl's Voyage of the Dourga*, *Note* 89; *St. John's Indian Archipelago*, *Vol.* ii, *page* 182 *to* 184. *Sonnerat*, *Voyage p.* 139.

PRAIT or Purehut, a stream in the Jubbulpur district near Jubbulpur.

PRAJA or Panja, SANS. *lit.* Projeny, offspring. The Praja of Cooch Bahar are cultivators almost in a state of serfdom. In Cuttack, the barber, washerman, fisherman, weaver, leather worker and tari gatherer are classed as Praja and often sell themselves and families into temporary slavery.—*Wilson.*

PRAJA PAT, a king, *Wilson*

PRAJA PATI, progenitors of mankind.

PRAJNA, in Buddhism, means wisdom, understanding, or foreknowledge. The author of the Ashta Sahariska thus addresses Prajna, "Thou mighty object of my worship! Thou Prajna, art the sum of all good qualities, and Buddha is the Guru of the world." The author of the Puja Kand thus addresses Prajna:—I make salutation to Prajna Devi, who is the Prajna Paramita (Transcendental Wisdom), the Prajna Rupa (multiform), the Nir Rupa, (formless), and the universal mother.

PRAJNA DEVI is deified Nature or Diva Natura, and the same as Dharma. In the physiological mythology of the buddhists, the universal mother, in the Kameshwari temple is represented by the Yoni, which is there a triangular stone. Adi Prajna or Dharma is the Prajna Devi, the Prajna paramita, the Prajna rupa, the Nir rupa and the universal mother. The wise make no distinction between thee and Budh. When all was Sangata, Prajna

Devi was revealed out of Akas (space) with the letter *u*. That Yoni from which the world was made manifest is the trikon akar jantra. In the midst of the Jantra or trikon is a binda (point or cypher) from that binda Adi *Prajna* revealed herself by her own will. From the sides of the triangle, Adi Prajna produced Budh and Dharma and Sangha. Adi Sangha, Amitabha, by virtue of his Samta Jayan, created the Budhi satwa named Padma *pani* and committed to his hands the lotus, the type of creative power. From Padma pani's shoulders sprang Brahma's forehead, Mahadeo his two eyes, the sun and moon, from his mouth the air, from his teeth Saraswati, his belly Varuna, his knees Lakshmi, his feet the earth. From the union of the essences of Apaya (Adi Budha) and of Prajna (Adi Dharma) proceeded the world, which is Sangha represented by the letter M.

PRAJAPATYA, Sans. The work of a prajapatee.

PRAJNA PARAMITA, see Prajna.

PRAJNANATH, see Inscriptions.

PRAKAT, or Rakat, also Parakat, Parkat, Malay, Glue.

PRAKKE CHETTU, or Pakke chettu, also Pabbe, Tamarix gallica, *L*.

PRAKRIT, or Prakrita, is a term given to a dialect of the Sanscrit, it is the common, the enchorial and not the perfect language. In this sense, the common dialect of any spoken language is a Prakrit. See Pracrit.

PRAKRIT, see Kali, Sacta, Siva.

PRALHAUD, see Avatarum, Narasinga or Man-lion Avatar.

PRAMARA, one of the four Agnicula Rajput tribes. The thirty-five Sachæ of the Pramara are—

Mori, of which was Chandragoopta, and the princes of Cheetore prior to the Gehlot.

Soda, Sogdi of Alexander, the princes of Dhat in the Indian desert.

Sankla, Chiefs of Poogul, and in Marwar.

Khyr, Capital Khyraloo.

Oomra and Soomra, Anciently in the desert, now mahomedans.

Vehil or Bihil, Princes of Chandravati.

Maipawut, Present chief of Bijolli in Mewar.

Bulhar, Northern desert.

Kaba, Celebrated in Saurashtra in ancient times, a few yet in Sirowi.

Omuta, The princes of Omutwarra, in Malwa, then established for twelve generations. Omutwarra is the largest tract left to the Pramara. Since the war in 1817, being under the British interference they cannot be called independent.

Rehar, Dhoonda, Soruteah, and Hurair, Grasia petty chiefs in Malwa.

The Pramara, though not, as the name implies, the 'chief warrior,' was the most potent of the Agnicula. He sent forth thirty-five sachæ, or branches, several of whom enjoyed extensive sovereignties. 'The world is the Pramar's,' is an ancient saying, denoting their extensive sway; and the 'No-kot maroost'—halli signified the nine divisions into which the country, from the Sutlej to the ocean, was partitioned amongst them, Maheswar, Dhar, Mandoo, Oojein, Chandrabhaga, Cheetore, Aboo, Chandravati, M'how Maidana, Parmavati, Omrakote, Bekher, Lodurva, and Puttan, are the most conspicuous of the capitals they conquered or founded. Not one remnant of independence exists to mark the ancient greatness of the Pramara; ruins are the sole records of their power. The prince of Dhat, in the Indian desert, is the last phantom of royalty of the race. He is the descendant of the prince who protected Hamayoon, when driven from the throne of Timoor, and in whose capital, Omrakote, the great Akbar was born. Among the thirty-five sachæ of the Pramara the Vihil was eminent, the princes of which line appear to have been lords of Chandravati, at the foot of the Aravulli, but of the dynasties issuing from the Agnicula, many of the princes professed the Buddhist or Jain faith, to periods so late as the mahomedan invasion.—*Tod's Rajasthan, Vol.* i, *pp*. 92-93.

PRAMATHA NATH, see Inscriptions.

PRAN, Hind., Eremurus spectabilis.

PRAN, in hindoo belief, a spiritual element, of which there are twelve. The hindoo believes that on the clearness and firmness of his spirit at the last moment, when all is growing dim before him, hangs his chance for the world beyond. His life ebbs away, the eleven pran, or spiritual elements, gliding from him, ascend the precipitous banks of the dark Bhaosagur river. The twelfth pran—the spirit of life—still flutters within him. The eleven fore-runners, as they stand on the awful brink, survey beneath a vast chaos of animal shapes and forms. If the twelfth which they have left behind can remain placid and calm, the eleven may have a brief moment's respite to choose from among the ghastly throng the form into which they shall migrate. The choice made, the angel of death from behind precipitates them into the abyss where, joined by their twelfth mate, they enter the chosen tabernacle. And thus, with a last struggle, the spirit passes away.—*Pioneer.*

PRANAM, a hindoo form of salutation, consisting of a slight inclination of the head, and the application of the joined hands to the forehead.

PRANAYAMU, Sans. From prana, life,

and ayama, a coming. The exercises of pranayama or breathing through either nostril alternately, and then closing both during the repetition mentally of certain formulæ.—*Hind. Theatre, p.* 195.

PRANGMADANI, MALAY. Carpets.

PRANGOS PABULARIA, *Lindley.*

Fitrasuliun, Pushtu.	Prangos, Pushtu.
Potrasoleum, ,,	Komal, ,,

Grows in Cabul and on the trap hill of Ahatong in the Kashmir valley, but the Kashmirians do not value it. This plant constitutes excellent fodder for cattle, fattens quickly, and destroys the "liver fluke" of sheep. Royle considers this one of the plants which yielded the Silphium of Alexander's historians. It was discovered by Moorcroft, in Tibet, and found by him to be employed as winter fodder for sheep and goats, and frequently for neat cattle. Moorcroft writing from the neighbourhood of Draz, describes the Prangos hay plant as producing fatness in a space of time singularly short, and likewise as being destructive to the liver fluke; he therefore justly concluded that it would be an invaluable acquisition to any country to the climate of which it was suited, as its highly nutritious qualities, its vast yield, its easy culture, its great duration, its capability of flourishing on lands of the most inferior quality and wholly unadapted to tillage, impart to it a general character of probable utility unrivalled in the history of agricultural productions. When once in the possession of the ground, for which the preparation is easy, it requires no subsequent ploughing, weeding, manuring, or other operation, save that of cutting and of converting the foliage into hay. Various attempts were made to introduce the Prangos hay plant into Great Britain, but unsuccessfully; and it is probable it will only succeed, and be valuable in a climate similar to that where it is found indigenous. The Prangos is highly valued in the cold and arid region of Tibet, where it is indigenous. It is found in Tibet, and also most abundantly on Ahatong, a low trap hill in the valley of Cashmere; but there it was not so vigorous as in its Tibetan habitat. Though abundant in various directions, the Cashmerians do not esteem it of any value, and Dr. Falconer is of opinion that its importance has been much over-estimated, in consequence of its being the only food in many of the bleak and barren tracts of Tibet. In Cashmere, where far from a deficiency of herbage there is actually a superabundance of pasture grasses, it is necessarily much less esteemed. The Prangos will, therefore, most probably be a valuable acquisition only in countries devoid of good natural pasturage and of which the climate is favourable to its growth. In Kashmir, it is used in decoction to cure the rot in sheep. The leaves are used as fodder for sheep, they are rather heating. The native name "fitrasalyun," is probably a corruption of "parsley." Royle states that Lieut. Burnes crossing in the direction of Alexander's route found this plant, "the prangos," greedily cropped by sheep.—*O'Shaughnessy, page* 369; *Moorcroft in a letter to W. Butterworth Bayley, Esq., formerly Chairman of the Court of Directors, Vol.* v, p. 179; *Royle's Pro. Res.; Powell's, Hand-book, Vol.* i, *p.* 352. See Graminaceæ.

PRANHITA, the name of the united streams of the Wardha and Waingauga up to their junction with the Godavari. On the Pranhita and Godavery river, the Mahratta and Teling races meet.

PRAN-NATHI. These are also called Dhami, disciples of Pran Nath, who lived in the latter part of Aurungzeb's reign, and composed Mahitariyal, with a view to combine the mahomedan and hindoo religions. They eat together and admit the gods of each other's religions, but do not make any other departure from the customs of their ancestors.

PRANNE KORENJA, RUS. Spices.

PRAN-PRALAP. There arose in Nadiya in the beginning of the 16th century, a reformer who was destined to wield immense influence on the masses. Chaitanya flourished during the time of Kasinatha, and when Sayyid Hussain Sharif of Mecca reigned in Gaur under the title of Sultan Ala-ud-din Hussain Shah, Sharif of Mecca. It was when Luther was thundering against the indulgence and other abuses of the christian church, that Chaitanya preached a new doctrine. That doctrine was the efficacy of Bhakti or faith as contra-distinguished from works. It was an innovation or the Vedic system, which inculcates specific religious duties and the performance of ceremonies and acts. The Bengali reformer taught that all men are capable of participating in the sentiments of faith and devotion, and that the members of all jati or castes became pure by such sentiments. He maintained the pre-eminence of faith over caste. The mercy of God was according to him boundless, and not circumscribed by the restrictions of tribe and family. He declared that Krishna was Paramatma or the Supreme Spirit, prior to all worlds, and both the cause and substance of creation. In his capacity of Creator, Preserver, and Destroyer, he is Brahma, Vishnu, and Siva. Chaitanya became the founder of the largest religious sect in this country, mustering nine to ten millions strong, and fortified by an elaborate organization. Its disciples are to be found in almost every village in Bengal. They include some of the wealthiest and most influential families, as well as a host of poor and obscure men. Having obtained the sympathy and support of a large class, Chaitanya now openly declared it was his mission to go forth and preach the love of Krishna as the one thing needful for salvation. But the Krishna of Chaitanya was not the son of Debaki, the intended victim of his uncle the tyrant Kansa, the sojourner in Brindaban, the companion of cowherds, the lover of Radha, the favourite of milkmaids and flower women, the terror of husbands, and afterwards the conqueror of Kansa and king of Dwarka; but the Creator of the universe, and the God of truth, justice, mercy, and love. His Krishna was the great and original Spirit, the Author of creation and the Giver of all good. The age of Kasinatha and his successors was eminently favourable to the reception of the religious tenets he offered to it. The country had undergone great political and social changes. The character of the hindoos had been moulded during some time by mahomedan conquests, mahomedan intercourse, mahomedan laws, and mahomedan literature. Their minds were at this time fermenting with religious longings to which the doctrine of Bhakti inculcated by Chaitanya answered in many ways. A more practical religion than Vedantism, and a purer religion than Bhavanism, was eagerly looked for. It is therefore not to be wondered at that the religion of Chaitanya soon took root in Nadiya, which reverberated with the name of Krishna. Young men and old men of that city gathered round him, among them was Adaitanandan, who was to him what the Baptist had been to the greatest religious reformer. He addressed them all in a tone of authority and affection, telling them that Krishna was the Saviour, and that they must love him with all their hearts and with all their souls. His preaching was generally heralded by convulsions and fainting fits. This phenomenon was called by his disciples Pran-Pralap, and continued for hours. During its continuance he forgot all mundane affairs and exclaimed ever and anon Krishna, Krishna. This ecstatic state of Pran-pralap was attended with mystic sighs and songs of Haribol. It was contagious among his disciples and became a conspicuous trait of the new sect. Chaitanya was a mystic. Eating but little and caring nothing for the animal man, he was able to maintain a state of continued excitement. This cerebral and muscular debility contributed in no inconsiderable degree to bring about those alternations of deep sorrow and intense joy, which told so much upon his audience and by means of which he swayed tens of thousands. Chaitanya thought or rather felt that the first and greatest of all works was faith in Krishna. From this all other works must spring. He announced this as a mighty message of joy, a message that thrilled through the hearts of his hearers. He preached that the Chandala whose impurity is consumed by the chastening fire of holy faith, is to be reverenced by the wise, and not the unfailing expounder of of the Veda. Again, "the teacher of the four Vedas is not my disciple. The faithful Chandala enjoys my friendship, to him let it be given, and from him be received; let him be reverenced even as I am reverenced." This doctrine was the efficacy of Bhakti or faith as contradistinguished from works. Religious rites and ceremonies were in the opinion of Chaitanya not essentially important, but the appreciation of them by the generality of mankind, and their adaptability to the spread of religious tenets, were fully realised by him. With a view to perpetuate distinctiveness of his sect and society, and establish an indissoluble bond of union, he insisted on his followers submitting to the initiatory rite of the Mantra. It consisted in the guru or spiritual guide whispering in the ears of the Sishya (disciple) the mystic words "Kling Krishna." Another observance enforced by Chaitanya among his followers was the eating of the prasad by them together. A common meal has always been understood to cement and ratify relations of friendship. The brotherhood of the Vaishnava sect was symbolized in the prasad. It was a communion where all the followers, without distinctions of caste, were admitted on equal terms. There was the learned Naiyaik as well as the illiterate Chasa, the mahomedan Rais as well as the mahomedan Mahut, the Kulin brahmin and the Kulin Kayastha as well as the aboriginal Bagdi and the excommunicated Chandal, all participating in consecrated rice and dal and malpua. It was a manifestation of an intimate fellowship between those who shared in this common meal. It is now manifest that one of the distinguishing features of Chaitanya's theocracy was the universal character of the sect he founded. That sect was recruited from all classes of the hindoo as well as the mahomedan community. No one who desired to enter was refused. To all who knocked at the door admittance was granted. Chaitanya kept an open house and his guests represented all classes, not only of society but of humanity. Chaitanya was most child-like in disposition and character. He was essentially guileless and simple-minded, but a most large-hearted man; and it was in his preaching that he poured out the wealth of that heart. He became a king of men on the Bedi or pulpit which constituted his throne. His sermons were to the hindoos of Bengal, what those of Savonarola were to the Florentines. Like the Italian reformer he was fervid and forcible. Chaitanya was fond of travelling and became an itinerant preacher. In the course of his peregrinations he came to Ramkali, situated in the suburbs of Gaur, the then capital of Bengal. He delivered there a magnificent sermon. Striking the harp and hymning the praise of Krishna, he touched a chord which resounded and vibrated through Bengal. His utterances were aglow with intense fervour. Thousands of people came to hear him, and the sensation he made was so great as to attract the attention of the king Syed Husain, who deputed an officer to enquire into the matter. The officer reported that the noise had been made by a Sanyasi, and that it was not worth while taking further notice of the matter. But he continued to preach, and all classes of men from all parts of the great city crowded to Ramkali. Among those who had come to hear him preach were two mahomedan brothers Dabir and Khash, holding high employ in the Court of Gaur. They were in fact ministers of Syed Husain and enjoyed his entire confidence. They were enraptured with the eloquence of Chaitanya, and became converts to the doctrine of Bhakti; they longed to see him in private, learn at his feet the tenets of the new faith. Accordingly they went to his cottage at midnight and thus addressed him. Purifier of the fallen, low in descent, and occupation, we are afraid of speaking our minds to thee. Saviour of Jagai and Madhai, have mercy on us. Of Mhlechha descent, these sinners are incomparably more odious than those lordly brahmins of Nadiya. Our race has sinned greatly against cows and brahmins. We are dwarfs standing on tiptoe to catch the moon. Stoop in mercy towards us." Chaitanya cordially received them and assured them of their salvation. "Krishna will save you—henceforth you shall be known to the world under the names of Rup and Sanatan." The reception of two mahomedan nobles evinced a moral courage of no common order; which, while it showed Chaitanya's deep conviction of the purity and popularity of his faith, afforded conclusive evidence of his extraordinary boldness in disregarding the injunctions of caste and race, and his intention to build religion on the fatherhood of God and the brotherhood of man. It must be remembered that the convert brothers were members of a court which was intolerant of hindooism, and served a king who, claiming as he did, direct descent from the prophet, was particularly aggressive against its doctrines. This act, therefore, was calculated to enlist against the reformer, not only the active antagonism of the king and the court of Bengal, but the hostility of the hindoos who had been accustomed to regard the mahomedans as Mlechhas, association with whom, in a hindoo religious point of view, is contamination. He, however, fully expected his disciples to cast aside all antiquated prejudices, and above all, and beyond all, to have faith, which he rightfully applied as the true test of training in Vaishnavism. He was emphatically what the Germans call an epoch-making man; representing some of the best elements of hindoo thought and hindoo character, and illustrating in himself the strength and weakness of hindoo theology. His object was grandly catholic. It was to rebuild hindoo society from its foundation, to exterminate priestcraft, to eradicate the evils of caste, to introduce religious toleration, to assert the right of equality of man, and to establish the relations of his fellow-beings on the principle of a universal brotherhood. A fanatic and a mystic, Chaitanya never deviated from his appointed course; and the immense influence he had acquired over the hearts of his followers, he applied to the furtherance of no personal objects, but of that religion to which he had consecrated his life and his energies.—*Calcutta Review, No.* 109, *pp.* 100 *to* 102.

PRANU NIRODHA, Sans., from prana, life, and nirodha, to stop.

PRAONG, see Himalaya.

PRASADA, Sans. Amongst the Sikh and Vaishnava sects, means a distribution amongst the assistants of sweetmeats which have been consecrated to the idols. Prasada in the hindoo religion, is an article of food, consecrated by previous presentation to an idol, after which it is distributed amongst the worshippers on the spot, or sent to persons of consequence at their own homes. It was the prasad'h or meat offered to idols from which in Acts xv. 29, the followers of the Christ Jesus were told to abstain. But 1st Corinthians x, 25, says, 'Whatsoever is sold in the shambles, that eat, asking no question for conscience sake.' In Orissa, the people buy the boiled rice which has been offered to Jagannat'ha, and all the different castes eat of it together, as an act of merit: the same conduct in Bengal would make them out-castes. The buddhists of Burmah also throw away the offerings and at the great Shooay Dagon at Rangoon and the Prome temple, Shooay-San-Dau, vast heaps of boiled rice are thrown over on the rocks. Most hindoos eagerly seek whatever has been offered to an idol; hence it is common to see flowers which have been thus offered, placed in the hair of a hindoo. Water that has been thus made sacred is preserved in hindoo houses, and with it they rub their bodies, and occasionally sip a drop, regarding it as the water of life. It has been remarked by the celebrated Goguet, that the custom of offering food to the object of divine homage had its origin in a principle of gratitude, the repast being deemed hallowed by presenting the first portion to him who gave it, since the devotee was unable to conceive aught more acceptable than that whereby life is sustained. From the earliest period such offerings have been tendered; and in the burnt-offering (hom) of Abel, of the firstling of the flock, and the first portion of the repast presented by the Rajput to Anadeva, 'the nourisher,' the motive is the same. But the prasád (such is the denomination of the food sacred to Kaniya) is deemed unlucky, if not unholy; a prejudice arising from the heterogeneous sources whence it is supplied—often from bequests of the dead. The Mookhia servants of the temple accordingly carry the sacred food to wheresoever the votaries dwell, which proves an irresistible stimulus to backward zeal, and produces an ample return. At the same time are transmitted, as from the god, dresses of honour corresponding in material and value with the rank of the receiver, a diadem, or fillet of satin and gold, embroidered; a dugla or quilted coat of gold or silver brocade for the cold weather; a scarf of blue and gold; or if to one who prizes the gift less for its intrinsic worth than as a mark of special favour, a fragment of the garland worn on some festival by the god; or a simple necklace, by which he is inaugurated amongst the elect. Kaniya ki kanti band' hna, 'to bind on [the neck] the chaplet of Kaniya,' is the initiatory step. At the present day, christians of no sect make any food-offerings to idols. The Hebrew races however, as also the mahomedans only partake of the flesh of such animals as have been made lawful food by being prayed over before being killed. This is called amongst mahomedans Halal karna, to make lawful, and a mahomedan recites the words Bismillahi, Allaho-Akbar. Otherwise, it is haram, unlawful. In the name of the Lord to God, the great. In the butcher shops of the towns of Europe, where the Hebrew races reside, there is a mark put on the animals which have been made lawful food.

Mr. Mayhew, in his work on "London Labour and the London Poor," after speaking of the Jew butchers of Whitechapel, says: "The slaughterers I saw were quiet-looking and quiet-mannered men. When the animal is slaughtered and skinned, an examiner (also appointed by the synagogue) carefully inspects the 'inside.' 'If the lights be grown to the ribs,' said my informant, who had had many years' experience in this branch of the meat trade, 'or if the lungs have any disease, or if there be any disease anywhere, the meat is pronounced unfit for the food of the Jews, and is sent entire to a carcase butcher to be sold to the christians.'" Meat that is fit to eat is distinguished by a leaden seal, stamped in Hebrew characters with the name of the examiner, and the word Koshar meaning lawful. Meat killed according to the Jewish law is known as "coshar," while that killed in any other fashion is called "tryfer."

There is no restriction, however, which, as it appears to us, would be likely to have a stronger influence upon the culinary art of the Jews than the injunction, three times repeated in the Scriptures in the same words, "Thou shall not seethe a kid in his mother's milk." Exodus xxiii, 19, and xxxiv, 26, and Deuteronomy xiv, 21). The utmost caution and care have been used in carrying out both the letter and the spirit of this injunction. It was extended not only to the flesh of all animals, but to any process which could, in its widest acceptation, be included under the term "seething," or whatever may be its Hebrew equivalent. And further, every precaution was taken to remove the possibility even of an admixture of the two elements. Particular vessels had to be used for dressing flesh and others for milk; and so, too, there was a complete separation required for dishes, plates, knives, forks, and so forth. No vessels of wood or earth might be purchased at second-hand, and those of metal or stone had to be well scoured with hot ashes or scalded in boiling water before it was considered proper to employ them in the preparation of food. The hindoo races are even more stringent than the Hebrew and many of the vaishnava sect do not allow a stranger to see the cooking.—*Tod's Rajasthan*, *Vol.* i, *p.* 529. See Hindoo.

PRASAD'HAM, food offered to idols, see Hindoo, Prasad.

PRASHA, Rus. Yarn.

PRASLIN, a high island, one of the Seychelle group, 20 miles from Mahe.—*Blyth.*

PRASANGA RAJA DATTA, see Inscriptions.

PRASARA or Prasarya, see Hindoo.

PRASE, a quartzose mineral, it is found amongst the pebbles on the shore at Trincomallee in Ceylon and in the Dekhan trap.

PRASINUS, Gr. Emerald.

PRASTI, Hind. Populus alba.

PRASASTU, see Hindoo.

PRATA, Port. Silver.

PRATA-KALA, Sans., from pratur, morning, and kala, time.

PRATAPA RUDRA, one of the Adeva rajas of Warangal who reigned A. D. 1162. See Inscriptions.

PRATAPA VARMA, see Inscriptions.

PRATAS ISLAND, in the China sea in lat. 20° 42′ N., and long. 116° 43′ E., is of a horse-shoe shape, occupying the western part of the Pratas reef. It is 1½ mile long.

PRATINCOLA RUBICOLA, the Saxicola rubicola; or Stone-chat, of Europe, N. Africa, Japan (Temminck.) In India replaced by the nearly affined Pr. indica, and in Sindh also by Pr. leucura, as in S. Africa by Pr. pastor.

PRATINCOLA RUBETRA, Saxicola rubetra, 'Whinchat' of Europe, N. Africa, Arabia (Schlegel): migratory. Erroneously assigned to India.

PRATISH THANA, the ancient name of Allahabad.

PRATSHU, Hind. Myrsine africana.

PRATTI, or Patti, Tel. Gossypium herbaceum, *L.*

PRATTIMA, Tel. Idol.

PRATYUK PUSHPI, Sans., or Uttareni, Tel. Achyranthes aspera, *L.*

PRAVRISHAYANI, Sans., or Peddadulagondi, Tel. Carpopogon pruriens, *R.*

PRAVARA SENA 2nd, see Inscriptions.

PRAVARA DHAM-ANRAJYA SAMVAT, see Inscriptions.

PRAVARASENAPURA, the new capital of Kashmir.

PRAWN.

Jeengha,	Duk.	Eeral,	Tam.
Oodang,	Malay.	Roielleo,	Tel.

The prawns, shrimps, crab, crawfish, and other kinds of crustacea are abundant, and palatable. One species of Chinese crawfish, as large as but not taking the place of the lobster called lang hai, or dragon crab, cuttle-fish of three or four kinds, and the large king crab (Polyphemus), are all eaten by the Chinese though not relished by others.—*Ains. Mat. Med., p.* 155.

PRAY. The Manu Manau tribe are called by the Red Karen, Pray, they dwell between the Sgau and Red Karen.

PRAYAGA, the modern Allahabad, also called Pratishthana, is described in ancient hindoo writings, as at the confluence of the Yamuna and Ganges on the bank of the latter: it would seem, therefore, so late as the composition of the drama of the Hero and the Nymph, that that ancient city still stood opposite to its present site. The ruins, according to Hamilton, are still to be seen at Jhusi on the left bank of the Ganges. Allahabad or Prayaga was a holy place, having been the seat of Bharadhwaja hermitage; but it never was a city until Akbar made it one. The name of Prayaga is recorded by Hwen Thsang in the seventh century, and is in all probability as old as the reign of Asoka, who set up the stone pillar about B. C. 235, while the fort was not built until the end of the sixteenth century. Hwen Thsang makes the district of Prayaga about 5,000 li, or 833 miles, in circuit; but as it was closely surrounded on all sides by other districts, General Cunningham reduced it to 500 li, or 83 miles, and limits the district to the small tract in the fork of the Doab, immediately above the junction of the Ganges and Jumna. It was at Prayaga, the well-known place of pilgrimage, at the junction of the Ganges and Jumna, that Akbar built his fort of Ilahabad, or Allahabad, as it was afterwards called by Shah Jehan. There still is the famous tree called Akshay Bat, or undecaying Banyan tree. This tree is now situated underground, at one side of a pillared court, which would appear to have been open formerly, and which is, he believes, the remains of the temple described by Hwen Thsang. The temple is situated inside the fort of Allahabad, to the east of the Ellenborough barracks, and due north from the stone pillar of Asoka and Samudra Gupta. According to the common tradition of the people, the name of Prayag was derived from a brahman who lived during the region of Akbar. The story is, that when the emperor was building the fort, the walls on the river face repeatedly fell down, in spite of all the precaution taken by the architect. As the old city of Prayag has totally disappeared, we can scarcely expect to find any traces of the various buddhist monuments which were seen and described by the Chinese pilgrims in the seventh century.—*Cunningham's Ancient Geo. of Ind., pp.* 388-90; *Tr. Hind., Vol.* i, *pp.* 207, 317; *Hindu Theatre, Vol.* i, *p.* 207; *The Hero and the Nymph; Hamilton's Genealogies of the Hindoos.* See Lat.

PRAYINGU, Sans. Setaria italica.

PRAYANG, see Inscriptions.

PRECIOUS OPAL, see Opal.

PRECIOUS STONES. Gems and precious stones are the same minerals, but amongst lapidaries, the term gem is generally applied to the better variety. Amongst scientific mineralogists, gems and precious stones are distinguished and classed according to their chemical composition, their hardness and their specific gravity, but lapidaries and jewellers name gems according to their colours, rather than with reference to their chemical composition or their relative degrees of hardness and density. Thus the corundum ruby, (oriental ruby) spinelle or others are all, when red, called ruby; if green, emerald: if blue, sapphire; and if yellow, topaz. Oriental is a term applied to the finest gems whether found in the east or not. The ancients called the most highly-coloured stones, masculine, and those of more subdued tests, feminine, and according to Pliny, the ancients included under the term gems, all stones of beautiful colours which were found in small quantity and of a sufficient degree of hardness to be engraved as seals. According to the moderns, gems are those stones which in a small compass, combine hardness and fire or lustre, with vivid soft or agreeable colours, and divide them into two classes, real gems or jewels and precious stones. The real gems are the

Diamond,
Sapphire,
Ruby,
Spinelle,
Emerald,
Beryl,
Topaz,
Zircon,
Garnet,
Chrysoberyl,
Tourmaline,
Rubellite,
Essonite,
Cordierite,
Iolite,
Cyanite (sapphire),
Chrysolite, of Rock crystal varieties.

Precious stones are supposed to possess the same characters as the gems only in a minor degree. They are also generally only translucent or semi-transparent and occur in large amorphous masses. The precious gems commonly seen are—

Emeralds,
Pearls,
Rubies,
Diamonds,
Amethysts,
Sapphire,
Topaz,
Avanturine,
Beryl,
Precious opal.

The course of trade has been so devious from time to time that obscurity long prevailed as to the native countries of the precious stones. The localities in Coimbatore, which supply the beryl, are also supposed to have yielded the emerald, though Tavernier was not able to ascertain that any part of India, in his day was yielding emeralds. Tavernier says (p. 144,) "as for emeralds, it is a vulgar error to say they came originally from the east. And therefore when jewellers and goldsmiths do prefer a deep-coloured emerald inclining to black, tell ye, it is an oriental emerald, they speak that which is not true. I confess, I could never discover in what part of our continent those stones are found. But sure I am, that the eastern part of the world never produced any of those stones, neither in the continent, nor in the islands. True it is that since the discovery of America, some of those stones have been often brought rough from Peru to the Philippine Islands, whence they have been transported into Europe; but this is not enough to make them oriental. Besides that, at this time they send them into Spain through the North Sea."

That the lands in the east have generally been supposed to be the chief gem-producing countries is also shown by the fact that Europe designates the most valuable of them oriental—oriental amethyst, oriental emerald, oriental topaz, oriental aquamarine.

Chemically speaking, the diamond, the most precious of all stones, is a mere crystal of carbon; the others, with certain exceptions, are mere crystals of clay. These clay crystals take different names according to their colours. When red, the crystal is called a ruby; when blue, a sapphire; when purple, an amethyst; when green, an emerald; when yellow, a topaz; but all these varieties represent one and the same stone; in fact, the colours pass into one another almost indiscriminately. It is not always, for instance, that the red or blue distinctly predominates. It requires a very pure ruby to be of a perfect red, and an equally pure sapphire to be of a perfect blue. Frequently the colours run more or less into one another, so that each stone shows a touch of purple. Thus the amethyst, though ranked as a particular species of stone, is but a stone in which the colours of the ruby and sapphire are blended. Sometimes the colour itself will vary with the light. In the International Exhibition of 1862 there was shown a stone of some historical importance, called "the marvellous sapphire," because, though of a pure blue by day, it became a deep purple by candle-light. Many sapphires, however, have the same peculiarity, and it is considered in the trade, not a recommendation, but a flaw. The scientific name for the ruby class is the "corundum," but only the red and blue corundums are commonly seen, the green and yellow corundums being extremely rare. When found, they are styled, for distinction's sake, the "Oriental" emerald and topaz, the ordinary topaz and emerald being different stones altogether, and brought to us, not from the East, but mostly from Brazil. An "Oriental" emerald, or, in other words, a green corundum, and, similarly, a yellow sapphire or a purple sapphire, would be of a far finer quality and higher value than the stones going by that name in the trade. Information from Melbourne assures us that these rare varieties of the corundum are among the gems there discovered, so that, besides obtaining an increased supply of diamonds, we shall receive specimens of jewels hitherto all but inaccessible. White sapphires and green sapphires are specially enumerated among the stones already brought to light, and as the discrimination between the two classes is, in skilled hands, both easy and infallible, there should be little danger of mistake. As far as we can judge, and as far as is actually judged on the spot, the Australian mines do produce these precious varieties, and are therefore richer than the mines of Brazil. Brazil produces diamonds in abundance almost incredible, but they are rarely of high quality or large size. All the more valuable stones, whether diamonds or corundums, come from the East, and many of them, perhaps, came hundreds or even thousands of years ago. The famous diamond mines of Golconda have long ceased to be productive, and it is impossible to conjecture how long its products may have been in circulation. Precious stones, it should be remembered, are absolutely indestructible. Some of them, like the Koh-i-Noor, have a history of many centuries, and there is no reason, indeed, why the very stones set on the breastplate of the Jewish High Priest should not be in existence still. Gold and silver disappear constantly in prodigious quantities through various processes of industry, but a gem can never be worn out, and it is worth nobody's while to destroy it. The very finest specimens, indeed, are all known as accurately as the most famous paintings, and even the less valuable stones pass in endless circulation from one class or one country to another. A few years ago some of the best diamonds in England, including even the celebrated Burgundy diamond, were exported to Bombay on the orders of the Parsee merchants enriched by the cotton trade. Then came the financial collapse, and the precious gems, after thus returning to the land from which they came, were once more re-exported to Great Britain. Gems are not purely or solely articles of luxury. Diamonds are largely used in trade, and will be employed, perhaps, still more extensively if their price should fall. Rubies and sapphires, too, are required in the manufacture of watches; and it is probable that a material which, besides its brilliancy and beauty, possesses the quality of extreme hardness and durability, will be turned in other ways to useful account. In fact, the diamond trade at present is, as regards the production of new diamonds, mainly regulated by the demands of industry. The imports from Brazil consist of thousands upon thousands of small stones required for the glazing and other trades, the additions made to the more valuable specimens being extremely small. To this is due the extraordinary rise in the price of jewels during the last twenty years. When the gold discoveries, in conjunction with other causes, suddenly increased the public wealth, there was no corresponding increase in the gems which wealth is naturally employed to purchase. Instead of one customer who could give 500*l*. for a diamond, there were at least a dozen, and diamonds rose in the market accordingly. Quartzose minerals were not commonly known in ancient times and hence were extravagantly esteemed. Pliny tells of Polycrates, the wealthy tyrant of Samos, who, to buy off the ill-will of fortune dropped a sardonyx (quartz variety) into the sea ! The story goes that it fell into the mouth of a fish, which shortly afterwards was served upon the royal table (a very common eastern legend this) and was thus restored to the owner. Some years ago it was said to have been found when digging in the vineyards of Albano. Of course a stone with such a history is precious. Pyrrhus is said to have had an agate marked with the figure of Apollo and held to be of countless value. This was probably a mocha stone, which now-a-days fetches high prices if the patterns strike the buyer. Hence also moss stones cost from one to three rupees each while ordinary Cambay stones are sold by the dozen. It is fancy, not intrinsic value, which fixes the price here. There is in the British Museum a quartz stone bearing the traditional likeness of Chaucer, every feature being perfectly marked. It is simply priceless to Englishmen. But those who know not Chaucer—would value it only for its singularity, and ask you not more than Rs. 60 for it. And it was just because of their peculiar markings and because of their rarity in the markets that the ancients so inordinately prized "agates." Even so late as mediæval times, the amethyst and diamond were of equal value! In India the most valuable of all the gems is the diamond. It occurs in alluvial deposits at Cuddapah, Banaganpilly, &c., in the river Kistna also in the bed of the river at Sumbulpore in the district of the Mahanuddy river and at Punna in Bundelkhund. Corundum from its coarsest states to its finest in the form of the oriental ruby, emerald, topaz, and sapphire occurs in the granite and syenite districts. The spinel ruby is also a native gem, as likewise zircon which occurs in alluvium in the Ellore district. Schorl occurs in the granite and syenite districts. Chrysalite is an inmate of the secondary trap. Precious garnet, pyrope garnet and grenatite garnet are met with in primitive tracts of country, as also rock crystal and various beautiful amethyst and cat's eye and many kinds of cornelian jaspers and agates are also natives of the peninsula of India. The annual value of cornelian exported from India formerly amounted to £10,000. The secondary trap rocks afford beautiful and splendid specimens of the elegant zeolite family. In the southern districts of the Madras presidency, where the corundums occur, coloured stones are abundant, but it is not known if stones of any value were ever found there.

In the southern part of Ceylon is an extensive group of mountains rising to the height of 7,000 or 8,000 feet, which, with successive falls diminish till they rest on the alluvial plains of the low county. The S. W. face of this group forms a bold range, crowned at its western extremity by Adam's Peak called by the people Sri-pada or Holy foot, and at the eastern end of the range is Kirizalpota which rises in abrupt precipices to 8,000 feet above the plains. Ratnapoora, or city of Gems, is in part of this range. It is about 60 miles from Colombo, and about 200 feet above the level of the sea. It is the centre of the gem-producing district, which extends about fifty miles along the base of this mountain range, and in this district, comprising Safragam and the Three Korles, the search for gems is a regular occupation of the people, in the beds of streams and in the alluvial plains lying in the valleys, upon their banks. The gems found in this locality are the sapphire, the ruby and the topaz ; the cat's eye, amethyst and beryl, and the spinel ruby is also found but is more rare. They are found in a layer of gravel, fifteen to twenty feet deep to which they sink a foot, and if they meet with a thin hard crust of ferruginous stones or masses of milk quartz, such are always favourable signs. The oriental ruby or red variety of corundum, is very rare : when pure in water and colour it is very valuable. The blue variety of corundum is the oriental sapphire, is in greater abundance but of inferior value, and its colours greatly vary, from the deepest velvet blue to the palest and almost imperceptible tint even losing all tint and becoming colourless, and in that form is a very beautiful gem, remarkable for its whiteness and the absence of prismatic colours. The yellow variety of corundum is called the oriental topaz which is of every shade of yellow, and when pure it is highly valued. But, many stones have a milky opalesence which makes them valueless. When the red and blue are mixed in the corundum the stone is called oriental amethyst. Half a stone will be red and half blue. The Ceylon ruby has occasionally a blue tint, which can be expelled by heat. The opalesence occurs in rubies, sapphires and topaz. When such stones are cut *en cabochon,* at a certain angle to the axis, they form the star stone, showing in a strong light a star of six rays, very pretty as a fancy stone, but of no value as a gem.

Tourmaline occurs abundantly in Dindigul and in Ceylon, in colours black, brown, blue green, red, white and colourless, and exhibit a dichroism. Some beryls are quite colouring less, but the colours are generally blue or yellow. The finest beryls are described by Pliny as those 'qui viridatem puri maris imitantur,' which are of a clear sea-green colour, hence, crystals of clear tints of sea-green or sky-blue are called Aquamarinas or Aquamarines. The beryl occurs in considerable abundance at Kangium in a southern collectorate of the peninsula of India, and is largely worn by hindoo men as an ear-droop. Corundum occurs in great abundance in several districts of Mysore, in the Hyderabad dominions, in several taluks of Guntoor, in Rajahmundry, Indore, Cuttack, Coimbatore, North Arcot, Salem, and Madura collectorate, and, it is said, also in Travancore. This is the hardest of all known minerals except the diamond. The name corundum from the Tamil korund is commonly confined to the opaque rough crystals and cleaveable masses, generally of dingy-colours and often dark, while the term emery embraces the more or less impure, massive, granular and compact kinds. Sapphire, emerald, topaz and ruby comprise the transparent, brightly-tinted varieties,of corundum. Emerald crystal is hexagonal, colour green passing into light-blue, impure yellow, and white for the beryl. Lustre vitreous, sometimes resinous. Transparent to subtranslucent. Streak white, brittle. Fracture conchoidal, uneven. H. 7·5 to 8·0, S. G. 2·67 to 2·732. Analysis of emerald of Muzo:

Silica...	68·0	Magnesia	0·9
Alumina...... ...	18·1	Soda......	0·6
Glucina...	12·2	Tantalic acid ...	trace.

traces of chromium are reckoned with the magnesia, and perhaps there is a little titanic acid with the alumina. The emerald was believed by the ancients to be excellent in its virtues. It was supposed to be good for the eyes, on which account they were in the habit of wearing it, about their persons engraved as a seal, that they might have it to look at. The largest known emerald is the property of . the Duke of Devonshire, which was brought to England by Don Pedro. It measures two inches in length and 2¼, 2⅕ and 1⅞ inches across the three diameters. It is a six-sided prism, weighing 8 oz., 18 dwts., but there is a small piece of quartz attached to it, which would diminish that weight by 3 or 4 dwts. Owing to flaws it is but partially fit for the purposes of the jeweller. It was obtained from the mines at Muzo. A smaller but more splendid specimen in the possession of Mr. Hope, cost £500 and weighs 6 ounces. Emeralds of less beauty but of larger size are found in Siberia. A specimen in the Royal collection measures 14½ inches in length and 12 inches in breadth, and weighs 16¾ lbs. troy, brightlycoloured varieties of corundum, if blue, are generally called Oriental sapphire; the red, oriental ruby; the transparent or translucent yellow or white, oriental topaz; the green, oriental emerald; the violet, oriental amethyst; the hair-brown, Adamantine-spar; the asteriated crystals, Asteria; when transparent, with a pale reddish or bluish reflection, Girasol sapphire; with pearly reflection, Chatoyant or opalescent sapphire.

Oriental amethyst is a lilac-blue or violet variety of corundum.

Oriental chalcedony is a name sometimes applied by lapidaries to the finer kinds of cornelian: occidental chalcedony, on the other hand, being used by them to denote the softer and less brilliant varieties of a yellowish-red colour.

Oriental chrysolite is a name given by lapidaries to yellowish-green corundum.

Oriental emerald is a corundum of a greenish-yellow colour, tending more or less to olive.

Oriental garnet is a blood-red or dark crimson garnet.

Oriental hyacinths of jewellers are rich reddish-brown varieties of corundum; and also hyacinth of a hyacinth-red or deep red colour with a tinge of brown, and sometimes of orange-yellow.

Oriental opal red of jewellers are the finest kinds of precious opal.

Oriental peridot are varieties of a greenish-yellow colour, verging on olive.

Oriental ruby, fine red varieties of corundum.

Oriental sapphires are blue transparent varieties of corundum. When perfect, of a clear, bright prussian-blue colour and possessed of a high degree of transparency, this stone is valued next to the oriental ruby. It is, however, seldom found in this state, being more frequently pale blue, passing by degrees into entirely colourless. Pale varieties when exposed to a strong heat entirely lose their colour without undergoing any other alteration and have often been sold for diamonds.

Oriental topaz is a variety of corundum of a yellow colour more or less mixed with red. The most esteemed colour is a bright jonquil-yellow, and next a pure lemon-yellow. It is a very beautiful stone, though inferior in value to ruby or sapphire.

The ruby is imitated by Spinel, from which it is easily distinguished by superiôr hardness. The finest stones are found in the sand of rivers in Ceylon, in the sand of certain streams, and in the Capelan mountains near Syrian, the capital of Pegu and in Ava, but they are guarded most jealously from Europeans. They are described in the Journal of the Asiatic Society of Bengal, (vol. ii, p. 75,) they are about 60 to 70 miles from the capital, in a north easterly direction.

Sapphire, is found in the same earth with the rubies of Burmah but are much more rare, and generally of a larger size. Sapphire occurs crystallized in variously terminated six-sided prisms, and in rolled masses, and is found in the beds of rivers or associated with crystalline rocks. It possesses double refraction, and becomes electric by friction. Is not acted on by acids, and remains unaltered by the fire, red and yellow varieties if anything, being improved in colour by heating. Sapphire is chiefly brought from Ceylon and Pegu, but it is also found in Bohemia in France, in the Brook Rioupezzouliou, near Expailly in Velay and in New South Wales.

In Prinsep's "Oriental accounts of the Precious Minerals," it is stated that under the name of sapphire or .yaqut are comprised all those stones of the sapphire and ruby species, which are distinguished (or rather connected, as being chemically one) by the epithet Oriental, in English books of mineralogy, and are now classed together under the general head of Corundum, because they are composed of the same earth, alumina, as the corundum, or kurund of India. The natives, like European mineralogists, distinguish four principal species of yaqut, red, (Oriental ruby) blue (oriental sapphire); yellow, white, or colourless, (oriental topaz), and green (oriental emerald.) Blue sapphire is imitated with iolite, kyanite, &c., hardness affords the best test of the genuineness of the stone. The word sapphire is derived from sapheiros, the name of a blue stone amongst the ancients. Most probably the sapheiros of the ancients, however, was not our sapphire, but Lapis lazuli. Spinel may be readily distinguished from the oriental (or sapphire) ruby; for which it is often sold, by inferior hardness and specific gravity, and also by its crystallization. A fine stone, of 20 to 30 carats is worth from £8 to £16. There is considerable incertitude, according to Prinsep, concerning this gem amongst oriental authors. Jewellers in the east apply the term lal to all rubies, of a fine red colour, but the lal rumani (scarlet or pomegranate ruby,) is probably the true spinelle. The bright-red spinelle ruby, lal rumani, is called by modern jewellers as yaqut naram or simply in Hindustani, narmah also labri, it comes from Pegu and Ceylon, and less frequently from the north. Modern physicians ascribe the same medicinal properties to spinelle as to the oriental ruby.

Under the general term ruby, lapidaries class several stones of very different chemical composition, &c., which they distinguish chiefly by their colours. Thus when of a full carmine-red it is known by the name of spinel ruby, when the tinge verges upon rather pale rose-red it is called Balais or Balas ruby, when the red has a decided shade of orange it usually goes by the name of Vermeil or Vermeille, when of a yellowish-red it is called Rubicelle. The ruby is considered by jewellers to approach perfection the more closely it resembles the colour of pigeon's blood. The name ruby should, however, be restricted to the oriental ruby, or the red varieties of corundum. The ruby is generally set in rings and brooches, surrounded with brilliants. It is stated in Prinsep's "Oriental accounts of the Precious Minerals," that not to be deceived in rubies is a work of difficulty, because there are spurious ones of polished crystal which much resemble the true gem, these are called Ayn-ul-rajau, but a skilful lapidary will easily recognise them. When placed in the fire a true ruby becomes invisible, but when immersed in water it appears to glow with heat.

Rock crystal can be dyed. If made red hot, and plunged repeatedly into the tincture of cochineal, it becomes a ruby; if into a tincture of red sandal, it takes a deep red tint: into tincture of saffron, a yellow like the topaz; into a tincture of turnesol, a yellow like the topaz; into juice of nerprum, it takes a deep violet like the amethyst and into a mixture of tincture of turnesol and saffron it becomes an imitation of the emerald. Steeping the crystal in oil of turpentine saturated with verdigris or spirits of wine, holding dragons blood or other coloured resins in solution, depth of tints are produced proportioned to the time of steeping. Crystal can be coloured if heated in a crucible with orpiment and arsenic. Crystal coloured red as false rubies are known in France as Rubaces.—*King, p.* 178; *Bristow's Mineralogy, pp.* 40, 97, 126, 325; 330; *Taverner's Travels, p.* 144 *London Times Newspaper, Prinsep's Oriental Accounts of the Precious Minerals.* See Cambay, Gems, Ruby.

PREM DEVI. It was a saying of Bhishma that where a son does not exist, the daughter should occupy the throne. Prem Devi was on the throne of Delhi before the mahommedan invasion. In Nepal three females reigned at different times. Rajendra Lakshmi is described as a "woman of extraordinary character and talents." In Ceylon several ranis reigned from time to time. In Rajputana females governed as regents. Col. Tod, speaking of the Boondi queen says—"Her sentiments showed invariably a correct and extensive knowledge, which was equally apparent in her letters, of which he had many. At present (1873) the Begum of Bopal is reigning."—*Calcutta Review, pp.* 43, 109.

PREM SAGUR, a hindoo paraphrase of the Bhagavat purana.

PREMNA, a genus of plants, of the natural order Verbenaceæ, and tribe Viticeæ. There are 36 species of Premna known, of which the following are of the East Indies.—

esculenta, *Roxb.*, Chittagong.
barbata, *Wall.*, Bengal, Nepal, Kumaon.
latifolia, *Roxb.*, Coromandel.
longifolia, *Roxb.*, Bengal, Khassya, Assam.
herbacea, *Roxb.*, Bengal.
procumbens, *Moon.*, Ceylon.
spinosa, *Roxb.*, Bengal.
hircina, *Buch.*, Mauritius, Bombay, Moluccas.
scandens, *Roxb.*, Kandalla, Sylhet.
grandifolia, *Wall.*
cordifolia, *Roxb.*, Kandalla, Penang.
cænis, *Wall.*, Doab.
coriacea, *Linn.*
mucronata, *Roxb.*, Morung, Khassya.
tomentosa, *Willde.*, Circars.
flavescens, *Buch.*, Goalpara.
glaberrima, *W. Ic.*
integrifolia, *W. Ic.*
serratifolia, *W. Ic.*
thyrsoidea, *W. Ic.*
wightiana. *W. Ic.*

PREMNA BARBATA, *Wall.*

Premna serratifolia, *Roxb.*

PREMNA HERBACEA, *Roxb.*

Bhooi jam,	BENG.	Sheeroodek,	TAM.
Bhoomi jambooka,	SANS.	Gunta baringa,	TEL.
Siribekku,	SINGH.		

A plant of Ceylon and the peninsula of India.

PREMNA HIRCINA, *Buch.* Syn. of Premua integrifolia, *Roxb.*

PREMNA INTEGRIFOLIA, *Linn, Roxb.*

Premna hircina, *Buch.*

Chamaree,	MAHR.	Ghebu nelli,	TEL.
Appel,	MALEAL.	Pinna nelli,	"
Munnay maram,	TAM.		

The greens.

Ugni munda,	SANS.	Passu-munni-kiray,	TAM.
Munni kiray,	TAM.	Ghebbu nelli kura,	TEL.

The root.

Munni ver,	TAM.	Ghebbu nelli veru,	TEL.

A shrub or small tree, common in India, the timber is only useful for the most common purposes. On the Bombay side the shrub is rare, save about the ghaut heads. The leaves have a very unpleasant odour when pressed in the hand, but used by the natives in soups and curries. Root warm and bitterish, given in decoction as a cordial and stomachic: decoction of the leaves used in colic and flatulence. The root has a somewhat warm and bitterish taste, an agreeable smell, and is prescribed, in decoction, as a gentle cordial and stomachic in fevers, and on other occasions requiring medicines of this nature.—*Voigt, Gibson, Wight, Jaffrey, Rheede, O'Shaughnessy, p.* 486; *Ainslie's Mat. Med., p.* 90; *M. E. J. R.* See Vegetables of Southern India.

PREMNA LATIFOLIA, *Roxb.*

The tree.

Nelli chettu, TEL.

The greens.

Nelli-kura.	Peddi-nelli-kura.

A small tree of the Coromandel coast, wood white, firm, and used for various economical purposes. Flowers during the hot season, the leaves have a pretty strong though not disagreeable smell, and are much used in curries by the natives.—*Mr. Rhode's MSS.*; *Voigt.*

PREMNA MUCRONATA, *Roxb.*

Bankar,	BEAS., RAVI.	Gian,	RAVI.
Ganhila,	CHENAB.		

A tree which occurs in the Siwalik tract to 3,000 feet up to the Ravi.—*Dr. J. L. Stewart, M. D.*

PREMNA PYRAMIDATA, *Wall.*

Kyoon-na-lin, BURM.

A small tree of British Burmah; wood strong, used for weavers' shuttles. A cubic foot weighs lb. 52. In a full-grown tree on good soil, the average length of the trunk to the first branch is 30 feet, and average girth measured at 6 feet from the ground is 5 feet. *Dr. Brandis' Cal. Cat. Ex.*, 1862.

PREMNA SERRATIFOLIA, *DC.*

Munnæ-keeray, TAM.

Leaves used similar to those of P. integrifolia. The natives are very fond of them.—*Jaffrey.* See Vegetables of Southern India.

PREMNA SPICATA, *Burm.* Syn. of Premna spicigera, *Linn.*

PREMNA SPICIGERA, *Linn.*

Premna spicata, *Burm.*	Adenanthera aculeata, *Roxb.*

Shumi,	BENG.	Chami,	TEL.
Parumbe,	TAM.		

A tree of the peninsula of India.

PREMNA TOMENTOSA, *Willde, Roxb*

Chambara,	MAHR.	Navuroo,	TEL.
Kolcuttay teak maram,	ANGLO-TAM.	Naooru,	„
Nagara chettu,	TEL.	Nagool,	„

A small tree of Coimbatore, the Bombay ghauts, the Godavery and the Northern Circars. It has a pretty looking wood, hard and close-grained, of a brownish yellow-colour, well fitted for ornamental purposes, more a fancy wood, than a timber, and is rather scarce; the natives use the sap in some of their ceremonies.—*Wight, Rohde.*

PRENG, JAV. Bambusa. The bamboo.

PRENKHANAMU, SANS. Prenkaunapu chettu, or Kadamba, TEL. Nauclea cadamba, *R.*

PRESBYTIS, *Illiger*, a genus of monkeys, the Semnopithecus of Cuvier, the Langur and Hanuman monkeys of the hindoos.

P. entellus, Bengal Langur.
P. schistaceus, Himalayan „
P. priamus, Madras Langur
P. johnii, Malabar „
P. jubatus, Neilgherry „
P. pileatus, *Blyth*, Sylhet, Cachar, Chittagong.
P. barbei, „ Tipperah hills.
P. obscurus, *Reid*, Mergui.
P. phayrei, *Blyth*, Arakan.
P. albocinereus, Malay peninsula.
P. cephalopterus, Ceylon.
P. ursinus, *Blyth*, „
P. maurus, Java,
P. melalophos, Sumatra.

Mr. Ogilby, in his 'Natural History of Monkeys,' alludes to the bezoars reported by many travellers to exist in the stomachs and intestines of the Asiatic monkeys, as confirmatory of Professor Owen's views; and adds that the bezoars produced by the monkeys of the Malay peninsula, and which can scarcely belong to a genus different from the Semnopitheci, are described as being smaller, rounder and more powerful in their qualities than those obtained from ruminating animals. There are known six species of Simiadæ in Ceylon, reckoning as one, the mountain representative of Pr. cephalopterus.

Semnopithecus nasicus of Borneo, the Proboscis monkey or long-nosed monkey has a prominent nose. It is exceedingly rare in the collections of Europe.—*Low's Sarawak*, p. 80.

PRESBYTIS ALBINUS, *Kelaart*, all white, with a dash of grey on the head; face and ears black; palms and soles flesh-coloured. Rare: seen about Kandy in parties of three or four.

PRESBYTIS ANCHISES, *Ell.* Syn. of Presbytis entellus.

PRESBYTIS CEPHALOPTERUS, *Zimmerman*, occurs in Ceylon. It is a most gentle creature, has the body black slightly grizzled; croup, tail, and exterior of thighs, albescent, palest on the croup and end of tail; head rufescent-brown, a little tinged with blackish on the sides, and the whiskers and short hair on the chin and lips of a dull white conspicuously contrasting. A specimen sent by Dr. Templeton is of a uniform dark brown-colour, passing to dusky on the hands and feet, the head rather paler and more rufescent, and the whiskers and hairs of the chin and lips whitish, the croup outside of thigh and tail are comparatively but slightly paler and albescent. The skin of a male sent by Mr. Jerdon (procured also in Ceylon, to which the island species seems to be restricted) is marked as in the others, but is of a much lighter and rufescent brown-colour, darker on the hands and feet, the croup and tail are fulvescent whitish, its crown and especially the long hair of the occiput are paler than the back. The general colour of this last specimen is indeed that which is confined to the head only of black individuals, while in Dr.

Templeton's live specimen the usual colours are nearly blended into uniformity, the white whiskers, however, remaining the same in all as well as the circumstance of the croup and tail being much paler than the rest and more or less albescent, the tip of the latter being usually whitish or sullied white. Dr. Kelaart designates as a n. s. Pr. cephalopterus, var b. monticolus, and the native name he spells Kallu wanderu.—*Mr. Blyth's Report.*

PRESBYTIS PRIAMUS.

Konde wanderu, SINGH.

Is not confined to the low country in the north. They are seen skirting the Kandyan hills and occasionally on the hills. Trincomalee is full of them.

PRESBYTIS THERSITES.

Elle wanderu, SINGH.

It is found in Ceylon lower downin Bintenne, and in the Wanny district. It was considered identical with Pr. priamus of the eastern and western ghauts of the peninsula, the Ceylon Hoonuman, but a glance at the living animal suffices to show its distinctness from that and the several other allied species which have been confounded under Pr. entellus. At Mr. Elliot's suggestion, it may be designated Pr. thersites, *Elliot*, (Pr.—fig. 3.) Adult male inferior in size to that of Pt. entellus (verus) of Bengal, Orissa, and Central India, of an uniform dusky-grey colour (devoid of fulvous tinge) on the upper parts, darker on the crown and forelimbs, and passing to dull slaty-brown on the wrist and hands; the hair upon the toes whitish or dull white; no crest upon the vertex (as in Pr. priamus,) nor does the hair there form a sort of transverse ridge (as in the living Pr. entellus): face surrounded with white, narrow over the brows, the whiskers and beard more developed than in the other entelloid Indian species and very conspicuously white, contrasting much with the crown and body, which are darker than in Pr. priamus (as was a smaller specimen examined formerly). The strongly contrasting white beard is indeed the most striking feature of this Ceylon species, as compared with its near congeners.—*Blyth's Report.*

PRESBYTIS URSINUS, *Blyth.*, usually seen in large numbers jumping on the trees, and when disturbed they make a peculiar short howling noise. One was known to have attacked a cooly on a coffee estate carrying a rice bag. The malabars eat the flesh of this monkey, and consider it very delicious food, and some Europeans who have tasted it are of the same opinion."—*Elliot*; *Tennent's Sketches of the Natural History of Ceylon, p.* 62; *Mr. Blyth's Reports.*

PRESENTS IN JAPAN. There are three articles which, in Japan, always form part of an Imperial present. These are rice, dried fish and dogs. Some also say that charcoal is always included. Why these should have been selected, or what they particularly symbolize, is not known.—*American Expedition to Japan, p.* 429.

PRESERVES, &c. The Chinese candy many things which are not considered fit for such purposes elsewhere, as millet seeds, bamboo shoots, slices of the lily root, &c., these are hawked about the streets. Ginger root, preserved in sugar, is the most common sweetmeat exported; it is made of the tender roots of the ginger plant (Zingiber officinalis), and when good has a bright appearance, a dark red colour, and is somewhat translucent. If the roots are old, the conserve will be stringy, tough and tasteless. Much of this kind of sweetmeat is carried to India for consumption there, and for re-exportation to England and the continent; the export to the United States is considerable; also to Sydney, South America, &c. Other kinds of conserves, as whampee, guava, and pear, jelly, citron, kumquat, oranges, &c., &c., are also sent abroad; the total exportation may be put down at 10,000 boxes, value about £50,000. A box is estimated at 25 catties. In India the mango, apple, pear, melon, quince, lemon, amla (Emblica officinalis), halela (Beleric myrobalan), carrot, ber, ginger, are all made into preserves and conserve of red capsicums. There are preserves also of lemon, bokhara plum, limes, tomato, rhubarb, cherry (gila, sara siya), apple, quince, pear, peach and watermelon.—*Hon'ble Mr. Morison's Compendious Descriptions.*

PRESIDENCY is the term by which, in India, the respective seats of governments, such as Calcutta, Madras, and Bombay, and the territories ruled over, are known. It has its origin in the circumstance of the governments being there conducted by a council, the governor for the time being, holding the office of president.

PRESTER JOHN. Aung khan, of the Keraite Mongols, celebrated in Europe under the name of Prester John, or Presbyter John, was a contemporary of Changez Khan, whom, at the instigation of jealous enemies, he attempted, but failed, to destroy. He was of the christian religion, cotemporary with the emperor Alexius Comnenus of Constantinople, to whom he addressed a letter discriptive of his power. So many fables have been related of him that his very existence has been doubted. But many particulars of this letter are confirmed by Marco Polo, Sir John Mandeville and others. In that letter he described himself as a christian, ruling over the three Indies, from the furthermost, where Thomas is bound, to Babylon. These were divided into 72 provinces some of them christian and each with a king. He mentions that he had vowed to visit the sepulchre of our Lord with a great army, and that his army was preceded by 13 crosses of gold and precious stones. Dr. Oppaert in an essay read before the Ethnological Society, describes Prester John as a title of four Tartar sovereigns or Kaitach belonging to the Kitai Tartar, and of the name Yeliutashe, who defeated the sultan Sanjar. The last of the princes who took this title of Prester John was named Kushluh who reigned 1213 to 1218, and was defeated and slain by Changez Khan.—*Layards Nineveh, Vol.* i, *p.* 251 ; *Elliot, p.* 498 ; *Dr. Oppaert.*

PRESUNTAS, Port. Hams.

PRETA, a spirit, Preta sraddha, the first years obsequial ceremonies to a deceased person, there are fifteen preta sraddha. See Hindoo.

PRETYA BHAVA, Sans. In the hindoo Veda, a life after death is not frequently alluded to, and it is more for the goods of this world for strength, for long life, a large family food and cattle, that the favor of the gods is emplored. Pretya-bhava, often rendered the condition of the soul after death means really the state on earth. The present life, according to Indian notions is Bhava, birth and growth : Pretya, after a previous death.

PRETA-RAJ, Sans. Preta is a ghost, and raj signifies raja.

PRI, Hind. Desmodium argenteum, and D. tiliæfolium.

PRIAPATIUS, or Phriadatius, see Cabul.

PRIAPUS, Lat., see Linga.

PRIASATTI, Sans. Illecebrum sessile.

PRICKLY FRUITED PEDALIUM,

Gokhru Duk., Guz., Hind., Beng.

PRICKLY PEAR, Opuntia dillenii, Cactus indicus. The hedge prickly pear is often seen in gardens, and its large yellow flowers are quite ornamental. The natives of Tenasserim regard it as a species of euphorbia.—*Mason.*

PRICKLY POPPY, Eng. Argemone Mexicana, or Jamaica yellow thistle. Its oil is Coorookoo oil.

PRICKLY-STEMMED HEDYSARUM, Alhagi maurorum.—*Tourne, W. & A.*

PRICKLY-STEMMED HIBISCUS, Hibiscus surattensis, *Linn., Roxb., W. & A., W. Ic.*

PRICKLY VANGUERIA, Vangueria spinosa, *Roxb.*

PRIDE OF CHINA, Melia bukayun, *Royle.*

PRIDE OF INDIA, Melia azedarach, *Linn., DC., Roxb., W. Ic.*

PRIESTS. Every brahman who professes a knowledge of the formula of his religion may become a priest. They are distinguished by the appellations, Purushita, the Acharya, the Sudushya, the Brahma, and the Hota. The first appears to be the principal ceremonial, the last the sacrificial, priest. According to Mr. Ward, the first mentioned is the most advantageous order, as the rich, who are unwilling to fast, bathe in cold water and perform further ablutions and sacrifices, bestow fees upon the Purushita to perform these ceremonies for them. Some of the lower castes, as the five artizan castes and all the Non-Aryan races, have priests of their own, and not brahmans. Hindoo priests have no official garments, but always appear in their usual dress. The buddhist priests or gelum of Ladak wear the usual red loose robe, adorned with amulets and strings of beads, cloth boots of divers colours, and a praying-box in the hand, "which they keep revolving like a child's rattle, now stopping to listen to our interpreter's request regarding provisions, then (as it to make up for lost time), setting to work to grind his prayers with redoubled energy."—*Cole., Myth. Hind., p.* 392 ; *Adams.*

PRIMATES, an order of Mammals, comprising man and the monkeys ; viz.

ORDER—Primates.

Fam. Simiadæ, Monkeys.

Quadrumana, Heopitheci, *van Hœven.*	Catarrhinæ, *Geoffrey.*

Sub-fam. Simianæ, Apes.

Troglodytes niger, Chimpanzee, Africa.

Troglodytes gorilla, Gorilla, Africa.

Simia satyrus, Orang-utan of Borneo.

Simia morio, Orang-utan of Sumatra.

Sub-fam. Hylobatinæ, Gibbons of Indo-Chinese countries and Malayana.

Hylobates hoolook, Hoolook of Assam, Cachar, Khassya and Sylhet.

Hylobates lar, Gibbon of Tenasserim.

Hylobates agilis, Gibbon of Malay peninsula, others from the Malay Islands.

Monkeys.

Gen. Presbytis, *Illiger.*

Semnopithecus, *F. Cuvier.*

Hunuman,	Hind.	Langur,	Hind.

Presbytis entellus, Bengal Langur.

Simia entellus, *Dufresn.*		P. anchises,	*Ell.*
Musya,	Can.	Hunuman,	Hind.
Bengal langur,	Eng.	Makur,	Mahr.
Langur,	Hind.	Wanur,	"

Common in Bengal and Central India.

Presbytis schitaceus, *Hodgs., Horsf.*

Kubup,	Bhot.	Langur,	Hind.
Himalayan langur,	Eng.	Kamba suhu,	Lepch.

Occurs throughout the Himalayas.

Presbytis priamus, *Ell.*, *Bly.*, *Horsf.*

Madras langur,	ENG.	Gandangi,	TEL.

Inhabits the eastern side of the peninsula and the north of Ceylon.

Presbytis johnii, *Jerdon.*

Simia johnii, *Fisher.*	Semnopithecus cucullatus, *Is. Geoff.*
Semnopithecus dussumierii, *Schinz.*	Semnopithecus hypoleucos, *Blyth.*, *Horsf.*
Semnopithecus, johnii. *var. of Martin.*	

The **Malabar** Langur, of Travancore, Cochin, **Malabar** and South Canara.

Presbytis jubatus, *Jerdon.*

Semnopithecus johnii, *Wagner*, *Blyth*, *Martin.*

The Neilgherry Langur, of Neilgherries, Animally, Pulney and Wynaad, not below 2,500 and 3,000 feet.

Presbytis pileatus, *Blyth*, Sylhet, Cachar, Chittagong.

Presbytis barbei, *Blyth.* interior of Tipperah Hills.

Presbytis obscurus, *Reid*, Mergui.

Presbytis phayrei, *Blyth*, Arakan.

Presbytis albo-cinereus, Malayan Peninsula.

Presbytis cephalopterus, *Blyth*, Ceylon.

Presbytis ursinus *Blyth*, Ceylon.

Sub-fam. Papioninæ, Baboons.

The true baboons of Africa and monkey-like baboons of India.

Inuus silenus, *Jerdon*, Lion-monkey.

Simia leonina, *Linn*, *Shaw.*

Silenus veter, *Gray*, *Bly.*, *Hors.*

Nil-bandar,	BENG.	Nella-manthi,	MAL.
Siahbandar,	HIND.		

W. Ghauts, Cochin, Travancore.

Inuus rhesus, *Jerdon.*

Inuus erythræus, *Schreb.*
Pithex oinops, *Hodg.*, *Hors.*, *Bl.*

Morkot,	BENG.	Marcut-banur,	LEP.
Piyu,	BHOT.	Banur,	„
Bengal monkey,	ENG.	Suhu,	„
Bandar,	HIND.		

Inhabits nearly all India.

Inuus pelops, *Jerdon.*

Macacus Assamensis, *McLelland*, *Horsf. Blyth.*

The Hill monkey, high up on the Mussoorie Hills.

Inuus sikkamensis, *Jerdon.*

Macacus sikamensis, *Hodgson.*

Inuus nemestrinus, *Jerdon*, Tenasserim and Malayana.

Inuus leoninus, *Blyth*, Arakan.

Inuus arctoides, *Is. Geoffroy*, Arakan.

Gen. Macacus radiatus, *Jerdon.*

Simia sinica, *Linn.*, *Ell.*, *Bly.*, *Horsf.*

Munga,	CAN.	Wanur, MAHR.	of Sykes.
Madras Monkey,	ENG.	Kerda, MAHR.	of Ghauts.
Bandar,	HIND.	Koti,	TEL.
Makadu,	MAHR.	Vella munthi,	TAM.

All over Southern India.

Macacus pileatus, *Shaw*, of Ceylon.

Macacus carbonarius, *F. Cuvier*, of Burmah.

Macacus cynomolgos, *Linn.*, of Burmah.

Fam. Lemuridæ. The Lemurs, mostly of Madagascar, one genus of Africa and two or three from India and Malayana

Nycticebus tardigradus, *Jerdon.*

Stenops javanicus, *Auctor.*	N. bengalensis, *Geoff.*, *Horsf.*, *Bly.*

Lajja banar,	BENG.	Slow-paced Lemur,	ENG.
Lajjawoti banar,	„	Sharmindah billi,	HIND.

Found in Bengal, Rungpore and Dacca.

Nyticebus javanicus, *Blyth*, of Java.

Loris gracilis, *Jerdon.*

Lemur ceylonicus, *Fischer*, *Blyth.*

The slender lemur,	ENG.	Tevangar,	TAM.
Sloth,	of *Madras.*	Dewantsi pilli,	TEL.

Found in Ceylon and Southern India.

Tarsium, a genus of Java.

Fam. Galeopithecidæ, Flying Lemurs.

Gen. Galeopithecus, natives of Malayana.—*Jerdon.*—See Mammalia, Monkeys, Presbytis.

PRIMULACEÆ ; *Vent.* The Primrose tribes of plants, of 5 gen , 7 sp., viz., 2 Primula ; 1 Cyclamen ; 1 Androsace ; 1 Centunculus ; 2 Anagallis. The Primrose family of plants, all form in Europe ornamental border flowers ; but will not succeed in S. India. Wight gives Primula denticulata and prolifera.—*Riddell.*

PRIMULA SPECIOSA.

Bishkhapra, HIND.

A narcotic.—*Powell's Hand-book*, *Vol.* i, *p.* 368.

PRIN, HIND. Missiessya hypoleuca.

PRINCE OF WALES' ISLAND, or Pulo Penang, the Areca Isle, as it is called by the natives, lies between 5° 14′ and 5° 29′ north latitude ; N. E. point being in 100° 25′ east longitude, off the west coast of the Peninsula, opposite to the principality of Quedah. It is upwards of fifteen miles long, and between eight and twelve broad, and contains an area of about 160 square miles, of which a little more than one-fifth is cultivated. The population in 1801, amounted to 10,310 ; in 1805, to 14,000 ; in 1822, including Province Wellesley, to 51,207 ; in 1826, to 55, 116 ; in 1828, to 60,551 ; and in 1833, to 86,275.—*Newbold's British Settlements*, *Vol.* i, *pp.* 48, 54. *See Penang*, *Pulo Penang*, *Straits Settlements*

PRINCE'S FEATHER, Celosia. the Reverend Mr. Mason says this is the most elegant plant, when cultivated by the Karens, that he ever saw of the amaranth tribe. It is not the prince's feather of English writers Amarantus hypochondriacus but a species of Celosia which bears a long pendulous drooping panicle or plume like Roxburgh's C. cernua, but it is a different species. There are two varieties, one with bright yellow flowers, the other red.—*Mason.*

PRINCE'S ISLAND, or Pulo Pontangh, an island on the south side of the Straits of Sunda.

PRINCIPALI, HIND. Manisurus granularis, *Linn.*

PRINCK, MALAY, a pot of earth or brass.

PRINIA (Horsfield), a genus of Birds. It has the following generic character :—Bill rather lengthened, much compressed, entire ; rictus smooth, wings rounded, tail broad and cuneate ; feet large, strong. Prinia familiaris is the Prinya of the Javanese, familiar creeper of Latham. It is abundant in many parts of Java, near villages and gardens, in the confines of which, among trees and shrubs, it builds its nest. It is a sprightly bird, sporting among the branches in short and rapid flights, and has received its name from its lively and pleasant notes.—*Horsfield* ; *Swainson.*

PRINSEP. The name of a family, several of whom obtained employment or sought a career in India. The father, Mr. John Prinsep, having amassed a considerable fortune in India, in 1787, returned to England and soon after engaged in business as an East India Agent, and Italian Silk Merchant, became an Alderman of London, and Member of Parliament for the Borough of Queenborough He was well known as a writer on Indian subjects. No fewer than seven of his sons came to India. James the seventh son greatly distinguished himself as an archæologist. Henry Thoby Prinsep as a statesman. Mr. Henry Thoby Prinsep is described as a perfect encyclopædia of Indian information. He held a long series of high and responsible offices in almost every department, and was for five years a Member of Council under Lords Auckland, Hardinge and Ellenborough. He was also a good linguist, and more especially remarkable as one of the best Persian scholars of the present day. Mr. James Prinsep, for sometime Secretary to the Asiatic Society of Bengal, did more to extend the knowledge of Eastern Numismatics, than any other individual up to the present day (1873). The results of his researches have recently been given to the world in the shape of two handsome octavo volumes, entitled "Indian Antiquities." (Murray 1858), edited by Mr. Thomas. Mr. Charles R. Prinsep, a barrister in India, and formerly of the Middle Temple, is known to fame as the translator of "Say's Political Economy." Mr. H. T. Prinsep, again, is the author of several able pamphlets on Indian questions which have arisen from time to time, but also of various statistics of a most valuable kind, published in the Asiatic Society's Journal, and of two very interesting and valuable works of a less ephemeral character. We allude to his "Origin of the Sikh Power in the Punjaub, and Political Life of the late Maharaja Runjeet Singh," and to his "Narrative of the Political and Military Transactions of British India under the administration of the Marquis of Hastings between the years 1813 and 1818." This work was published by Murray in 1820, in one volume, quarto ; and a second edition, in two vols., octavo, appeared in 1825. For the compilation of this latter work (which is of high authority), Mr. H. T. Prinsep had great opportunities, as, on the first occasion of that Governor-General leaving the Presidency, he was selected as one of his suite, and was attached to his secretariat during the tour. He was re-appointed to the same office on Lord Cornwallis's second progress westward, when he took the field in person. Mr. Prinsep's design in this work (to borrow his own words) was "to trace out the political transactions of India, from the origin of the hostile spirit among the Mahratta powers down to the final crisis of the season 1817 and 1818 ; to relate the operations of that season, and to explain, as far as possible, the settlement resulting therefrom." Mr. H. T. Prinsep was born, we believe, in the year 1790, and received his early education at Haileybury College. His rank as a writer dates from May, 1808. Arriving in India in the following year, he was appointed assistant in the office of the Registrar of the Sudr Dewani and Nizamut Adawlut. In 1811 he became officiating assistant to the Magistrate of Moorshedabad, and officiating Registrar of the City Court, and subsequently assistant to the Collector of Burdwan.

PRINSEPIA UTILIS, *Royle.*

Behkul.	BEAS.	Bhekling,	KUNAWAR.
Tatua ; Phoohvara,	CHENAB.	Bekkli,	RAVI.
Rari ; Jenti,	,,	Karangura,	,,
Gurinda, CHAMBA,	JHELUM.	Bekkar,	SUTLEJ.
Arund,	,,	Bekrul,	,,

A plant of Kaghan, a common north-west Himalayan plant, only found at 8,000 feet in Sikkim : it is employed in hedges. This is found in the Sutlej valley between Rampur and Sungnam at an elevation of 4,000 to 8,000 feet. Used for hedges, its seeds yield an oil.—*Hooker's Him. Jour., Vol.* ii. *p.* 129 ; *Cleghorn's Punjab Report, Vol.* i, *p.* 67 ; *Powell's Hand-book, Vol.* i, *p.* 346.

PRINTED CLOTHS. The art of calico-printing is one which was common to the Egyptians and Indians, and is still largely practised by the latter, and with a skill which in 1851, produced much to be admired, even in the midst of the productions of the world, and after so many attempts have been made to improve an art certainly imported from the east. Pliny was acquainted with the wonderful art by which cloths, though immersed in a heated dyeing liquor of one uniform colour came out tinged with different colours, and afterwards could not be discharged by washing. The people of India were found practising the art when first visited by Europeans. The mordaunts they apply both by pencils and by engraved blocks, though it has been said that the former method was the only one employed. Blocks are, however, used throughout India, but silk handkerchiefs, had the parts, where the round spots were to be, tied up with thread so as not to be affected by the dye-liquors, and it was from this process of tying (bhandua) that they received the name of bandhana. The cloth-printers at Dacca stamp the figures on cloth which is to be embroidered. The stamps are formed of small blocks of kantul (Artocarpus) wood, with the figures carved in relief. The colouring matter is a red earth imported from Bombay, probably the so-called 'Indian earth,' from the Persian gulf. Though the art is now practised to much perfection in Britain, the Indian patterns still retain their own particular beauties and command a crowd of admirers. This is no doubt due in a great measure to the knowledge which they have of the effects of colours, and the proportion which they preserve between the ground and the pattern, by which a good effect is procured both at a distance and on a near inspection. Printed cloths are worn occasionally, as in Berar and Bundlekhund, for sarees; and the ends and borders have peculiar local patterns. There is also a class of prints on coarse cloth, used for the skirts or petticoats of women of some of the lower classes in Upper India; but the greatest demand for printed cloths is for palempores, or single quilts. In the costlier garments woven in India, the borders and ends are entirely of goldthread and silk, the former predominating. Printing in gold and in silver is a branch of the art which has been carried to great perfection in India, as well upon thick calico as upon fine muslin. The size which is used is not mentioned, but in the Burmese territory the juice of a plant is used, which, no doubt, contains caoutchouc in a state of solution.—*Royle's Arts of India.*

PRINTING. Sir John Davis is of opinion that the art of printing, the composition of gunpowder, and the magnetic compass, which he says are justly considered in Europe as three of the most important inventions or discoveries of modern times, had their first origin in China. Their printing is by a system of stereotype, the types being made from the pear-tree wood, called by them ly-mo. In the beginning of the tenth century printing was invented, and in A. D. 932 that mode of multiplying copies of books received the imperial sanction; a printed imperial edition of all the sacred works having been then published. The greatest of all the arts was not invented in Europe, till five hundred years after this. Marco Polo speaks much of the 'stamped' paper money of the Chinese; and he must have seen their printed books. Printing with moveable types (made of terracotta) was invented in China by a smith named Pishing before the middle of the eleventh century, but the invention does not seem to have been followed up. Wood-printing was known at least as early as A. D. 581; and about 904 engraving on stone for the press was introduced. Paper in China is made from bamboo from the bark of mulberry, of a hibiscus (Rosa sinensis), and of the tree called chu, (Broussonetia papyrifera). All bark-paper is strong and tough; it has rays crossing it, so that when torn you would think it was made of silk fibres. This is why it is called Mien-chi or silk paper.

In the year 1870, there were six printing offices in Yedo alone (now called "Tokiyo," *i. e.*, Eastern Capital), and none but Japanese were employed in them. They turn out elementary school books to meet the large demand that now exists among this progressive people; to be used as the means for acquiring a knowledge of English and other European languages. None but their own people are employed. In European offices at Yokohama they are very useful as compositors, pressmen, &c., and they are well worth their wages of fifteen to thirty dollars a month, they even publish several newspapers. These, of course, are in their own characters, but the type is cast on a regular body, to English standard, and in a Japanese type-foundry at Naugasaki. The native characters consist of Chinese, and the Japanese "Hirakana" and "Katakana." The Chinese characters are arranged in cases with very narrow divisions the width of the body of the type; these were placed in the divisions on their feet, with the face upwards.

The first Tamil types seem to have been cut at Amsterdam in 1678, to express the names of some plants in the large work, 'Horti Indici Malabarici.' Ziegenbalg asserts, however, that they were so bad, that even the Tamils themselves could not make them out. It would appear that the next attempt was made at Halle, about 1710, to supply the Tranquebar Mission. Fenger says, "The people there, though unacquainted with the Tamil language, succeeded in making some Tamil letters, which they hastily tried and sent to Tranquebar; where the first part of the New Testament, as well as other things, was printed with them. This sample, the very first thing ever printed in Tamil characters, was the Apostles' Creed, and the friends at Halle when they despatched it with the printing-press, requested soon to be requited by a copy of the New Testament in Tamil." The printing of the New Testament was completed in Tranquebar in 1715. The type first cut at Halle is about equal to the size called English. Smaller founts were cut afterwards. A specimen is given of a part of Arndt's 'True Christianity,' printed at Halle in 1751. Founts of type were subsequently cut in India. Printing was carried on, both on the continent and in Ceylon. In 1761 the Madras government allowed the Vepery missionaries the use of a press taken at Pondicherry. The second specimen of printing shows the state of Tamil printing previous to recent improvements. Tamil typography owes its present excellence mainly to Mr. P. R. Hunt, of the American Mission Press. With much labour, he superintended the cutting of the punches of several founts; the smallest size (brevier) he had prepared in America. Mr. Hunt has produced the smallest vernacular edition of the scriptures ever yet issued in India. The American Press has also raised the standard of printing throughout the Tamil country. The Rev. W. Taylor states that up to 1835 the only Tamil works printed by natives were the Kural and some trifles by Auvaiyar. In that year Sir Charles Metcalfe removed the restrictions on printing, and soon afterwards native presses began to be established. In 1863 ten native presses in Madras, printing in Tamil, furnished returns of their publications. There are several more presses. Generally they are on a very small scale. According to hindoo custom, related families dwell together. A wooden printing press is owned in common; some members act as printers; others attend to sales. This, indeed, was the early practice in Europe. Hallam says, 'The first printers were always book-sellers, and sold their own impressions. These occupations were not divided till the early part of the sixteenth century.' In 1872, three or four native printers had iron presses, and even claim to hot-press their sheets. Some books printed by them are of very fair workmanship.—*Preface to Grammatica Damulica*; *History of the Tranquebar Mission, p.* 7; *Royle's Arts, &c., of India, p.* 483; *Pennant's Hindustan, Vol.* i, *p.* 132; *McCulloch's Commercial Dictionary, p.* 215; *Julien in Jour. Asiat., ser.* iv, *tom.* ix, *pp.* 509, 513; *Chine Moderne, pp.* 626, *seq.*; *Yule Cathay, Vol.* i, *pp.* 219-221.

PRION, see Procellaridæ.

PRISMATIC CORUNDUM, see Corundum.

PRISTIPOMA GUORACA, *Cuv. and Val.* See Isinglass.

PRISTIURUS, see Squalidæ.

PRISTIDÆ, the saw fish family of fishes of the genus Pristis, there are

Pristis perrotteti, *M. and H.*, E. and W. Indies, Archipelago, Red Sea.
„ pectinatus, *Lath.*, Tropical Seas.
„ zysron, *Blkr.*, East Indies, Archipelago.
„ cuspidatus, *Lath.*, East Indies.

PRISTIOPHORIDÆ, a family of fishes, of the pristiophorus genus, there are

Pristiophorus cirratus, *Lath.*, Australia.
nudipinnis, *Gthr.*
owenii, *Gthr.* ?
japonicus, *Gthr.*, Japan.

PRISTIPOMATIDÆ, a family of fishes, *viz.*, 16 Therapon, 3 Helotes, 1 Macquaria, 34 Pristipoma, 1 Conodon, 14 Hæmulon, 2 Hapalogenys, 31 Diagramma, 1 Hyperoglyphe, 1 Lobotes, 2 Datnioides, 20 Gerres, 21 Scolopsis, 6 Heterognathodon, 13 Dentex, 19 Synagris, 1 Pristipomoides, 9 Pentapus, 1 Chætopterus, 2 Aphareus, 3 Mæna, 7 Smaris, 12 Cæsio, 4 Erythrichthys, 1 Pentaprion, 1 Polycentrus.

PRISTIPOMA GUORACA, *C. and V.*

Perca grunniens, *Foster.*
Guoraka, *Russell.*
Anthias grunniens, *Bloch-Schneider.*

This fish is one foot long. It inhabits the Isle of Tanna, Batavia, Coromandel and Mahe (fresh water). Its air-vessel is very thin, from which its isinglass is of little value.

PRISTIS ANTIQUORUM, the huge Saw fish, infests the eastern coast of the island of Ceylon. Two other species are found in the Ceylon waters, P. cuspidatus and P. pectinatus. Squalus pristis, is the Saw-snouted shark.—*Tennent's Sketches of the Natural Hist of Ceylon, p.* 325.

PRISTONYCHUS, a genus of the Calathidæ, inhabits Nepaul and Europe; while Calathus prefers a northern more than a southern climate.—*Hope's M. L. J., July* 1840, *p.* 116.

PRISTOO SENA terminated the line of Anga; and as he survived the disasters of the great war, his race probably multiplied in those regions, where caste appears never to have been introduced.

PRITA, Hind. Pinus gerardiana.

PRITHI RAJ was conquered by Shahab-ud-din, at the close of the 12th century. The Chauhan, one of the principal Rajput races, are decended from Prithi Raj, the last hindoo ruler of Indra-prestha or Dehli, and they spread through Malwa and Rajasthan; their principal families are the Khichi, Hara, Bhadauria, Rajkumar, Rajor, Pratapnir, Chakarnagar and Manchana.

PRIT'HU, the first king who taught cultivation and fabled to be married to Prit'hivi, a name for the earth.—*Wilson.*

PRIT'HIVI, SANS., from Prithu, a king who first formed towns, raised the arts, &c.

PRIT'HIVI, the goddess of the earth, is by some termed a form of Lakshmi, by others of Parvati. Her husband is Prit'hu, produced, in strict accordance with mythological extravagance, by churning the right arm of a deceased tyrant who had died without issue, that he might have a posthumous son, who is represented as a form of Vishnu. As a form of Lakshmi, Prit'hivi is the Indian Ceres. Daily sacrifices are offered to her. The hindoos divide the earth into ten parts, to each of which a deity is assigned. Prit'hivi is the goddess of the earth, Viswacarma, the artificer of the universe, that is, the Lord of creation, assuming that character, moulded the earth, and it became Prithivi-conspicuous; and therefore is that name, Parthivi, assigned to the earth. Prit'hu is her husband; he was an incarnation of Vishnu; as related in the following fable, from Wilford's chronology of the Hindoos. In the form of a cow, Prit'hivi was milked by Swayambhuva, or Adam, grand ancestor of Prit'hu, who so employed him; perhaps the old sire took delight in attending the dairies and fields of his beloved Prit'hu. Prit'hivi, as a personification of the earth, also represents patience; the hindoo, refer to the earth, or Prit'hivi, proverbially as an example of patience, or forbearance, permitting her bowels to be ripped open, her surface lacerated, and suffering every indignity without resentment or murmuring. She is quoted also as an example of correctness, as returning good for evil. Prit'hivi Pati, *i. e.*, Lord of the Earth, is a title conferred on terrestrial, or real, as well as mythological sovereigns. He is deemed the architect of the universe, and chief engineer of the gods. He revealed the fourth Upaveda in various treatises on sixty-four mechanical arts, for the improvement of such as exercise them; and he is the inspector of all manual labours and mechanical arts. Prit'hivi, is also called Bhu-Devi, also Bhuma Devi, names of the earth. Bhu Devi in hindoo mythology is the terrestrial name of Parvati, as goddess of the earth, as the names of Diana were varied to suit her various forms, she being Luna in heaven, Proserpine or Hecate in hell, so her archetype, the hindoo Parvati is the heavenly Bhavani, on earth Bhu-Devi, and Patala-Devi as consort of the regent of the infernal regions. Bhu-Deva, as spouse of the earthly goddess, is a name of Siva.—*Hindoo Infanticide, p.* 28; *Coleman, p.* 102; *Moor, p.* 113. See Hindu or Hindoo, Indra, Lakshmi, Narayana, Saraswati yavana yoni.

PRITHIVI SENA, see Inscriptions.

PRIT'HU, see Prithivi.

PRITHUDAKA, or Pehoa, near Thanesar. Prithu Raja gave name to Prithu daka.

PRITYHARA, SANS., from prati, a preposition indicating that the action is returned or reflected, and ahara, to take.

PRIYADARSI, see Asoka or Pyadasi.

PRIVET, also Egyptian Privet, Lawsonia alba, *Lam.* See Henna.

PRIVET, INDIAN, Vitex trifolia, *Linn.*

PROBALONGGO, or Probbolinggo, is a district in East Java, the richest sugar producing district in the island, and its inhabitants are principally Madurese. The south-western side of the plain of Probbolinggo is bounded by the Tengger mountains where the people still cling to a religion supposed to have originated in hinduism. The people of the Tengger mountains, shortly described in Raffles' History, may be a relict of an aboriginal race. This race, like a few others in India, and the Archipelago, adopt the singular practice of building their villages in terraces. This practice seems to have once prevailed in the Philippines. The inhabitants of the Serwatti islands, select the summits of hills or the brows of cliffs which rise abruptly from the sea, as sites for their habitations. The crest or extreme summit of the hill is occupied by a large waring tree, the Ficus indica of Rumphius, beneath which the idols of the village are placed on square platforms of loose stones. Here the elders meet when any important matter is to be discussed. Below the tree the sides of the hills are scraped into a succession of platforms or terraces, on which are erected their oblong barn like houses with wooden walls and palm leaf thatch. At Letti, a neighbouring island, where the hills are far inland, the brows of the cliffs which overhang the sea are selected, and a similar mode of scarping into terraces is adopted when necessary. The same system also prevails at Baba and Timor laut. The Serwatti islanders have a more general resemblance to the inhabitants of the South Sea Islands, than to those of the Indian Archipelago. They are taller and fairer than the Malays or Bugis. They wear a waist cloth made of cotton or of the bark of the paper mulberry, and allow their long wavy hair to float over their shoulders or tie it at the back of the head. Their vessels, the coracora, are long and graceful with low sides and great breadth of beam, high stems and sterns which rise like horns at each extremity of the vessel, and are ornamented with festoons of large cowrie shells and bunches of feathers. They build their villages on the summits of cliffs or the brows of hills which rise abruptly from the sea or the banks of rivers. On

Major Hamilton, H. M. 21st M. N. I. who had travelled in Java, mentions that he found the same system of terracing amongst the Malle Arasar, or hill kings, of the Pulney hills in the extreme south of India.

PROCAPRA GUTTUROSA.

Antilope gutturosa, *Pallas*
Dzeren,
Hoang yang,
Whang yang.
Yellow goat of the Chinese.

Is nearly 4½ feet in length, and 2 feet 6 inches high at the shoulder; the body also is large and corpulent, and the legs shorter than is common to the antelopes in general; the horns are black, lyrated, and marked to within a short distance of their points with prominent transverse rings, the suborbital sinuses are small; the larynx large and salient, forming, particularly in the old bucks, a prominent lump on the throat; upon the prepuce of the same sex there is likewise situated a bag about the size of a hen's egg, which contains a waxy substance similar to that produced in the analogous organ of the musk animal, but without any kind of odour; the tail is short, and the knees furnished with small bunches of hair, but scarcely sufficiently long and distinct to merit the name of brushes, the summer coat is of a grayish fawn-colour above, and white beneath; that of winter almost entirely white, being tinged but slightly with a grayish-yellow shade on the back and sides. The females resemble the males in colour, but are of rather smaller size, and without horns; they want the sac on the abdomen, and have two teats.—The Dzerens inhabit the dry arid deserts of Central Asia, Tibet, China and Southern Siberia, particularly the great desert of Gobi; and prefer the most sandy and stony plains, feeding upon such scanty herbage, as these localities supply, and avoiding water, to which they appear to entertain a marked aversion. They are remarkably swift, take prodigious leaps and when frightened, will occasionally pass over 20 or 25 feet at a single bound. In spring and summer they form small families which live apart from one another, but in the beginning of winter they unite in large flocks, always under the guidance of an experienced old buck. They never run, even when pursued, in a confused crowd but form single files, and follow closely in the foot steps of their leader. They rarely emit any voice. When taken they are easily tamed, and appear to have rather a predeliction for the domestic state, often mixing with flocks of sheep, and approaching human habitations during the severity of the winter season. Their flesh is tender and well tasted, and they are a favourite object of chase with the Moghuls and Tartars.—*Eng. Cyc.*, *p.* 236; *Adams.*

PROCAPRA PICTICAUDA, the Goa or Ra-goa, the Tibet Ravine-deer of Europeans is met with on craggy mountain-sides, and, like the goral and chamois, delights to sport among cliffs and precipices. The Ragoa or Goa is described by Mr. Hodgson as an inhabitant of Tibet. It has brown hair with rufous tips; the inside of the ears and limbs white, and tail black. It is perhaps P. gutturosa in its summer coat.—*Adams.*

PROCELLARIDÆ, the petrel family of birds, of the order Natatores or swimmers, comprising 6 gen., 12 sp., viz., 4 Diomedea; 4 Procellaria; 1 Prion; 1 Pelicanoides; 1 Puffinus; 1 Thalassidroma.—*Cal. Mus. Cat.*; *Adams.*

PROCELLARIA HŒSITATA, 'Capped Petrel' of Indian and Southern oceans: a rare straggler in Britain, that has been obtained once only in Lower Bengal.

PROCELLARIA PELAGICA, Stormy Petrel, seems to belong to every sea.

PROCERIDÆ. Among the insects of this family, collected by Dr. Wallich, there were four or five species of true Carabus. Wherever the oak grows, there Calosoma will be found. C. indicum inhabits Nepaul. If caterpillars are necessary to keep in check the luxuriance of tropical vegetation, the Calosomata are equally necessary to keep within bounds these insects, which sometimes destroy, in northern climes, nearly the foliage of the year.—*Hope's M. L. J.*, *July* 1840, *p.* 117.

PROCH, Pol. Gunpowder.

PROCHILUS LABIATUS, a bear of Ceylon.

PRODDU TIRUGUDU, or Aditya bhakti chettu, Tel. Helianthus annuus, *L.*

PROGOSHKI, Rus. Mats.

PROME, a small town in British Burmah on the left bank of the Irawaddy river. It was taken by the British Indian army on the 1st October 1825, and again on the 9th September 1852. There is here a far-famed buddhist pagoda, commonly called 'Shoay San Dau,' or the royal golden-hair pagoda. The various kinds of trees associated with teak in the Prome forests are 22 in number, and are thus enumerated by Dr. McClelland, in the order of their numerical proportion:—

Acacia catechu,
Odina wodier,
Pentaptera,
Spondias acuminata,
Nauclea,
Inga,
Tectona grandis,
Careya arborea,
Terminalia,
Shorea robusta,
Walsura piscidium,
Strychnos,
Conocarpus,
Hymenodictyon parviflora,
Bursera serrata,
Kydia,
Dipterocarpus alatus,
Blackwellia,
Hopea odorata,
Pterocarpus dalbergioides,
Pterospermum ? Heynianum,
Melicocca trijuga.

Thus, teak holds the seventh place. In other words, there are six other kinds of trees more numerous within the limits of the

Prome teak forests than teak itself. Acacia catechu probably forms 40 per cent. of the whole trees in the forests ; Odina wodier, 10 per cent. ; Pentaptera and Spondias acuminata, 5 per cent. each ; Nauclea and Inga about 4 per cent. each ; Tectona, Careya arborea, and Terminalia, 2 per cent. each ; the remaining thirteen may be put down as bearing the proportion of 1 per cent. each, leaving 13 per cent. to be made up of other species, such as Barringtonia acutangula, Acacia serissa, Galedupa arborea, Mimosa octandra, Erythrina, Dalbergia, Bombax and Xanthoxylon alatum, which are found in low grounds only. The view from the top of the pagoda, across the river to the mountains in the west is grand.—*Dr. McClelland in Selec., Records of Govt. of India, Foreign Dept., No.* ix, *p.* 103.

PROMETHEUS, the cave to which the Macedonians attached, the story of Prometheus was somewhere in the Paropamisan mountains.

PROON-BA-JAH, Burm. A tree of Akyab, and plentiful in Arrakan. Used for making wooden bells, &c.—*Cal. Cat. Ex.*1862.

PROPHET, a term in use amongst the people of Europe to designate Mahomed whom his followers call the Rassool Oollah, or messenger of the Lord. Europeans sometimes call him the Arabian prophet, the False prophet.

PROPPEN, D[illegible]r. Vermicelli.

PRORA, Hind. Machilus odoratissimus.

PROSCIUTTI, It. Hams,

PROSERPINACA, see Haloragaceæ.

PROSERPINE, Kali is the hindoo Proserpine, or Calligenia, the Grecian handmaid of Hecate. The latter name seems of hindoo origin, 'born of time' (Cali-jenema)? See Osiris.

PROSOBRANCHIATA, an order of Molluscs, of the class Gasteropoda. See Molluscs.

PROSOPIS, a genus of plants belonging to the order Fabaceæ.

PROSOPIS ALGAROBA, like Ava to produce chica, is chewed, and put in a bowl, mixed with water, allowed to ferment and drank.

PROSOPIS DULCIS *Kth.*

Acacia lævigata, *Roxb.*	Mimosa lævigata, *Roxb.*

A tree of N. Spain introduced into India, from the Mauritius. The pulp of the pods is very sweet and is eaten.—*Voigt.*

PROSOPIS SPICIGERA, *Linn, W. & A.*

Pr. aculeata, *As. Res.*	Adenanthera aculeata, *Roxb, Corr.*
„ spicata, *Burm.*	

Shami,	Beng.
Shemoo,	Bombay.
Sumree,	,,
Kandi,	Derah Ghazi Khan.
Jhand,	Hind.
Soundar,	Mahr.
Aghzakair, Seh,	Panj.
Khar, Jhand,	Panj.
Se,	Salt Range.
Khan Kunda,	Sind.
Vanni maram,	Tam.
Parambay, maram,	,,
Tshami,	Tel.
Priyadarsini, Jammi.	,,
Janum,	,,

Its pods.

Snagri,	Hind.
Sankri,	„
Shangar,	Hind.

This tree grows in the Salt Range, the Panjab, Hindustan, Bengal and all over the Peninsula of India. It is often stunted and gnarled, in the Panjab rakhs it is abundant and largely used for fuel in steam ships and railways. Yields the chief supply of fuel to the Punjab railway. Pod long, irregularly cylindrical, sweet to the taste, often esculent. It is a thorny tree in Coimbatore, in the black cotton soils of Mysore, common in the waste places and forests of Bombay, and common in Sind. It attains a considerable, even a large size, in Coimbatore and Mysore, and the timber is, straight grained, strong and hard, easily worked and used for bandy wheels and other common purposes. It never reaches such a large size on the Bombay side, as would afford a square log of more than nine inches. In Sind, however, where it is common, it attains a large size, and its heart wood is strong, tough and dark coloured, and is commonly used for weaver's shuttles. Dr. Wight found it sustain a weight of 592 lbs. Its pod is about an inch in circumference, and from 6 to 12 inches long, and when ripe it contains a quantity of a mealy substance which has a sweetish taste and is eaten by the natives. The tree is reverenced in the Dassera rites. One of the characteristic trees of the Punjab, yielding a larger amount of firewood at Lahore and Multan than any other. The heart wood is strong, tough and dark coloured ; it is sometimes used for boat building and weaver's shuttles.—*Drs. Ainslie, p.* 334 ; *Wight, Gibson, and Stewart.*

PROST, Hind. Populus nigra.

PROSTITUTES The hindoo gods are worshipped in brothels, and fragments of the offerings are divided among the visitors. The great bulk of the prostitutes of India are of hindoo origin. In 1853, Calcutta had a population of 4,16,000, had 12,419 common women, of whom 10,000 were hindoos, several being daughters of Kulin brahmins. In Sep. 1867, there was reported to be upwards of 30,000 women in the town of Calcutta depending on prostitution, but this seems an unlikely number. The majority were said to be hindoos.—*Cal. Rev., Aug.* 1868. See Dancing girls, Deva dasi.

PROT of Kangra, Marlea begonifolia, *Roxb.*

PROTEACEÆ, *Juss.* An order of plants comprising 2 gen., 2 species, viz., 1 Guevina 1 Grevillea. The genus Protea are natives of the Cape, are difficult to cultivate from their fleshy roots ; the soil best suited for their growth is light loam mixed with sand, they require great attention as they suffer either from a want or excess of water.—*Riddell.*

PROTESTANT, a term applied to a christian sect, founded by Luther and Calvin, who protested against doctrines enunciated by the popes of Rome. There are many in India.

Protestant Missions in the Tamil country were commenced in 1706, but for about a century the only labourers were Danes and Germans. Missions in Bengal may be regarded as dating from 1799, when the Serampore Mission was founded. In 1862, there were 65 European missionaries labouring among the Bengal people, and 16,277 native christians. In the Tamil country, there were 132 European missionaries and 94,540 native christians. The Bengali-speaking population of India may be roughly estimated at 26 millions; the Tamil, at 12 millions.

PROTIUM CAUDATUM, *W. & A.*

Malay kluvy, Tam. | Vela patri, Tel.

A moderate-sized-tree; the wood as shown by the branches is very brittle and full of sap, apparently of no value.—*Wight.*

PROTIUM GILEADENSE. *W. and A.* Syn. of Balsamodendron berryanum, *Arn.*

PROTIUM ROXBURGHIANUM. *W. and A.* syn. of Balsamodendron roxburghianum, *Wall.*

PROX ALBIPES of Wagner. Syn. of Cervulus moschatus, *De Blain.*

PROX CERVUS MUTJAC of Sundev. syn. of Cervulus vaginalis, *Bodd.*, *Gray.*

PROX RATWA of Sundevall, syn. of Cervulus moschatus, *De Belain.*

PROTOXIDE DE PLOMB, see Lead.

PROVIDENCE ISLANDS, off the coast of New Guinea, N. W. of Mysory, are two in number, extend from lat. 0° 1′ S. to 0° 11 S., and long. 135° 8½′ to 135° 12′.

PROVINCE WELLESLEY, on the mainland of the Malayan peninsula, opposite Penang, from which it is separated about 3 miles, runs north and south 25 miles, varying in breadth from 4 to 11 miles, contains an area of 15,000 acres.—See Straits.

PROOF SPIRIT. Before the scientific means of determining the quantity of alcohol in spirits were known, dealers were in the habit of employing a very rude method of forming a notion of the strength. A given quantity of spirits was poured upon a quantity of gunpowder, in a dish, and set on fire. If at the end of combustion the gunpowder continued dry enough, it took fire and exploded; but if it had been wetted by the water in the spirits, the flame of the alcohol went out without setting the powder on fire. This was called the proof. Spirits which kindled gunpowder were said to be above proof; those that did not set fire to it were said to be below proof. From this origin of the term 'proof,' it is obvious that its application must have been deemed very indefinite.—*Quebec Paper*; *Spirits of Commerce.*

PRUBHASA, a place of hindoo pilgrimage near Dwaraka.

PRUBHANGJANA, Sans., from pra, prep, and bhanja, to break.

PRUCHANDA, Sans., from pra, prep, and chanda, wrathful.

PRUDHAN, Hind. Mahr., a minister of a state.

PRUDHANA, Sans., chief, any chief.

PRUDYOOMNA, Sans., from pra, prep, and dyoomna, riches.

PRUJAPATI, Sans., from pruja subjects, and pati, a lord.

PRUJA-YAGA, Sans., from pruja, subjects, and yaga, a sacrifice.

PRUKASHU, Sans., kasha means light.

PRUKRITI, Sans., from pra, prep, and kri, to do.

PRULHADA, Sans., from pra, prep, and alalhada, joy.

PRULAYA, Sans., from lee, to absorb.

PRUMANA, Sans., from pra, prep, and ma, to measure.

PRUMAR, a race of Rajputs.

PRUNELLA.

Aloo Bokhara, Guz., Hind., Pers. | Ustukhudus, Pushtoo.

Have a reddish-yellow colour, and a sweet grateful taste, with a slight and pleasant acidity. They are a variety of prunes, and are brought to Bombay from the Persian Gulf.—*Faulkner*; *Powell's Hand-book*, *Vol.* i. p. 365.

PRUNES,

Aloo Bokhara, Guz., Hind., Pers.

A species of dried plum, of which there are many varieties. They are generally of an oblong shape, and sweet taste, and are prepared in France, Germany, Portugal, and other parts of the Continent. Those procurable in Bombay, are brought from the Persian Gulf.—*Eng. Cyc.*

PRUNUS, a genus of plants, of the order Amygdaleæ, all of the species being natives of the temperate parts of the northern hemisphere. The Amygdaleæ comprise six genera, the E. I. species of which may be thus shown,

Prunus aloocha, *Royle.*, plum of Irki.
„ armeniaca, *Linn.*, the Apricot.
„ bokhariensis, *Royle*, Bokhara plum.
„ cerasus, *Linn.*, the Cherry.
„ cocomilla, *Ten.*, Calabria.
„ domestica, *Linn.*, Common plum.
„ insititia, *Linn.*, The bullace.
„ japonica, *Thumb.*, China, Japan.
„ *var*, (*a*) simple.
„ „ (*b*) plena.
„ mume, *S. & Z.* Japan.
„ macrophylla, *S. & Z.*, Japan.
„ padus, *Linn.*, Japan.

Prunus paniculata, *Thunb*, Japan.
,, persica, *Linn.*, Japan.
,, spinulosa, *S. & Z.*, Japan.
,, tomentosa, *Thunb.*, Japan.
Cerasus acuminata, *Wall*, Nepal.
,, caroliniana, *Michx.*, Florida.
,, nepalensis, *Ser.*, Nepal Kumaon.
,, puddum, *Wall.*, Himalaya.
,, cornuta, *Wall.*, Sirmore.
,, pseudo-cerasus, *Lindl.*, China, Japan.
,, lauro-cerasus, *Lois*, Levant.
Armeniaca dasycarpa, *Pers.* ?
,, vulgaris, *Lam.*, Apricot.
Amygdalus cordifolia, *Roxb.*, China.
,, persica, *Linn.*, Peach tree.

Prunus armeniaca, the cherry, Prunus cerasus, also Prunus Bokhariensis, *Royle*, Prunus triflora, *Roxb.*, grow abundantly in the North West parts of India. Litsi ! a species of Prunus, in the upper Punjab, ripens in September, and has a tolerably sweet fruit something like a cherry.—*Voigt; Powell*; *Royles's Ill.*, *p.* 205.

PRUNUS ALOOCHA, *Royle*.

Plum of Irki.

PRUNUS ARMENIACA, *Linn*.

Armeniaca vulgaris, *Lam*.

Burkook,	AR.	Badam-kohi,	HIMALAYAS.
Shari,	BEAS.	Hari ; Harian,	JHELUM.
Baboor-kohanee,	BOKARA-	Gurdaloo,	KANGRA.
Cheroli,	CHENAB.	Cherkush,	,,
Tser-kuji ; Chu-li,	CHIN.	Chooli,	LAD.
Chissari,	,,	Mishmish,	PERS.
Apricot,	ENG.	Zard-aroo,	PUSHTU.
Zard-alu,	HIND.	Jaldaroo ; Chooli,	SUTLEJ.
Khoobani,	,,	Mandata,	TRANS-INDUS.
Kashmiri kista,	,,	Chir,	RAVI.
Chooloo,	HIMALAYAS.	Chiran,	,,
Chinaroo,	,,		

Kernel.

Tukhm-i-zard alu.	Pahari sari.
Badam talkh.	

The apricot tree grows well on the first range of the Himalayas, bearing abundance of fruit in the months of May and June. Propagated in the same way as the peach. In India, where the tree has been naturalized. The apricot tree grows to a large size in gardens of the Daccan. It blossoms at the same season as the peach, from January to March ; the fruit forms and attains the size of a common marble, after which it falls off, and this no care can prevent. Many efforts have been made to get buds to take both on the peach and almond stocks but without success, attempts to graft it by approach have hitherto been unsuccessful. It is the Melea armeniake of Dioscoroides and the Precocia minora and Malus armeniaca of Pliny. In China an oil is extracted from the stones. Moorcroft mentions that ten varieties are grown in Ladakh, all of them raised from seed, except one which is budded. Dr. Stewart has seen the apricot wild in many places from 4,000 to 6,000 feet, in the Panjab-Himalaya. It is commonly cultivated all over up to 10,000 or perhaps 15,000 feet (and not 11,200 as stated by Hoffmeister) in some places in the dry climates of the Upper Sutlej and the Upper Chenab, and even to 11,500 or 12,000 feet in parts of Tibet. A great deal of the fruit, especially at the higher elevations, is very inferior, and in Tibet, particularly, Vigne mentions that it is generally small, which would seem to be corroborated by the fact that 200 maunds were imported into Le from Kashmir in 1867 (Cayley). Aitchison states that the dried apricots are imported into Lahoul from Tibet. Very fair fruit is grown in many parts, and in some of the Kunawar villages, especially, the trees constitute a chief form of the wealth of the inhabitants, and yellow heaps of it may be seen drying in thousands on the roof of almost every house. A considerable quantity (Davies' Trade Report puts it at 100 maunds) of dried apricots are annually imported viâ Peshawur into the Punjab from Affghanistan where the tree is largely grown. A gum, similar to gum arabic, exudes from wounds in the bark of the tree. The wood does not appear to be used for any special purpose, except occasionally for making the Tibetan drinking-cups, as stated by J. D. Cunningham.—*Dr. Riddell* ; *Dr. Royle* ; *Birdwood*, *p.* 551 ; *Moorcroft; Charles Darwin*, M. A., F. R. S. ; *Variation of Animals and Plants under domestication*, *Vol.* ii, *London*, 1868 ; *Dr. J. L. Stewart*, M.D. See Acer.

PRUNUS BOKHARIENSIS, *Royle*.

Bokhara plum,	ENG.	Kokamalis Græco,	PER.
Aloo bokhara,	HIND., PER.	κοκκυμελεα,	GR.

Cultivated at Ghuzni.

PRUNUS CERASUS.

Jerasaya,	AR.	Padam,	HIND.
Common Cherry,	ENG.	Aloo Baloo,	PERS.

The Cherry tree is not found in any part of S. India ; but abounds wild in the hills north of Deyrah Dhoon, producing a small common black fruit fit only for preserves, &c.—*Riddell.* See Cerasus vulgaris.

PRUNUS DOMESTICA, *Linn*.

Barkook, Bargoog,	AR.	Aroo ; Aloo,	HIND.
var. Ejass,	,,	Aloo chah, (small)	,,
,, Idrek,	,,	Shah Aloo, (yellow)	,,
,, Shahlooj	,,	Olchi ; er ; or,	KANGRA.
Common Plum,	ENG.		

Appears to be common, wild and cultivated, in Kashmir, and is cultivated in Affghanistan, &c. Moorcroft mentions some from Yarkand as "infinitely preferable to the best French plums. It is also cultivated in the Punjab plains, yielding a waxy yellowish fruit, also said to be found wild in the Caucasus. In Kashmir the wood is used for making the skeletons of the papier mache boxes. The wood is not generally sound, but handsome, resembling pear or cherry. It is used in turning. Not available in quantity—*Darwin*; *Dr. J. L. Stewart*; *Powell.*

PRUNUS INSITITIA, the bullace, is found wild in the Caucasus and N. W. India. —*Darwin.*

PRUNUS PADUS, *Linn.*

Cerasus cornuta, *Roxb.*

Bird cherry,	ENG.	Paras,	KAGHAN.
Horned cherry,	,,	Bart,	,,
Wild plum,	,,	Krun,	,,
Pacha; Paja,	HIND.	Jamoon,	,,
Kalakat,	,,		

A plant of Kaghan, also grows at Simla, at an elevation of from 7,000 to 10,000 feet, and Dr. Stewart has seen the people in the Murree hills eating the black berries of this tree. He describes it as a fine tree, with handsome bunches of white flowers in April, which grows in many parts of the Punjab Himalaya, from 4,000 to 10,500 feet, up to the Indus. The wood is not much valued, but is used for ploughs, railings, &c., and for spoons. The fruit is eaten by the natives, but has a mawkish astringent taste, not peculiarly attractive to Europeans. The kernel yields a poisonous volatile oil, similar to oil of almonds.—*Dr. J. L. Stewart*; *Powell's Hand-book, Vol.* i, *p.* 346.

PRUNUS SEBESTANA, PÒLUK. Syn. of Cordia myxa, *Linn.*

PRUNUS TRIFOLIA, *Roxb.* Plum of Ladak.

PRUNUS PUDDUM, *Roxb.*

P. Sylvatica,	*Roxb.*	Cerasus puddum,	*Wall.*
Pajja Paddam,	BEAS.	Amalgueh,	JHELUM.
Chamiari,	JHELUM.		

A small tree of the Debra Dhoon, Sirmoor and the Himalaya, and occurs in the Punjab Himalaya from 3,000 to 5,000 feet, up to near the Indus. The fruit is eaten by the natives, though it is always somewhat bitter. The wood is coarse-grained, light, soft, apt to split, and to be attacked by insects, but is used in building, and occasionally for implements.—*Dr. L. Stewart, M.D.*

PRUSSIAN BLUE.

Sesqui ferro-cyanide of Iron,	ENG.	Azurro Prussiano,	HIND.
Percyanide of Iron,	,,	Ferri-ferro-cyanas,	LAT.
Blue prussiate ,,	,,	,, sesqui-ferro-cyanidum,	,,
Ferro ,, ,,	,,	Lasar Bexlinskaja,	RUS.
Bleu de Prusse,	FR.	Azul de Prussia,	SP.
Cyaneisen	GER.		
Berlinerblau	,,		

A pigment or dye, composed of cyanogen and iron, and procured by a chemical process from carbonate of potass, bullock's blood, green vitriol, and alum. It is prepared of different degrees of purity, and additions are made to it according to the purposes for which it is required. When pure, it is of a rich and intense blue, with a copper tint on the surface, inodorous, tasteless, insoluble in water, in alcohol and diluted acids; but is acted upon and dissolved by strong acids. Prussian blue is now extensively made in China, the art of manufacturing it having been carried from the west to the east by a Chinese sailor.—*Waterston, Faulkner*; *McCulloch's Com. Dic., p.* 956.

PRUSSIC ACID, or Hydrocyanic acid, is obtained by the action of muriatic acid on bi-cyanuret of mercury. It is limpid, very volatile, and of a strong pungent odour, resembling that of bitter almonds. Its taste is acrid, and it is virulently poisonous. In medicine it is used as a sedative.—*Waterston*; *Faulkner.*

PRUSTERIEN, HIND., Eremurus spectabilis. *Bieb.*

PRYAMARATTI, TAM. of Anisomeles malabarica.

PRYANGO, HIND. Sterculia, *sp.?*

PSAMMA,——? Carex arenaria.

PSAMMOBIA, a genus of molluscs.

PSAMMOTELLA, a genus of molluscs.

PSAMMOPHIDÆ, a family of birds comprising

Psammophis sibilans, *Linn.* Sommali.
Psammodynastes pulverulentus, *Boie,* Assam, Burmah.

PSCHENZIA, RUS. Wheat.

PSEUDOCARCINUS, a genus of crustaceans, the following are species of the E. Indies:

Pseudo-arcinus rumphii, *Edw.,* Indian Seas.
,, belangeri, *Edw.,* Indian Seas.
,, gigas, *Edw.,* New Holland.

PSEUDODON, a family of molluscs.

PSEUDOIS-NAHOOR, Ovis aries.

PSEUDOCOCCUS ADONIDUM, white bug or mealy bug of Ceylon.

PSHER, HIND. Parrotia jacquemontiana.

PSIDIUM CATTLEYANUM, *Sabine.*

Chinese Guava.	Purple Guava.

PSIDIUM POMIFERUM, *Linn.*

Lal-payara,	BENG.	Melaka pela,	MALEAL.
Ma la ka,	BURM.	Jamboo,	MALAY.
Jam,	DUK.	Ratu-pera,	SINGH.
Red guava,	ENG.	Koia maram,	TAM.
Apple-shaped guava,	,,	Jama chettu,	TEL.
Lal-safri jam,	HIND.		

The guava tree of the W. Indies, Mexico, and America, is cultivated throughout the E. Indies. It grows to the height of twenty or thirty feet, with leaves of pale green, and beautiful large white blossoms. The fruit is about the size of a pear, and a little yellowish when ripe, full of hard seeds, the size of buck-shot. The fruit is globose, yellow, and somewhat astringent, with an agreeable odour; the root and young shoots are astringent; and are esteemed strengthening to the stomach. The wood is but little used, though esteemed for engraving.—*Eng. Cyc.*; *Malcolm's Travels in South Eastern Asia, Vol.* i, *p.* 108.

PSIDIUM PYRIFERUM, *Linn.*, *Roxb.*

Guava pyriformis, *Gærtn.*

Peyara,	BENG.	Supari-jam,	HIND.
Ma-la-ka,	BURM.	Pela,	MALEAL.
Sebe mara,	CAN.	Suda-pera,	SINGH.
Jam,	DUK.	Manjal varnam,	TAM.
White guava,	ENG.	Coaya maram,	,,
Pear shaped guava tree,	,,	Jama chettu,	TEL.
Amrood,	HIND.		

The wood.

Sebe mara,	CAN.	Coaya maram,	TAM.
Guava wood,	ENG.	Jama kurra,	TEL.

The fruit.

Jam,	DUK.	Utchola,	SANS.
Guava,	ENG.	Coia pallum,	TAM.
Pera kai,	MALEAL.	Goia pandu,	TEL.

The pear-shaped or white fruited guava tree grows all over British India, Burmah, and Tenasserim. In all southern Asia the guava is seen everywhere in gardens, and probably found its way to India from S. America through the Portuguese, its fruit is esteemed as a dessert fruit, but the scent when too ripe is unpleasantly powerful ; it makes a most excellent jelley, and also is prepared in a similar manner to damson cheese at home. The fruit sometimes is as large as a common baking pear, and one weighed half a pound. They have been brought to great perfection in some gardens, and the fruit of a large size divested almost of seed : this sort generally has a very rough knotty coat, and is more spongy and less firm than the other varieties. A plant continually grown from layers in time ceases to produce seed, perhaps this variety has been so procured. It is easily increased by seed, and only requires a good soil to thrive in. The trees should be pruned once a year otherwise the branches become very straggling. Good gunstocks are made from the old wood. Wood small, but very hard and is used by Dr. Hunter for wood engraving, and commonly for pegs, mallets, handles of tools, &c.—*Mason* ; *Rhode's MSS* ; *Ainslie, p.* 223 ; *Dr. Riddell* ; *M. E. J. R.* ; *Dr. Cleghorn.*

PSITTACIDÆ, the parrot family of birds, of the order Scansores, as under :

ORDER I.—Scansores or Climbers.

Fam. Psittacidæ.

Sub-Fam. Cacatuinæ, 2 gen. 5 sp. viz., 1 Calyptorhyncus, 4 Cacatua.

Sub-Fam. Psittacinæ, Parrots, 3 gen. 13 sp. viz., 1 Coracopsis : 2 Tanygnathus, 10 Palæornis.

Sub-Fam. Platycercinæ, Ground Parakeets, 2 gen. 2 sp. viz., Aprosmictus : 1 Platycercus.

Sub-Fam. Loriinæ, Lories, 4 gen. 1 sub-gen. and 13 sp. viz.,

SECTION I.—Tongue not filamented.

2. Electus, 3 Loriculus.

SECTION II.—Tongue filamented.

3. Lorius, 4 Eos. 1 Trichoglossus.

PSOPHOCARPUS TETRAGONOLOBUS, *DC.*

Dolichos tetragonolobus, *Linn.*

Char-kona shin,	BENG.	Square-podded dolichos, winged pea,	ENG.
Chandaree,	BOMBAY	Goa beans,	,,
Charpattee,	,,	Cheveaux de frise,	FR.
Pai myeet,	BURM.	Pois carre,	,,
Pai hsoung wa,	,,	Dara-dambala,	SINGH.

A twining annual, the pods or tuberous roots of which are commonly eaten in India, commonly cultivated and young pods used as French beans ; easily known by its 4 fringed membraneous edges, much used by Europeans. The plant is indigenous in the Mauritius. In Tenasserim there is a variety of the Goa bean which produces esculent roots that are eaten like potatoes, and are a very tolerable vegetable.—*Eng. Cyc.* ; *Jaffrey* ; *Mason.*—See Vegetables of Southern India.

PSORALEA TETRAGONOLOBA, *Linn.* Syn. of Cyamopsis psoraloides.

PSORALEA CORYLIFOLIA, *L.*, *W. & A.* *Roxb.*

Trifolium uniflorum, *Forsk.*

Hakuch,	BEN.	Bapunga, Bavanji-cherru,	TEL.
Baw-chan,	DUK.	Kalu gachcha,	,,
Karkol,	MALEAL.	Kala ginja, korjastham,	TIB.
Bab-chi,	PUSHT.		
Karpugum,	TAM.		

This herbaceous plant grows in Bengal and the peninsula of India. Seeds used medicinally.

PSORALEA TETRAGONOLOBA, *Linn.* Syn. of Cyamopsis psoraloides, *DC*, *W. & A.*, *W. Ic.*

PSYCHODENDRON TRIFOLIATUM, *Wall.* Syn of Andrachne trifoliata, *Roxb.*

PSYCHOTRIA, a genus of plants of the order Cinchonaceæ, of which nine species are known to grow in the East Indies.

Sgau, BURM.

A handsome shrub, of this genus grows in Tenasserim whose small white flowers throw a delightful fragrance on the path during a morning walk.—*Mason* ; *Voigt, p.* 393.

PSYCHOTRIA EMETICA. See Cephaelis ipecachuana.

PSYCHOTRIA VOLUBILIS, *Roxb.* Syn. of Pæderia fetida, *Linn.*

PTERIDOPHYLLUM DECIPIENS, *Thw.*

Rhus decipiens, *W. & A.*, *W. Ill.*

Pehimbia-gass, SINGH.

Grows in the central province of Ceylon up to an elevation of 3,000 feet. It flowers in January and fruits in March. It is a very ornamental tree, and in Ceylon, the wood is used for building purposes.—*Thw. En. Pl. Zeyl.*, *p.* 59.

PSZENICA, POL. Wheat.

PTERIS, a genus of ferns, of the order Polypodiaceæ. The following are East Indian species :—

amplectens, *Wall.*, Bengal, Burmah.
angustifolia, *Swz.*, Paras, Sunderbuns.
dimidiata, *Wall.*, Sylhet.

esculenta, *Forst.*, Australia.
graminifolia, *Roxb.*, Paras, Sylhet.
vittata, *Linn.*, Sunderbuns.

The rhizome of Pteris esculenta is used as food in Australia, and that of Marattia alata in the Sandwich Islands.—*Simmonds*; *Voigt.*

PTERIS AMPLEXICAULIS, Stipe-Clasping Brake, a large brake common at Tavoy with pinnate fronds, whose leaflets have two lobes at the base which clasp their stipe.—*Mason.*

PTERIS GRAMINIFOLIA, Grass Fern. The trunks of forest trees in Tenasserim are often clothed with the green drapery of the grass fern, which grows upon them precisely like bunches of long grass.—*Mason.*

PTEROCARPUS, a genus of plants of the order Fabaceæ, generally tall trees furnishing useful timber and other products: the following species occur in the East and W. Indies:

dalbergioides, *Roxb.*, Andamans.
draco, *Linn.*, Guadaloupe.
indicus, *Willd.*, Moluccas, China.
marsupium, *Roxb.*, Concan, Assam.
santalinus, *Linn.*, Coromandel.
wallichii, *W. and A.*

One species of Pterocarpus is known in the Tamil countries, as the Ausena maram: another, the Jumbagum maram, common about Nelambore and in Wynaad, is a large tree, wood used for building and fence gardens; said to be durable, a third the Karoo vagoo, is a very common tree on the western ghauts; wood strong, durable, and much used for building, a fourth, the Wulla hounay, of the Canarese, grows in the Mysore forests, and is used for furniture and house-building. A Burmese species, Puddowk of Tavoy, is a large tree, used for furniture, &c., another called Beejah in Hindustani, is a tree of Jubbulpore, grows to a large size, is found in all parts, but not very abundant, has an excellent wood, easily worked.—*McIvor; Captain Puckle; Gibson's Bombay Forest Report of* 1857-60, *p.*12; *Dr. Wallich*; *Cal. Cat. Ex.* 1862.

PTEROCARPUS ERINACEUS, is a tree which grows to 40 or 50 feet in height. When the branches are wounded, a clear bright gum exudes from them, which is one source of the gum kino of commerce, and is mentioned as such by Park. It is a very powerful remedy in obstinate chronic diarrhœas and dysenteries, and in all diseases arising from laxity of tissue. Externally it is applied as a styptic to check hæmorrhages from wounds and ulcers, and to diminish discharges. The gums obtained from the Pterocarpus erinaceus of Gambia and Senegal, and from the Pterocarpus marsupium of India, are the true gum-kinos of commerce: the gum from the Butea frondrosa, is the Butea gum-kino of commerce: Botany Bay kino is obtained from Eucalyptus resinifera: a kino-like gum is obtained from Syzygium jambolanum.—*Eng. Cyc.; Royle.*

PTEROCARPUS ACERIFOLIUM.

Najee, BURM.

This grows along with teak in all the Pegu forests, its timber is extremely valuable and is as strong as either teak or oak. Its durability for purposes of ship-building has never been tested, because it has never been desicated or killed like the teak. It attains a girth of ten or twelve feet and rises to a lofty height. It has a dark-brown wood.—*McClelland.*

PTEROCARPUS BILOBUS, *Banks.*

Vayngi wood,	ENG.	Vayngi marum,	TAM.

This is reckoned by the natives a very useful wood. It is of a reddish colour, and is employed in making doors and windows, and for other common purposes.—*Ains. Mat. Med.*, *p.* 207.

PTEROCARPUS DALBERGIOIDES, *Rb.*

Padouk,	BURM.	Andaman red wood tree,	ENG.
Hanee mara?	CAN.	Tenasserim mahogany,	"
Red wood tree,	ENG.	Beebla,	MAHR.?

This large and handsome tree is a native of the Andaman Islands, where it grows to 150 feet high with a girth of 15 feet. It is common in large jungles, above and below the ghats in Canara and Sunda. It is said to be found chiefly as a large tree about the neighbourhood of Prome and inhabited places to the north of that town, but rarely in the forests. Trees of the largest size abound in the forests of British Burmah, east of the Sitang river, also in the valley of the Salween river and its tributaries. the Thoungyeen, Yoonzalen, Hlineboay, Houndraw and Attaran: but they are much less frequent in Pegu and entirely wanting in some districts. It is abundant but scattered all over the provinces. The wood is prized beyond all others for cart wheels. The trees are felled green, and are split up into short planks 3 feet, 6 inches long, 2 feet wide and 9 inches thick. Three of these pieces make one wheel, and a pair is sold on the spot in the forests of the Prome district at from 12 to 25 Rupees. In the Tenasserim provinces, its maximum girth is 6 or perhaps 7 cubits, and maximum length 15 to 30 feet, that of great girth being always short. When seasoned, it sinks in water. It takes about two years to season; when cut it has a peculiar and fragrant smell, another wood, called Peddowk, is procurable in abundance at Tavoy, which seems very strong but does not sink and is devoid of smell. The Padouk wood of the Pterocarpus dalbergioides of Roxburgh, is extensively used in the Gun Carriage Manufactories of India: in that of Madras, for light field beams, cheeks, axle cases, perches, poles, timber framing, waggon perches and framing, heavy field cheeks, transoms, axle cases, hand spikes, poles, braces, framing, &c., all parts of garrison carriages, garrison traversing platforms, as well as gun and mortar platforms, transport carriages and limbers, cart work of all sorts, and heavy and light field wheels. In Burmah, a cubic foot weighs 60 lbs. In a full-grown tree on good soil the average length of the trunk to the first branch is 35 feet, and average girth measured at 6 feet from the ground is 9 feet. It sells there at 12 annas per cubic foot. The wood is not unlike mahogany, but is more heavy, red and coarse-grained, that of the root is beautifully variegated, closer grained and darker coloured. It is used for furniture, and, by the Burmese, to make their musical instruments.—*Drs. Voigt, Gibson and McClelland, Eng. Cyc., Mr. Robert Brown, Dr. Brandis, Cal. Cat. Ex.* 1862, *Mad. Cat.* 1862, *Royle Illust., p.* 195.

PTEROCARPUS DRACO, *Linn.*

Pt. officinalis,	*Jacq.*	Pt. hemiptera,	*Gært.*

Dum-ul-akwain,	AR., HIN.	Katja murgam nitru,	TEL.
Jyda-roomee,	,,	Khun siawashan,	
Dragon's blood,	ENG.	Hira du-khun,	
Kandamoorgarittum,	TAM.	Barg-i-bart.	

This tree was introduced into India, from the West Indies, in 1812. It is native of the American Islands, and especially Guadaloupe. The bark, wood, and leaves are remarkably astringent. The dragon's blood in mass, of commerce, according to Jacquin, is the produce of this tree, but another sort, and most likely that sold in Indian bazaars, is produced by the Calamus draco of the Straits, in the form of a red hard resin, in large somewhat cylindrical, lumps; it contains benzoic acid and tannic.—*Voigt; O'Shaughnessy, p.* 997; *Powell's Hand-book, Vol.* i, *p.* 342.

PTEROCARPUS INDICUS, *Willde.*

Padouk,	BURM.	Rosewood,	ENG.

Grows in the Malay islands, in China and the Moluccas. It is a handsome tree with long waving branches and clusters of deep yellow flowers, which scent the air. It produces very fine timber, said to be white? and not equal to the red padowk of the P. dalbergioides. But, Dr. Wallich, noticing it as a Moulmein tree, says it is a very beautiful and hard compact timber, closely resembling the Andaman wood. Mr. Mason describes the Pterocarpus indicus of Tenasserim, as a majestic ever-green, whose yellow papilionaceous flowers clustering amid the bright drooping foliage, scent the air, like the large magnolias, for several hundred yards around. It is propagated by simply planting large branches in the ground at the commencement of the rains. There are, therefore, two trees called padouk, the red and the white, as distinguished by the Burmese—the red producing the finest timber, but the white padouk is by far the finest ornamental tree. It may be considered one of the most valuable forest trees of Burmah. This species also yields gum kino.—*Voigt*; *Hort. Garden* 55, *Firth, Dr. Çleghorn in M. E. J. R., Drs. Mason, Wallich.*

PTEROCARPUS MARSUPIUM, *Roxb.*

Pterocarpus bilobus, *Don., Mill.*

Yegy; Vaygah,	BENG.	Vijaya, ,,	of Nepaul.
Pit sal; Yegah?	,,	Bheulah,	MAHR.
Padouk?	BURM.	Karintha gara,	MALEAL.
Whonay,	CAN.	Ganmaloo,	SINGH.
Dhin daga?	,,	Vangay wood,	ANGLO-TAM.
Raqta hanay?	,,	Vengay maram,	,,
Beula; Bia; Bibla,	DUK.	Egisa; Vegi; Vegisa,	TEL.
Binaba,	,,	Yagesah wood,	,,
Bibla; Pit shala,	HIND.	Yegassi karrah,	,,
Bajasar,	HIND. of Nagpore.	Pia salu; Yegis,	,,
Bejasal,	,, ,, ,,	Yegee,	TEL. of Godavery.

This is a large and a very beautiful tree, especially when in flower in the beginning of the rains: its seed ripens about the close of the year. It is widely diffused, and yields one of the most abundant and useful timbers of S. India, also the valuable gum kino of Malabar. It is one of the most lofty and striking trees in the Indian forests, with a very high trunk, which, however, is scarcely ever straight. It is met with from Cape Comorin to the Himalaya. It is common all round the foot of the Neilgherry ghauts and along the roads through the Wynaad. It is there notched in a V-shaped form, for the extraction of kino which meets with a ready market on the coast and is exported in wooden boxes to Bombay. It grows luxuriantly on the eastern ghauts, on the hills between Vellore and Salem, and on the Malabar and Canara ghauts, where large quantities are collected of the resinous 'kino. The tree abounds near Tellicherry, and along the whole Malabar coast. It is not generally common in the Bombay forests, but is most so in the northern inland ones, and also in those of the extreme south, as in the Beedee talooka, and it everywhere reaches a great distance. Buchanan Hamilton mentions it under the name of Vijaya as occurring in Nepaul and also to the eastward of Bengal. It has been observed in the Concans, (Graham). Rajpeepla jungles, (Dr. Lush). Assam, (Voigt). It has a very close and frequently winding grain, but is subject to numerous faults of a coal black and charred appearance. Frequently a fault of 3 inches diameter and considerable length presents itself. On this account it might be a dangerous timber to use for joists. For all works, however, where such faults would not signify or would be exposed, as in rafters, bressumers, &c., &c., and, generally, pieces of small scantling, it would be found a most valuable timber. In strength it is much superior to teak, apparently always retains its essential oil, and, like it, door frames of 20 years' standing are the only instances of white ants having attacked the red wood. This tree is greatly prized at Dharwar, not for its exudation, but for its timber. On the Godavery, the native dhol is often made of it. The timber was tried as sleepers on the Madras railway, but iron sleepers now take the place of all other kinds. It makes handsome furniture, and resembles fine mahogany, but must be well seasoned, to avoid its yellow stains. The tree being thus widely diffused, and the exudation procurable in large quantity, it may possibly come into extensive use in dyeing and calico-printing. The timber is of a dark-brown colour, it dyes yellow and for building purposes it is almost as good as teak, but cannot be used for lintels of doors, windows, &c., as it discolours the whitewash. It yields from incisions a large quantity of blood-red juice, which on being simply exposed to the sun, hardens and then quickly cracks into little angular masses and crumbling fragments which constitute, without further preparation, the kino of the shops. Dr. Wight sent specimens of kino from Coimbatore. Specimens of the euxdation sent by Dr. Cleghorn to Professor Christison in 1846 from Mysore, were considered by him 'quite identical with the kino of commerce.' The tree being thus widely diffused, and the exudation procurable in large quantity, it may possibly come into extensive use in dyeing and calico-printing. The product can be obtained with facility by simply incising the bark and requires no outlay save that of collecting. The timber is very little inferior to teak, it seems less liable to split after long exposure and is equally strong, but the wood is heavier. Vessels built in the Ganjam districts are planked with it ; and the door pannels and venetians of the neglected houses at Ganjam are formed of this wood and have stood better than teak similarly situated. Very great caution is requisite in using this wood to obtain it sound. It is more expensive than teak to work, and when sawn green the outer planks bend considerably, its price on the Godavery is about 3 annas a foot. This is one among the unlucky woods of the natives though the prejudices against it have in part given way to profit. For general utility, it is superior to any other mahajante wood; a commercial term among the people of the Northern Circars including all wood used for building except teak.—*Dr. Roxburgh's Flor Indica, Vol.* iii, *p.* 234 ; *Coromandel Plants, Vol.* ii, *t.* 116 ; *Drs. Wight, Gibson, Royle, Cleghorn, Voigt* ; *Captains Sankey, Puckle, Beddome* ; *Messrs. Latham, McIvor, Rohde's MSS.* ; *Madras Conservator's Report of* 1858; *Ainslie's Materia Medica* ; *O'Shaughnessy's Bengal Dispensatory* ; *Madras Exhibition Juries' Report* ; *Eng. Cyc.*

PTEROCARPUS SANTALINUS, *Linn.*

Sundun ;	Ar.	Lal-chandan,	Hind.
S undul ahmar,	„	Chandana,	„
Rackto-chandan,	Beng.	Sandalo roso,	It.
Chandana,	„	Uruttah chandanam,	
Na-sa-phiu,	Burm.		Maleal.
Honnay,	Can.	Sandal surkh,	Pers.
Sandel hout, ?	Dan.	Buckum,	„
Lal-chandana,	Duk.	Rakta chandana,	Sans.
Sanders wood,	Eng.	Raktchandan,	Mahr. Sing.
Red Sanders wood,	„	Ranjana,	Tel.
Red Sandal wood,	„	Sigapu shandanum,	Tam.
Santale rouge,	Fr.	Ku-chandanam,	Tel.
Sandal-holz,	Ger.	Rakta-gandham,	„
Ruttunji,	Guz.		

This large lofty tree grows throughout British India and in the Archipelago. It is abundant on the Nagery Hills, Ceylon, Timor. Its timber is chiefly used by dyers and colour manufacturers, also to colour several officinal preparations, such as compound tincture of lavender. Its colouring matter called 'santalin,' forms a beautiful colour, precipitates with many metallic solutions. The wood is exported from Madras in billets, it is very heavy, sinking in water, extremely hard, of a fine grain and bright garnet red colour which brightens on exposure to the air, it is employed to dye lasting reddish brown colours on wool, it yields its colouring matter to ether and alcohol, but not to water, its price in bond in England was in 1852, 13£ to 14£ a ton:

But, as brought into Madras since 1848, its timber is in short billets, generally hollow, or in twisted or knarled masses, the billets 2 to 3 feet long and rarely 3 feet in girth, indicating that the forests are being exhausted. It is not, seemingly, used in Madras city, but is very largely exported to Calcutta. The billets are of a deep red colour, the concentric circles being divided by dark lines. With different mordants, it yields various shades of red, but these are said not to be permanent. The Madras exports for 1853-1854 amounted to 47,431 cwts., value 59,570 rupees. In the 4 years 1852-53 to 1855-56, there was exported from Madras cwts. 179,815, value rupees 2,20,983 ; the destination chiefly being the United Kingdom, Indian French ports, Pegu, Bengal. Red sanders wood is principally shipped to England from Calcutta in logs from 2 to 10 inches diameter, generally without sap, and sometimes in roots and split pieces. This will explain much of the shipments from Madras to Calcutta, in which latter district the tree is not known to grow. The logs are often notched at both ends, or cut with a hole as for a rope, and are much worn externally from being dragged along the ground ; other woods, as also indeed ivory tusks, are sometimes perforated for the like purpose. It is heavy, extremely hard, with a fine grain, and is very much used as a dye wood, and by colour manufacturers : also, often in turnery. It is largely used in Bengal for hindoo images, and in Ajmere for the suffumigations of hindoo idols. It yields its colouring matter to alcohol and ether, but not to water. It is employed to dye a lasting reddish brown on wool. Dr. Wight says this wood is brought to Coimbatore in small quantities from Mysore, and sold by weight at an extravagant price. Seen under the microscope, the texture is the same, as that of P. marsupium the colour only differs. It grows abundantly in the Naggery Hills. It is sold by weight as a dyewood, and forms a regular article of export. It takes a beautiful polish, but the high price of the wood for dyeing purposes, precludes its use as a timber. The imports of red saunders wood from Calcutta and Bombay chiefly into London are to the extent of 700 or 800 tons a year, worth £6 to £9 per ton. It is brought to Ajmere from Delhi, costs ten rupees per maund. Indian practitioners, sometimes recommend it in powder in conjunction with certain herbs, and mixed with gingilie oil, as an external application, and purifier of the skin, after bathing. Its red colouring matter, called Santalin, also acts as a diaphoretic, like gentian. It is applied to the forehead in headache ; and also as a cosmetic.—*Ains. Mat. Med.*, *p.* 210 ; *Eng. Cyc.* ; *Rohde's, MSS.*; *Tredgold, Mr. Rohde's MSS., Captain Beddome, Dr. Wight, Dr.Cleghorn in M.E.J.R. of* 1855, *Dr.Cleghorn in Conservator's Report, pp.* 37-38, *Mr. Faulkner, Mr. Simmonds, M. E. J. R., Balfour's, Commercial Products of Madras Presidency, Drury's Useful Plants. Voigt* ; *Gen. Med. Top., p.* 131 ; *Ains. Mat. Med., p.* 42 ; *Powell's Hand-book, Vol.* i, *p.* 342.

PTEROCARPUS SISSOO, *Roxb.* Syn. of Dalbergia sissoo, *Roxb.*

PTEROCARPUS WALLICHII, produces a timber which, in its finest specimens, bears so strong a resemblance to mahogany, that a visitor mistook it for mahogany, and recorded it as such in the book of his travels. At Maulmain, it is called red-wood, and one of the trees, for there are two species, Pt. dalbergioides and Pt. wallichii, differs very slightly from the tree which yields the Andaman red-wood, of which Roxburgh wrote : " wood not unlike mahogany, but more heavy, red, and coarse in the grain. That of the root beautifully variegated, closer grained, and darker coloured."—*Mason.*

PTEROCAULON ALOPECUROIDEUM. Syn. of Conyza alopecuroides.

PTEROCERA, a genus of the mollusca.

PTEROCYCLOS, a genus of the mollusca.

PTEROCLES, a genus of birds, of the family Pteroclidæ, the sand grouse or rock grouse of Europeans in India.

arenarius, *Pallas*, large sand grouse, Panjab, N. W. Provinces and Sind.
fasciatus, *Scopoli.*, painted sand grouse, over most of India except Bengal and Malabar.
alchata, *Linn.*, large pin-tailed sand grouse, S. Europe, N. Africa, Central Asia, Panjab, Sind.
exustus, *Temm.*, common sand grouse, Central and S. India.
senegallus, *Linn.*, S. Africa, Arabia, Sind.
coronatus, Africa, W. Asia.

The large " black breast" (Pterocles arenarius) is at once distinguished by its size and even tail from (P. exustus) the " pin-tailed grouse," which is by far the most common ; both are met with in flocks in fields and waste places. Their flight is strong ; and although their flesh is tough and unsavoury, they are much sought after by European sportsmen. Adams has been informed that another species is sometimes seen on the north-west frontier of the Punjaub, possibly the large pin-tail (P. alchata), which is said to be plentiful in Affghanistan and westward.—*Adams ; Jerdon.* See Birds.

PTEROMYS, *Cuv.* A genus of the family Sciuridæ, and commonly known as the Flying squirrels because of the skin of their flanks being extended between the fore and hind feet, forming, when expanded, a wide parachute. The species occur in the South-East of Asia and in the islands of the Archipelago.

Pteromys cineraceus, *Blyth*, Burmah.
Pteromys elegans, *S. Muller*, Java.
Pteromys inornatus, *Is. Geoffry.*

Pt. albiventer, *Gray.*

White-bellied flying squirrel,	Eng.	Rusi-gugar,	Kashmiri.

Above grizzled reddish brown, length of head and body 14 inches; found throughout the N. W. Himalaya from Kashmir to Kumaon, Simla, Landour from 6,000 to 10,000 feet.

Pteromys leachii, *Gray.* Syn. of Sciuropterus fimbriatus, *Gr.*, *Bly.*

Pteromys magnificus, *Hodgson.*

P. chrysothryx, *Hodg.*		Sciuropterus nobilis, *Gray.*	
Red-bellied flying squirrel,	Eng.	Biyom,	Lepch.

Above dark chesnut or ochreous chesnut mixed with black, with lower part of a lighter hue, and the tail tipped with black. Its fur is very soft ; a female, measured 16½ inches from head to insertion of tail; the latter was 20 inches in length. This flying squirrel is nocturnal in habits, secreting itself in hollows of decayed trees, and feeds on the tender shoots of the pine.

Pteromys nitidus, *Geoffry*, Pen. Malacca.

Pteromys oral, *Tick*. Syn. of Pteromys petaurista, *Pallas*.

Pteromys petaurista, *Pallas*, *Blyth*.

P. philippensis, *Elliot*.		P. oral, *Tickell*.	
Brown flying squirrel,	Eng	Pakya,	Mahr.
Oral,	Kol.	Para-chalen,	Maleal.

Upper parts dusky maroon, black-grizzled with white, head, body, 20 inches long, inhabits Ceylon,. North to Central India. It lives on roots.

Pteromys philippensis, *Gray*, Philippines.

Pteromys senex, *Hodg*. Syn. of Sciuropterus caniceps, *F. Cuvier*, *Gray*.—*Tennent's Sketches of the Natural History of Ceylon*, *p*. 42 ; *Adams* ; *Jerdon's Mammals of India.*

PTEROPODA, a class of the Mollusca, as under :

Class III. Pteropoda.
Section A. Thecosomata.
Family I. Hyaleidæ.

Genera. Hyalea, *syn*. Cavolina, *rec*. 19 sp., *fossil* 5 sp.
Cleodora, *syn*. Clio, *rec*. 12 sp. also *fossil*.
Sub-genus. Creseis, *rec*. 5 sp.
Cuvieria, *rec*. 4 sp., *fossil* 1 sp.
Theca, *fossil*, 6 sp. *Syn*. Creseis, Pugiunculus.
Pterotheca, *fossil*, 3 sp.
? Conularia, *fossil*, 15 sp.
Sub-genus. Coleoprion, *fossil*.
Eurybia, *rec*. 3 sp.
Sub-genus. Psyche, *rec*. 1 sp.
Cymbulia, *rec*. 3 sp.
Tiedemannia, *rec*. 2 sp.

Family II. Limacinidæ.

Genera. Limacina, *Syn*. Spiratella, *rec*. 2 sp.
Spirialis, *Syn*. Heterofusus, *rec*. 12 sp.
? Cheletropis, *Syn*. Sinusigera, *reo*. 2 sp.
Macgillivrayia, *rec*. 2 sp.

Section B. Gymnosomata.
Family III. Cliidæ.

Genera. Clio, *Syn*. Clione, *rec*. 4 sp.
Sub-genus ? Cliodita, *rec*. 3 sp.
Pneumodermon, *rec*. 4 sp.
Sub-genus ? Spongiobranchæa, *rec*. 2 sp.
? Pelagia, *rec*.
Cymodocea, *rec*. 1 sp.

—*Woodward's Recent and Fossil Shells*.

PTEROPOPIDÆ, a family of bats of the sub-order Cheiroptera, as under :

Sub-Order. Cheiroptera, Bats.

Fam. Pteropodidæ. Frugivorous bats.

Pteropus edwardsii, *Jerdon*.

P. medius, *Temm*.		P. assamensis, *McLelland*, *Ell*., *Blyth*.	
P. leucocephalus, *Hodg*.			
Badul,	Beng.	Bar-bagal,	Hind.
Toggul bawali,	Can.	War-baggul,	Mahr.
Large Fox bat,	Eng.	Kalong,	Malay.
Flying fox,	,,		Tam.
Rousette,	,,	Sikat yelli,	Tel.
Gadal,	Hind.	Siku rayi,	,,

Found in Ceylon, India and Burmah. It is eaten in Ceylon.

Pteropus leschenaultii, *Jerdon*.

Pt. seminudus, *Kelaart*.		Fulvous Fox-bat,	Eng.

Madras, Carnatic and Trichinopoly.

Pteropus edulis, Java and Malacca.

Pteropus dussumierii, *Is. Geof*. Continent of India ?

Cynopterus marginatus, *Jerdon*.

Pteropus pyrivorus, *Hodgson*.		P. tittæcheilus. *Temm*. *Ell*., *Bly*. *Horsf*.	
Cham gadili,	Beng.	Small Fox bat,	Eng.

Throughout all India and Ceylon.

Cynopterus affinis, *Gray*, Himalaya, a synonyme of C. marginatus.

Macroglossus minimus, *Jerdon*.

Pteropus minimus.

Tenasserim and Malayana.

Many of the Pteropus bats inhabit Malayana, Çeylon, India, Burmah, Malacca, Java. To drink, which it does by lapping, the Pteropus suspends itself. head downwards from a branch above the water. Insects, caterpillars, birds' eggs, and young birds are devoured by them ; and the Singhalese say that the flying-fox will even attack a tree-snake. It is killed by the natives for the sake of its flesh, which Sir J. E. Tennent was told resembles that of the hare. It is strongly attracted to the cocoanut trees during the period when toddy is drawn for distillation, and exhibits, it is said, at such times, symptoms resembling intoxication. Neither the flying-fox, nor any other bat in Ceylon, is ever known to hybernate. In Western India the Portuguese eat the flying-fox, and pronounce it delicate and far from disagreeable in flavour. Pteropus edwardsii take up their abode on a banyan or other tree. Each bat is suspended by the hind-feet. The Mahrattas call this bat the 'wurbagool.' The species is very plentiful, and numbers are usually to be seen in the still evening at high elevations, flying with an easy floating motion, now and then varied by the regular flap of their large wings as they steer their course towards the fruit-groves. The half-caste Portuguese eat them, and look upon their flesh as delicious. Individuals of this species appear to differ considerably in size, which may, however, be owing to age. One killed by Dr. Adams measured from tip to tip about five feet. Figs, mangoes, &c., constitute their favourite food. Pteropus edwardsii and P. conspicillatus are found in Australia and Tasmania.—*Tennent's Sketches of Nat. History*, *p*. 18. ; *Adams' Naturalist in India* ; *Jerdon's Mammals of India*.

PTEROSPERMUM, a small genus of plants of the order Sterculiaceæ, (from the Greek word *πτερὸν* signifying a wing, and *σπέρμα* a seed), found in the Indian Isles and the southern parts of India. All the species form handsome trees, and abound in mucilage. The following are East Indian species :

acerifolium, *Willde*, Peninsula of India, Assam.
aceroides, *Wall.*, Martaban.
heynianum, *Wall.*, Gingi, Courtallum.
lanceæfolium, *Buch.*, Assam.
obtusifolium, *Wight*, Courtallum.
rubiginosum, *Heyne*, Courtallum.
reticulatum, *W. and A.*, Peninsula of India.
suberifolium, *Law*, Peninsula of India, Ceylon.

PTEROSPERMUM ACERIFOLIUM, *Willde.*

Kanuk champa,	BENG.	Toung-phet won,	BURM.
Nagee,	BURM.		

A useful timber tree and affording good shade. According to Voigt, this is a large tree, of the peninsula of India and Assam, and it grows along with teak in the Pegu forests, though scarce. The timber is extremely valuable and is as strong as teak or oak, but its durability has never been fairly tested, as it has never been desiccated like teak. It attains a girth of 10 or 12 feet and rises to a lofty height. It has a dark brown wood.—*Dr. McClelland, Eng. Cyc., Voigt.*

PTEROSPERMUM ACEROIDES, *Wall.*

Tha-ma-jam-wai-zoke, BURM.

A timber tree of Martaban, and growing in the Pegu forests similarly to P. acerifolium, but plentifully ; timber of the same qualities as P. acerifolium.—*Voigt* ; *Wallich* ; *McClelland.*

PTEROSPERMUM HEYNEANUM, *Wall.*

Pterospermum suberifolium, *Willde.*
Velago xylocarpa, *Gærtn.*

Welang-gas,	SINGH.	Lolugu chettu,	TEL
Taddee maram,	TAM.	Loluga kurra,	,,
Nolika chettu,	TEL.		

A native of all the mountainous tracts of India. Flowering time the beginning of the hot season. Trunk erect, growing to be a timber tree of middling size. The wood is white and too soft to be of much use.—*Rohde's MSS.*

PTEROSPERMUM SUBERIFOLIUM

Welang tree,	ANGLO-SINGH.	Taddi maram.	TAM.
Velenge.	SINGH.		

This is a native of the mountainous tracts all over India. A tree of Courtallum, of the Godavery forests, and the Ginji hills. Wood pinkish and hard, but is generally hollow in the centre. In Ceylon, it is common up to an elevation of 2,000 feet, especially in the drier parts of the island. The wood is useful for many purposes where toughness is required, such as poles of bullock carts, betel trays, and gun stocks. A cubic foot weighs 36 lbs., but it is said to last only from 5 ? to 7 ? years. Flowering time the beginning of the hot season, March, April and May. Trunk erect, growing to be a timber tree of middling size.—*Thw. Mr. Rohdes MSS. Mr. Mendis*; *Tennant* ; *Voigt* ; *Capt. Beddome.*

PTEROSPERMUM INDICUM——?

Kyaboka wood tree,	ENG.	Lingoa wood tree,	ENG
Kaiaboka wood tree,	„	Serioulout,	MALAY
Amboyna wood tree,	„		

According to Holtzapfel, the botanical name of the Kyaboka wood tree has not yet been determined with certainty. But, it has been said to be called Pterospermum indicum. The Kyaboka is said by Prof. Reinwardt, of Leyden, to be the burr of the Pterospermum indicum ; but, by others that of Pterocarpus draco, and to be brought from the Moluccas, the islands of Borneo, Amboyna, &c. The native name appears, from the specimen of Mr. Witson Saunders, to be " Serioulout," the wood itself is of the same colour as the burr, or rather lighter, and in grain resembles plain mahogany. Col. Lloyd is quoted as saying that the root of the cocoanut tree is so similar, when dry and seasoned, to the bird's-eye part of the wood, termed kyaboca, that he could perceive no difference, the cocoa has a tortuous and silky fracture, almost like indurated asbestos. But, it is said, the comparison of the palm wood with the kyaboka, renders the question uncertain, as amongst the multitudes of ordinary curly woody fibres that one cannot account for in a palm, there are a few places with a soft friable matter much resembling it. The general belief is that P. Indicum throws out burrs or excresences, and that which receives the name of Amboyna wood or Lingoa wood seems to be the timber of the bole of the tree, sometimes along with that of the burr. The Lingoa wood, or Amboyna wood of commerce is abundant at Ceram, New Guinea, and throughout the Molucca seas, and can be obtained in any quantity, if the precaution be taken of ordering it during the previous trading season. It is very durable and takes a high polish. At the exhibition of 1851, there was seen a circular slab of this wood, from Ceram, 6 feet, 7 inches in diameter. But, such large circular slabs are only obtained by taking advantage of the spurs which project from the base of the trunk, as the tree itself has not sufficient diameter to furnish slabs of such widths. They are occasionally met with so large as 9 feet, but the usual size is from 4 to 6 feet. Amboyna or Lingoa wood was imported in considerable quantities into Great Britain during the period in which the Moluccas were British possessions ; but Poole in his Statistics of commerce says it is now seen in Britain.

The Kyaboka wood of commerce, on the other hand, is supposed to be from the knotty burrs or gnarled excrescences. It is brought from Ceram, New Guinea, the Arru and other islands of the Moluccas, to Singapore ; and is much esteemed as a fancy or ornamental wood for cabinet-work ; of late years, its estimation seems to have decreased in Europe, but it is still much valued by the Chinese, and is sold by weight. It is sawn off in slabs from 2 to 4 feet long and 2 to 8 inches thick. It resembles the burr of the yew, is very hard and full of curls—the colour being reddish brown, varying to orange. It is used for making small boxes, writing desks and other fancy ornamental work. It is tolerably hard, and full of small curls and knots, the colour is from orange to chestnut brown, and sometimes red brown. At the Madras exhibition of 1855, a slab of Kyaboka wood, imported from Singapore, was exhibited by Dr. Sanderson. A small portion was polished, and in its marking showed well the highly ornamental appearance of the wood. The specimen exhibited the very knotty character and curly fibres of the wood, from which pieces of even a foot square, free from flaws, can rarely be obtained.—*Holtzapfel, J. R. M. E. of* 1855 ; *Cat. Ex.* 1851; *Sing. Cat. Ex.* 1861 ; *Poole's Statistics of Commerce.*

PTEROSPERMUM LANCÆFOLIA, *Roxb.* A tree of Assam, with a dense strong wood.

PTEROSPERMUM SEMI-SAGITTATUM, *Buch.* A tree of Assam, which flowers in March, April and May, with large white fragrant flowers.—*Voigt.*

PTEROSPERMUM SUBACERIFOLIUM.

Na-gee, BURM.

Dr. McClelland, at p. 133 of No. ix of the Records of the Government of India, thus remarks : Pterospermum aceroides, Thama-jam-wai-zoke : also P. subacerifolium and P. acerifolium, Najee, *Burm.*, three species of large timber, found growing along with teak in all the forests of Pegu. The two first are plentiful but the third kind is scarce. This timber is extremely valuable and is as strong as either teak or oak. Its durability for purposes of ship-building has never been tested because it has never been desiccated or killed like the teak. It attains a girth of ten or twelve feet and rises to a lofty height. Wood dark-brown.—*Dr. McClelland.*

PTERYGOTA ROXBURGHII, *Schott and Endl.*

Sterculia alata, *Roxb.*

A tree of Sylhet and Chittagong, with large, iron-coloured flowers, streaked with crimson and yellow. At Silhet, its seeds are eaten by the natives as a cheap substitute for opium.—*Roxb., Vol.* iii, *p.* 182 ; *Voigt, p.* 103.

PTILONOPUS CINCTUS, a white headed pigeon of Timor.

PTILONOPUS SUPERBUS, and P. iogaster, green and purple-doves.

PTOLEMAIS of the Greeks, the modern Akha or Acre.

PTOLEMAIS THERON, was built by Eumedes, and was in lat 16° 24′.

PTOLEMY LAGUS, or Soter, was the son of Philip of Macedon, by his concubine Arsenoe. He was a favourite of Alexander the Great, on whose death he obtained Egypt, Lybia, and part of Arabia, to which, on the death of Perdiccas, he added Cœlo-Syria, Phœnicia, Judæa and the isle of Cyprus. He made Alexandria his capital and built there a lighthouse, called the Pharos, as a guide to pilots for that harbour. Alexandria was now made the port on the Mediterranean side, and merchandize from Europe was carried thence up the Nile to the city of Coptus (probably near Keneh) and conveyed across the desert from thence to the sea-port of Myos-Hormos (probably near Cosseir) on the Red Sea. He dug a canal from a branch of the Nile to Damietta, a port on the Mediterranean. The canal was 100 feet broad, 30 feet deep, and ten or twelve leagues in length, extending in fact to the 'bitter wells.' He meant to have continued it to the Red Sea, but desisted from fear that the Red Sea was three cubits higher than the land of Egypt ! That this canal, though deeper than that of M. de Lesseps, did not succeed is evident from the fact that in 277 B. C. Ptolemy Philadelphus again changed the direction of Indian traffic. Ptolemy Lagus died B. C. 285.

PTOLEMY PHILADELPHUS, son and successor of Ptolemy Lagus, was so named ironically because he killed his two brothers. He was a great encourager of commerce. He is said to have caused the Hebrew Scriptures to be rendered into Greek, in that version called the Septuagint. He was a liberal patron of learned men. He constructed considerable fleets both on the Red Sea and the Mediterranean sea. On account of the dangers attending the port of Myos Hormus, Ptolemy Philadelphus sent an army to construct the haven of Berenice, in which the ships engaged in Indian commerce took shelter in great security. Trade increased enormously by the new route, and Alexandria became rich and famous. Ptolemy Philadelphus (287–246 B. C.), on the recommendation of his chief librarian (Demetrious Philaretes), is said to have sent a Jew of the name of Aristeas, to Jerusalem, to ask the high priest for a MS. of the Bible, and for 70 interpreters. Others maintain that the Hellenistic Jews who lived at Alexandria, and who had almost forgotten their native language, had this translation made for their own benefit.

Certain it is, that about the beginning of the third century, B. C. (285), we find the Hebrew Bible translated into Greek.

Ptolemy Philadelphus constructed a canal from Arsinoe (near the present Suez) to the Pelusiac branch of the Nile: and afterwards, possibly because of the tedious and dangerous navigation of the upper part of the Red Sea, founded the city of Berenice on the western side of that sea, and nearly under the tropic (that is, 450 miles below Suez), from whence the merchandize was transported across the desert of Thebais to Coptus on the Nile. Ptolemy Philadelphus died B. C. 246, aged 64. *—Muller's Lectures, p.* 86.

PTOLEMY EUERGETES, son and successor of Ptolemy Philadelphus, declared war against Antiochus Theus, to avenge the death of his sister Berenice, the wife of Antiochus. Ptolemy made himself master of Syria and Celicia, and was extending his conquests when the news of a revolt re-called him to Egypt. He soon quelled the insurgents, and by the prudence of his reign acquired the title of Euergetes or benefactor. He died B. C. 221, and was succeded by

PTOLEMY PHILOPATERS, ironically so-called because he had poisoned his father, his mother and several of his relatives. He favoured the Jewish nation. He died B.C. 204.

PTOLEMY, (CLAUDIUS,) or Claudius Ptolemæus, generally known as Ptolemy the Geographer, lived about A. D. 138. He was a mathematician of Pelusium and is celebrated for his system of the world, in which he placed the earth as the centre. His geography is a valuable work, and was printed at Amsterdam in 1618, folio ; his treatise on Astrology in 1535, and his Harmonica at Oxford in 1683. Although this geographer's Map of India is exceedingly faulty, a work which has travelled down to us from the second century of our era, must have possessed something worthy to recommend it, and to keep it alive. Taxila, almost due north of Barygaza, is placed by Ptolemy 11° to the east of it ; and the mouth of the Ganges, which was fixed by land-measurement from Taxila and Palibothra, is placed 38° to the east of the mouth of the Indus, the true difference being only 20°. As a general rule, the Greeks would seem to have designated the various peoples whom they encountered by the names of their principal towns. Thus we have Kabura and the Kabolitæ, Drepsa and the Drepsiani, Taxila and the Taxili, Kaspeira and the Kaspeiræi, from which General Cunningham infers that there was most probably also a town named Cadrusia, whose inhabitants were called Cadrusi. The names of other peoples and towns are recorded by Ptolemy ; but few of them can now be identified, as we have nothing to guide us but the bare names. The Parsii, with their towns Parsia and Parsiana, General Cunningham takes to be the Pashai, or people of the Panjhir or Panshir valley. The true name is probably Panchir, as the Arabs always write *j* for the Indian *ch*. According to Ptolemy, the three great passes, in the western chain of mountains, the Pyle Sarmatæ, the Pyle Albanie, and the Via Caspia, were each closed by large beams of wood, pointed with iron. In the midst of the narrow valley flowed a river. The southern extremity was protected by a castle built on a high rock. This defence was to prevent incursions from the people of the north. It is likely that the first, the Pyle Sarmatæ, is the same with the Porta Ibericæ, or Porta Caucasia, mentioned by Strabo, and the present pass, or valley of the Terek. The two latter, the Pyle Albanie and the Via Caspia, merely bestow two names on one place, which is the pass now called Derbent. But there was another, the Porta Cumana, that lay farther westward. Pliny notices it particularly, describing its fortress by the name of Cumania. These defiles, as keys of the East, have always been vigilantly guarded by the possessors, who knew their value. But Leon the First, rather chose to incur an inroad from the barbarians, than be at the smaller expense of keeping the gate that fixed their boundary. Justinian knew better ; and concluded a treaty with Kobad, king of Persia, (A. D. 532,) agreeing that this pass should be protected by both sovereigns in common ; or, if totally confined to Kobad's troops, the Roman should pay the Persian monarch one million and a hundred thousand pounds weight of gold, in reward of the double service. Ptolemy, makes mention of the "Arcati soren." In the last map of his volume, that which contains the "Aurea Chersonesus" and the "Iabades Insulæ," (supposed to have meant respectively the Malayan Peninsula or Sumatra and the Java Islands) he places a country far to the eastward of the Aurea Chersonesia, under the equinoctial line, which he states to be occupied by "Æthiopes Icthyophagi," or "Negro fish-eaters ;" the first term being that employed by the Romans to distinguish the black and wooly haired Africans from the Mauritani and other brown races of the east ; and the second, that usually applied to all nations who derived a portion of their subsistence from the sea. The system of naming nations from the food which formed their chief means of support, seems to have been very prevalent among the ancients ; witness "Hippophagi" the horse eating Tartars, "Lotophagi," lotus eaters, &c. This system, although not to be recommended at the present day, has proved highly useful, for these names are sometimes found to contain the only existing description of the habits of the people on whom they were conferred, as in the present instance. Dr. Leichhardt in his late overland journey from Sydney to port Essington, found some tribes of genuine Lotophagi on the lagoons of the table-land, as will come to be noticed below. The position of this country with regard to the Aurea Chersonesus agrees well with that of New Guinea, the great seat of the Papuan race. The existence of a negro people, at so remote a spot, which he must have learned from the information of Indian navigators, seems, indeed, to have led Ptolemy into the great error of his system, for believing that the country of the "Æthiopes Icthyophagi" formed part of the continent of Asia, he has made that continent, in his general map of the world, come round by the south and join the African continent about Point Prassum, in latitude 15° S. (the then southern known limit of the east coast of Africa), thus making the Indian Ocean and the seas of the Eastern Archipelago, form one vast Inland sea.—*Rennell's Memoir*, *pp.* 35, 241; *Cunningham's Ancient Geog. of India*, *pp.* 9, 31-32. See Buddha, Inscriptions, Kars, Kerkook, Kha-chan-yul, Khuzistan, Kurumbar, Kulzum, Koh, Topes.

PTYCHOTIS MONTANA, *Graham.*

Bhaphullee, *Blyth.*

PTYCHOTIS SYLVESTRIS, *Royle.*

Arab-ajwan.

Grows in the khadir lands of the Saharunpore district: and used as a stomachic aromatic remedy in flatulence.—*O'Sh.*, *p.* 358.

PTYCHOTIS COPTICA.

Bal-ajwan, HIND. | Coptic ammi.

A plant of Candia and Egypt, used as a stimulant aromatic.—*O'Shaughnessy*, *p.* 357.

PTYCHOTIS INVOLUCRATA.

Chanoo,	BENG.	Anisoon,	HIND.
Radhooni,	„	Anisboo,	„

Used as a substitute for parsley.

PTUN, DUK., HIND. Euphorbia nivulia, *Buch.*

PTYADACTYLUS GECKO, the Chikchak, a lizard of Labuan. It is very domestic, like the Chaplak of India. It is said to be luminous on occasions.

PTYCHOTIS AJOWAN, *DC.*, *W. & A.*, *W. Ic.*

Ligusticum ajowan, *Roxb. Flem.*
Sison-ammi, *Ainslie.*
Athamantha ajowan, *Wall.*

Amoos,	AR.	Ajmodam,	SANS.
Boro-joan	BENG.	Omam,	TAM.
Ajouain Juvani,	„	Omamu;	TEL.
Bishop's weed seed,	DUK.	Vamam chettu,	.,
Nankhah,	PERS		

This is one of the most useful of the Umbelliferæ, and an excellent remedy in flatulent colic. Cultivated in India everywhere, much used in India. Flowers small, white, Small fruit. Seeds of an aromatic smell, warm, pungent taste; much used by the natives, for medicinal and culinary purposes.—*Voigt*; *Roxb*,; *O'Shaughnessy*, *pp.* 357-58.

PU, TAM., TEL. A flower.

PUA. The Tibetan name of the marmot.

PU AGAKARA or Potu agakara, TEL. Mormordica dioica, *R.*

PUA JETTI, MALEAL. Gomphia angustifolia, *Vahl.*

PUALAIN, or Marmar, MALAY. Marble.

PUAM-CURUNDALA, Conyza cinerea.

PU-AN-KU. According to the Chinese, the primeval man, who came out of the mundane egg: he lived 18,000 years.

PUAR, or Pouar. A highly respectable Mahratta family, at Multan, 30 miles N. E. of Poonah. In the early periods of Mahratta history, the family of Puar appears to have been one of the most distinguished. They were of a Rajput tribe, numbers of which had been settled in Malwa at a remote era; from whence this branch had migrated to the Dekhan.—*Malcolm's Central India*, *Vol.* i, *p.* 97.

PUARASU, properly Purasu, TAM. Thespesia populnea, *Linn.*

PUARI, HIND. Ficus caricoides.

PUBB MOUNTAINS, length, about 90 miles, from C. Monze to lat. 26°. Supposed to equal those of W. Sind, viz., 2,000 feet, highest part, about lat. 25° 30′ N. In 25° 3′ and lat. 66° 50′ E., they are crossed by the Gunclob pass, described as stony, and of easy ascent and descent.

PUBERTY, amongst mahomedan girls is called Baligh-hona: p'haili sir mylee hona; also Burron men milna, and amongst the poor and uneducated, its occurence, in a girl, is celebrated with music. With hindoos, and the non-aryian races, the girl is put outside the house till the time of purification occurs, *Herkl.*

PUBESCENT CUCUMBER, ENG. Cucumis pubescens, *Willd*, *W. & A.*

PUBHA, MAHR. Chickrassia tabularis, *Ad*

PUBNA, a district and town in Bengal, the town 130 miles from Calcutta, it is a flat, fertile district to the north of Jessore.

PUCHA, MALAY. Putchuck. See Pucha pat.

PUCHA COTTE MARAM, TAM. Sapindus emarginatus.

PUCHA PAT, BENG., HIND. White horehound, Patchouly, used in India, as an ingredient in tobacco for smoking, and for scenting the hair of women. The essential oil is also in common use for imparting the peculiar fragrance of the leaf to clothes, among the superior class of natives.—*Simmond's Dict.*

PUCHA PAYARU, or Patcha Payaru, Tam. See Pessaloo.

PUCHULA—? Flacourtia cataphracta.

PUCHCHA, Cucumis trigonus, *R.* iii, 722—*W. Ic.* 497.

PUCHIKA GADDI, or Chipuru gaddi. Aristida setacea, *Retz.*

PUCHEESEE, Hind. A celebrated game amongt the mahomedans.

PUCKA, or Pukkah, Hind. Mature, perfect, a better class of building in India than the temporary erections. Pucka-maund, Hind., measure of capacity, equal to 80 lbs. Pucka-seer, Hind. An Indian weight for silk and other commodities, 18,666 lbs.—*Simmond's Dict.*

PUCKEEWAR, a thieving race of the Punjab, mahomedans, whom the authorities in 1863 tried to reform.

PUDA GAULA, Beng. Viverra zibetha, *Linn., Roxb.*

PUDALUNGAI, Tam. Trichosanthes anguina, *Linn.*

PUDANG, Malay. A sword.

PUDARA, Hind. Erythrina arborescens.

PUDARI, Hind. Hamiltonia suaveolens, *Roxb.*

PUDART'HA, Sans., from pada, a word, and artha, an object.

PUDAVAI, Tam. Sarhi, a woman's cloth.

PUDDALUM, Tel. A weight of Masulipatam, of 1½ lbs.—*Simmond's Dict.*

PUDDHATI, Sans., a road, from pada, the foot, and han, to smite.

PUDDIEM, or Payah, a Nepaul tree, resembles in its leaf and wood, the English cherry, the wood being held in sanctity by the natives; perhaps the Prunus puddam.—*Smith's Nepaul.*

PUDDING PIPE TREE. Cathartocarpus fistula, *Pers.*

PUDDY, or Purry, Duk. A dry-measure for grain, consisting of eight ollucks, and forming the eighth part of a marcal. The puddy contains 1⅞ English quart, and the heaped puddy weighs about 3 lbs., 8 ozs., 12 drachms. In the Carnatic the puddy is = 3¾ pints; in Madras, only 2¾ pints; as a weight it is nearly 5 lbs. —*Simmond's Dict.* See Measures, Marcal, Weights.

PUDEL, Tam. Trichosanthes cucumerina, *Linn.*

PUDER, Ger. Hair powder.

PUDERA, Hind. Typha elephantina.

PUDHA, of Bombay, Chickrassia tabularis, *Ad.*

PUDI-KALENGU, Maleal. Dioscorea aculeata.

PUDINA, also Nana, Guz., Hind. Mentha viridis, in the Dekhan, Mentha crispa, also Mentha sativa, mint.

PUDKALAI, one of the wives of Ayenar.

PUDMAK——? Cerasus caproniana.

PUDMA PODU, Beng. Water-lily, Nelumbium speciosum, *Willd.*

PUDMA KURUBEE, Beng., Hind. Nerium odorum.

PUDMALAYA, or Padmalaya, Sans., from padma, the water-lily, and alaya, residence.

PUDMO-GOOLUNCHU, Beng. Cocculus tomentosus.

PUDMA-NABHA, Sans., from padma, a water-lily, and nabhee, the navel.

PUDMA-PRABHOO, Sans., from padma, a water-lily, and prabhoo, a lord.

PUDO-GAULA, Bhot. Viverra zibetha, *Linn.*

PUDUNG, or Padang, Sans., from pada, a place.

PUDYAVALEE, or Padyavali, Sans., from padya, prose, and avalee, a row, or range.

PUEKOACHIM, Tib. Tibet and Bhootan.

PUERARIA TUBEROSA, *DC.*

Hedysarum tuberosum, *Roxb.*

Shimeeya batrajee,	Beng.	Saloha,	Panj.
Sialti,	Chenab.	Siali,	Ravi.
Badar,	„	Dari,	Tel.
Sural,	Panj.	Gumudi,	„

The tuber.

Bidari kand, Hind.

A great climber, a native of the Circar mountains and the Punjab, the bruised root is used as a poultice to swellings of the joints. Its tubers are exported to the plains.—*O'Shaughnessy, p.* 316; *Cleghorn's Punjab Report of Kullu & Kangra, p.* 81.

PUEY, Burm. A theatrical representation. The fairs or 'Pueys' are annual gatherings under the pretence of worshipping pagodas of great efficacy. At Thegyain, Shwagyoo and Suseenah, a mile above Bhamo, there is one group of pagodas, the original being founded by Dammasokah! At Suseenah there are 253 pagodas all of a heap. The fair was held on the sands, commenced on the 8th March, and by the 9th, there were at least 2,500 temporary huts, shops and stalls erected. A large place for the Puey and the imigrants enjoy to it, was put up and on each side of it, also a little house for the two chief officials, who remained on duty three days and nights.

PUFFINUS OBSCURUS, the Dusky Petrel of Tropical and South Seas; Australia; rare northward.—*Cal. Rev., No.* iv, *March* 1857.

PUG, Guz. A foot, a foot-mark.

PUG CHIK, Lepch. Alsophila spinulosa.

PUGGI, a detective who follows up the Pug or foot mark. One was employed to pursue a man who had carried off the plate belonging to a regimental mess at Kaira; he tracked him to Ahmedabad, twelve or fourteen miles, lost him among the well-trodden streets of that city, but recovered his traces on reaching the opposite gate; and, though long foiled by the fugitive's running up the water of the rivulet, he at last came up with him, and recovered the property, after a chase of from twenty to thirty miles. Pug, in the Kangra dialect also means foot. The skill of many of these Puggees in Guzerat is very remarkable: they measure with a string every trace of the impression of the foot, and make observations with a sense which practice renders very acute. The moment the object of their pursuit is traced to a village, the string and all the remarks are delivered to its Puggee, who pursues the chase till he finds the thief or murderer, or till he lodges him in another village. The numerous instances of extraordinary discoveries of criminals through this mode almost stagger belief.—*Malcolm's Central India, Vol.* ii, *p.* 1920.—*Elphinstone's History of India, p.* 363.

PUGAREE, an Indian turban-piece of muslin.

PUGHA, see Hot springs, Indus, Kelat

PUGHMAN or Pamghan range, subordinate to Hindoo Koosh, running along its S. base generally from N. E. to S. W. Estimated at 13,000 feet. Oona pass 34° 23′ and 68° 15″; 11,320 feet. Erak summit 34° 40′ and 68° 48′; 12,480 feet. Always covered with snow. Its south-eastern brow overhangs the delightful region of Koh-i-damaun and also Cabul: its northern face forms the southern boundary of the Ghorbund valley.

PUHARI or Pahari, Hind., a mountaineer; those on the Eastern end of the Vindhya range are said to be admirably adapted for soldiers, and to be very fond of the profession. Having no caste, and eating any food indiscriminately, they would be available for foreign service at a shorter notice than any hindoo could be; accustomed to mountains and jungles, they would be extremely valuable on the eastern and northern frontier, as well as on the Nerbuddah and in Berar. Those whom Bishop Heber saw, were middle-sized, or rather little men, but extremely well-made, with remarkably broad chests, long arms, and clean legs. They are fairer, than the Bengalees, have broad faces, small eyes and flattish, or rather turned up noses; but the Chinese or Malay character of their features, from whom they are said to be descended, is lost in a great degree on close inspection. The expression of their countenances is cheerful and intelligent.—*Heber's Journal, Vol.* i, *pp.* 207–8, 214.

PUHARI CHERETTA, Hind. Ophelia.

PUHDUN, Hind. Mako.

PUHOOJ, a river near Ukdeo in Banda.

PUHN. Malay. A tree.

PUI, Beng. Basella cordifolia, *Lam.* B. alba, *Linn.*, *Roxb.*

PUIMANGU of Kashmir, a dealer in shawl wool yarn.

PUIN SHAK, Beng. Basella cordifolia, *Linn.*

PUJ, Hind. A devotee.

PUJA, Beng., Hind., Sans., Tam., Tel. Worship of the Almighty or of idols. Hindoo worship, or the festival of the hindoos, as Durga puja, is the worship of the goddess Durga. It assumes various forms, and is attended by a variety of ceremonies according to the deities worshipped, and the circumstances under which the worship is performed.—*Cole. Myth. Hind., p.* 392.

PUJA KAND, Hind. See Prajna.

PUJALI or Pujari, Hind. Any worshipping priest. The officiating brahmin or priest of a temple, an inferior priest. See Hindu or hindoo.

PUJAWALIYA, a book of legends in Singhalese, relating principally to Gotama budha.—*Hardy's Eastern Monachism, p.* 440.

PUKANA, Hind. Rubus floribundus, R. rotundifolius.

PUKANDEL, Tel., Tam. Rhizophora mangli.

PUKAT, a Chinese trading vessel employed in the Eastern seas.—*Simmond's Dict.* See Prahu.

PUKEO, a money of account in the island of Lombok, equal to 5 attaks or 1000 cash; about 9 shillings.—*Simmond's Dict.*

PUKHA, Beng. Hedyotis pumila.

PUKHAL, Hind. A large leather bag for water, carried on bullocks.

PUKHALI, Hind. A water carrier in pukhals or skins slung on bullocks.

PUKHAWAJ, Hind., a kind of drum, a timbrel.

PUKHI, Tel. Epicarpus orientalis, *Blume.*

PUKHLI, see Sikhs.

PUKHTO, or Pukhtun, or Pushtoo, the Affghan language.

PUKHYA PAKYA, Mahr. Pteromys philippensis, *Elliott.*

PUKKI, Tel. Epicarpus orientalis, *Blume.*

PUKRAIR, a stream near Mungawa in Jubbulpoor.

PUKRIAR, a river of Rewah:

PUKSHADHARA-MISHRA, Sans., from puksha, a lunar half month, and dhara, to hold.

PULA, Hind. Kydia calycina.

PULA, Hind., of Kulu, grass sandals.

PULACHA-KIREY, Tam. Hibiscus cannabinus, *Linn.*, *Roxb.*, *W. & A.*

PULAIMAKAN, a Tamil term, applied to a Paraiya or Pulaya, *Wilson.* See Pariah.

PULAI NAMAJI, Tam., of Coimbatore. Crotalaria juncea, *Linn.*

PULAKH, Hind. Ficus cordifolia.

PULA KURUVU, Maleal. Anamirta cocculus.

PULA MARAM, Tam. Salmalia malabarica.

PULA MULA ELAVU, Tam. Bombax malabaricum.

PULANG-KELENGU, Tam. Curcuma zerumbet.

PULANTU, Beng. Allium cepa, *Linn.*

PULA PALLA, Tel. Pentatropis microphylla, *W. & A.*

PULA PATTAI, Tam. Bark of Phyllanthus multiflorus.

PULASA, also Kinaka, Beng. Butea frondosa, Pulas fibre, see Dhak. Pulas flowers, see Dyes.

PULAS KINO, see Dyes, Kino.

PULAS, see Kaluwi.

PULAS, Hind. Butea frondosa and B. superba. Their fibre is used for cordage, or beaten to a kind of oakum, for caulking boats. It is also called dhak. The flowers are used for dyeing.—*Simmond's Dict.*

PULASTYA, a famous rishi. See Brahmadica, Hindoo, Ravana.

PU-LA-TE, a wandering tribe found on the island in the Baykal lake and an account of them is given by Mr. Bell. He says the tribe are natives of Siberia and differ in some particulars from all he had formerly described. They are called by the Russians Brustky, but by themselves Buraty. They live in tents all the year; and, having large flocks of sheep and many cows and horses, they remove from place to place, as the convenience of grazing requires. Their language has a great affinity to that of the Calmucs; and they have priests among them who can read and write that language.—*Staunton's Narrative, pp.* 51-2.

PULA TUMMI, Tel. Leucas linifolia, *Spreng.* Phlomis zeylanica, *R.* iii, 9.

PULAYAN, or Pulian of Malabar, is a low and servile caste, often slaves. This is doubtless the Pullai.—*Wils.*

PULCHA KIRE, Tam. Hibiscus cannabinus, Ambari.

PUL-COLLI, *Rheede.* Rhinacanthus communis.

PULCHI FIBRE, of Madras, Ambari, Duk., Mahr. Hibiscus cannabinus, *Linn.*; *Roxb.*, *W. & A.*

PULEETA, Hind. A lamp charm.

PULE MANJI, or Pule namajee, in Coimbare, Crotalaria juncea.

PULGOONDHUN, Hind. The plaiting a girl's side locks, a mahomedan ceremony.

PULI, or Pulli, Tam. Tamarind.

PULI, Hind. Kydia calycina.

PULI, Tel. Crinum pratense, *Herb.* C. longifolium, *R.* ii, 130.

PULI, Tel. Felis tigris, *Linn.*, the tiger.

PULIA MARAM, Tam. Tamarindus indica.

PULIAR. The Kader as also the Puliar, Malai arasar and Muduwar, who also inhabit the Animallai hills, all gather the rich natural products of the forest, cardamoms, honey, wax, ginger, turmeric, resins, millets, soap-nuts, gallnuts, and exchange them in return for rice and tobacco. The Puliar, who inhabit the forests and mountainous districts of the Malabar coast were long regarded by the settled inhabitants as inferior to the beasts of prey and were not even permitted to erect houses for themselves. A shed supported on four bamboos and open on all sides, sheltered them from the rain, but not from the inclemency of the weather. They dared not venture on the public road lest their steps defile it; and when they perceived any person approaching them from a distance, they were required to utter a yell or loud cry and make a wide circuit to let him pass. See Puller.

PULIARI, Tam. Oxalis corniculata.

PULIARI KIRE, Tam. Greens of Oxalis corniculata.

PULICARIA, a genus of plants belonging to the natural order Asteraceæ.—*Eng. Cyc.*

PULICAT, properly Palivara-Kadu, a small town on the eastern coast of the peninsula of India about 20 miles north of Madras, which gives its name to a marine lagoon about 80 miles long. It is close to the village of Coromandel, which, again, gives its name to the coast of the eastern side of the peninsula of India. The flagstaff is in lat. 13° 25′ N.

PULICAT LAKE, is a marine lagoon, skirting the Bay of Bengal, near Madras, on the north, in the Nellore collectorate. It is about 40 miles long and several broad, with many islets in the centre.

PULICAT SHOALS, lat. 13° 25′ N., long. 80° 18′ E.

PULICHI, a forest tribe in Malabar, who are deemed so unclean that they are not allowed to approach other castes.

PULI CHINCHALAMU, or Puli chinta, Tel. Oxalis corniculata, *L.*—*R.* ii, 457, *W. Ic.* The same term is also applied by Colonel Beddome in the Godaveri forest to a species of Bauhinia. See Puli-Shinta.

PULI DUMPA, or Pedumpa, Tel. Dioscorea dœmona, *R.*

PULI MADA, or Kannem, Tel. Vitis pedata, *Wall.*

PULIM, Singh. Eriodendron anfractuosum, *DC.*, *W. & A.*, *W. Ic.*

PULI MARAM, Tam. Salmalia malabarica, Bombax malabarica, also ? Vitis setosa, *Wall.*

PULINDA, see Chandra.

PULI PALLAM, Tam. Tamarind fruit of Tamarindus indica, *Linn.*, *Roxb.*

PULI-SHINTA, Tam. Bauhinia, *species*. A wood of the Godavery forests. Said to be good and hard. Tree not apparently described. Legume filled with a scented pith.—*Captain Beddome.*

PULI TODUGU, Tel. Pterolobium lacerans, *Br.*—*W. A.* 877—*R.* ii, 367, a plant of the Nagari hills.

PULI VELAGA or Velaga, Tel. Feronia elephantum, *Corr.*

PUL KOLLI, Maleal. Rhinacanthus communis, *Nees.*

PULLA, Hind. Rubus tiliaceus.

PULLA, Hind. A kind of carp in the Indus and Ganges rivers, of delicious flavour, only found in the four months that precede the periodical swell of the river. The pullah, called by the Sindees "pallo," is the hilsah of the Ganges, the sable, or black-fish. The usual weight is about two pounds, and the body averages twenty inches in length, the finest are found ascending the river as far as Bukkur, between January and April. The Pullah fish is rarely, if ever, caught above the island of Bukkur it cannot swim against such a stream. —*History of the Punjab*, *Vol.* i, *p.* 8 ; *Burton's Scinde*, *Vol.* ii, *p.* 256.

PULLA BACHCHALI or Barre bachchali, Tel. Vitis setosa, *Wall.*, *Heyne.*

PULLA CHANCHALI, or Puli chinta, Tel. Oxalis corniculata, *L.* The term Pulla or acid is applied both to this and V. auriculata and Bachchali to V. Setosa the leaves of which are very acid. The Sans. syn. is Atyamla parna. W. "a creeping medicinal plant." It means very acid leaves.

PULLA DABBA or Dabba. Citrus medica, *L.*

PULLA DANIMMA, or Dadima. Punica granatum, *L.*

PULLAH, a commercial weight in India, ranging in different localities, from 138¼ lbs. to 325¼ lbs. There is a difference in buying and selling, for instance a selling pullah will be 120 seers, or 240 lbs. 6 oz. 9 drachms ; and a purchasing pullah, 126 seers, or 252 lbs. 6 oz. 14 drachms.—*Simmond's Dict.* See Measures, Weights.

PULLA MADIPHALA CHETTU. Citrus, *var.* Pulla means acid.

PULLAMANDA, or Bachchali manda. Ceropegia tuberosa, *R.* C. juncea, *R. Cor.* 10, from the resemblance of C. juncea to Sarcostemma acidum, it is not improbable that some confusion of names may have arisen. Tujyamanda, was also a name applied to an undescribed Euphorbiaceous plant of a very large tuberous root from the Golakonda Taluk in Vizagapatam a congener the plant figured and described by Wight under the name of Jatropha villosa. V. peltata, Ic. 1169.—Sweet Mande is C. tuberosa.

PULLA MILLU, Tel. Vinegar.

PULLA PAMPARA PANASA, Tel. Citrus decumana, *Linn.*, *W. & A.*, *Roxb.*, (acid var.)

PULLA PASSAONA, Hind., or 'spreading the cloth or scarf,' is the figurative language of entreaty arising from the act of spreading the garment, preparatory to bowing the head thereon in token of perfect submission.—*Tod's Rajasthan*, *Vol.* ii, *p.* 283.

PULLA PAVILI, Tel. Portulacca, *sp.*

PULLA PUMPARA PANASA, Tel. Citrus decumana, *L.*—acid *var.*

PULLA PRABBA, Tel. Calamus, *sp.* Sans. syn. is Amla vetasa. Both words mean "acid cane." The fruit of C. rotang is very acid and eaten by natives, another syn. Sata vedhi, *W.*, is, also Rumex vesicarius also Oxalis.

PULDA TOVARI MANNU CHETTU, or Pulla tige or Soma lata, Tel. Sarcostemma acidum, S. brevistigma, *W. cont.*, S. Viminale, *R. Br.* Asc. acida, *R.* ii, 31.

PULLEE, see Khyber.

PULLER, Tam. A race of predial slaves in the south west of the Peninsula of India, until recently held in great disesteem by neighbouring races. The Puller race in the south of India, are supposed to have formerly been in a state of slavery but their position now is solely dependent on their wealth. Both men and women work well, take part in all agricultural labour, the women, in this particular, vying with the men. The Puller women go about with their chests exposed, and as a rule cannot be induced to cover their breasts. Previous to British rule the Puller who inhabited the forests and mountainous districts of the Malabar coast were regarded by the settled inhabitants as inferior to the beasts of prey and were not even permitted to erect houses for themselves. A shed supported on four bamboos and open on all sides, sheltered them from the rain, but not from the inclemency of the weather. They dared not venture on the public road lest their steps should defile it ; and when they perceived any person approaching them from a distance, they were required to utter a yell or loud cry and make a wide circuit to let him pass. The Puller in Tinnevelly are the hereditary slaves of the wealthier classes. They are the lowest hindoo grades of the right hand caste. The Puller, where settled are allowed to be able cultivators, small farms and kitchen gardens. They bury their dead, have pujaris of their own castes.—*Wilson* ; *Campbell*, *p.* 133. See Puliar.

PULLERU, Tel. Croton claviferum.

PULLERU or Pallru kuru, Tel. Tribulus terrestris.

PULLI, Hind. Kydia calycina.

PULLI, see India.

PULLICATES. Cotton checked handkerchiefs, of various colours.—*Faulkner.*

PULLIYAR or Pullar or Pulayar out caste tribes, classed with the Paraiyar.—*Wils. Gloss.* See Puller, Puliar.

PULLUGHOO-SHUTTUM, Tam. Civet, Eng., Dut.

PULLUKKAI, Tam. A slave.

PULLUNG or Palang, Hind., Pers., a cot, a bed, a bedstead.

PULLUNG POSH (corrupt palampore) a coverlet.

PULMONIFERA an order of molluscs, see molluscs.

PULMU, Hind. Viburnum fœtens.

PUL-MARAM, Tam. Bombax malabaricum.

PULNA, Hind. Hibiscus cannabinus, *Linn.*, *Roxb.*, *W. T A.*

PULNEY, a town that gives its name to a spur of the western range of mountains which runs out boldly into the Madura district, and on which a sanitarium is growing up. The town of Pulney is situated to the north of this range of hills. A festival is annually celebrated there and the worshippers of the idol Subramaniya crowd to the place with delight and devotion. On approaching the town from the east, the attention of the traveller is attracted by two massive rocks lying to the south, and about half a mile distant from the road, and from each other. The elongated one to the east is named Idumba hill, and has scattered about on its summit detached boulders and large stones. The second larger and rounder mass is the more famous Pulney rock, the summit of which is crowned by a temple. During the whole of the long hot day, and for ten days in succession, there is a clatter and din of tom-toms, accompanying different parties up the rock to the shrine of the divinity. The natives in almost endless gliding lines of red and dark-brown, mixed with gleams of white, move on their winding way up the hill and round the temple. From them comes the ceaseless hum of distant voices, like the surging of the restless sea ; save when, midst a beating of drums and braying of trumpets, the devotees cry out Harakara—meaning Oh! Siva! great Siva !—in praise of their deity. Even after darkness covers the rock with its curtain, the hubbub continues. The local name of the god is Pulney Andi, but he is also recognized under the various names of Dandaythapani (wielder of the spear), Arumugam (six faces), and Cartikeia (the god of war.) His Puranic name is Skanda. He is the youngest son of the god Siva, and the hero of the Skanda Purana.

PULO, Malay. An island.

PULO ADI, Malay. Ai, an island of the Moluccas, the Pulo Ai of the Malays, Pulo Way of the British, is situated about ten miles to the westward of the Banda Lenthor or Great Banda. It is about 8 miles in circumference, and moderately elevated, its entire surface consisting of nutmeg plantations, this spice being its sole exportable product.—*Jour. Ind. Arch.* See Adi island.

PULO AI, see Ai island, Pulo Adi.

PULO AOR or Wawoor, is in lat. 2° 29′ to 2° 30′ N., long. 104° 34½′ E. in the China Sea, is small, but high and covered with trees. It is formed of two hills separated by a gap, which gives the appearance of two islands. The inhabitants are considered treacherous.

PULO BESSY, Bezee or Tamarind island, is about 10½ or 12 miles N. E. ½ E. from Crockoatoa peak, and also has a peak 2,825 feet high.

PULO BOONG OORAN, see Natunas islands.

PULO BOUTON, lying off the Malay coast, is formed of two large and high islands, the easternmost being formed of a regularly sloping mountain, generally called Bouton dome, visible 50 to 55 miles. It is in lat. 6° 33′ N., long. 99° 20½′ E.

PULO BRALA or Capas de mer, 18 or 20 miles off the E. coast of the Malay peninsula, in lat. 4° 47′ N., long. 103° 37′ E., is an island of considerable size.

PULO BRANI, an island near Singapore occupied by a race of settlers known as the Bugis of Wadju, and employed as pine apple planters and fishermen. The women manufacture the Sarongs, a gold and silk fabric and coarser articles. They are mahomedans, but drink the fermented juice of the pine apple. Their features are regular and open, their faces inclined to an oval, eyes large and dark and are much elevated. Women have oval face and very perfect figures, but at puberty, their teeth are filed close to the gum.—*Dr. J. S. A. Little.*

PULO BRASSE, in its north end is in lat. 5° 45′ N., long. 95° 6½′ E., bearing from Pulo Rondo about 21 miles south by west. Pulo Brasse and Pulo Nancy or Nantee nearly join each other, and are the principal islands of the group near Acheen head.

PULO CAMBING or Passage island, in the Straits of Timor is about 11 miles long.

PULO CAPAS DE TERRE, or Capas Danat, in lat. 5° 15′ N., a rather low island, off the E. coast of the Malay peninsula.

PULO CARA, in lat. 8° 29′N., in the Gulf of Siam, is formed of a group of three islands contiguous to each other.

PULO CARNOM, in the Gulf of Siam, 90 miles from Pulo Cara, is in some parts high land.

PULO CEICER DE MER, 36 miles S. by

E. from Pulo Ceicer de Terre, is 5 miles in extent.

PULO CEICER DE TERRE, called Hon-Cau, by the natives, is a low island in the China Sea, on the coast of Tsiompa.

PULO CHIKUKOH. A little island near Singapore.

PULO COCUB, 13½ miles from Pulo Pisang, is a low flat island, close to the Malay shore.

PULO COMBA or Cambay, a high round island, about 2 miles in extent 36 miles N. E. of Flores Strait, in lat. 7° 49′ S., and long. 123° 41′ E.

PULO CONDORE or Kiounlun, consists of several islands on the coast of Cambodia which abound with timber.

PULO DATTOO, in lat. 0° 7′ N. and 30 or 33 miles E. by S. from Direction Island, in the China sea, is high and of an oblong form.

PULO DELLI or Klapper Island, on the S. coast of Java, from which it is distant 8 miles. It is very low and covered with trees.

PULO DINDING, in lat. 4° 16′ N., a high and woody island, 62 miles S. S. E. of Penang.

PULO DOMAR, in the China sea, is a high barren rock, in lat. 2° 45′ N., long. 104° 23′ E. and 49 miles E. from Pulo Aor.

PULO ENGALING, see Rigas Islands.

PULO GASSES, 7 or 8 miles from Looki Song in the Gillolo passage, is in lat. 1° 41′ S., and long 128° 20′ E., and 5 miles east of Amboina.

PULO JACKEE, or Noosa Nessing a small island about 3 miles off the east point of Timor, in lat. 8° 25′ S., and long. 127° 16′ E.

PULO JARRAH, in lat. 4° 0′ N., long. 100° 12′ E., bearing 78 miles south from the centre of Penang, is small, covered with trees and may be discerned about 21 miles.

PULO JERAJAH, see Penang.

PULO MANOK, see Keffing Islands.

PULO LACUTTA, in lat. 1° 50′ N., long. 98° 7′ E., a small low island on the west coast of Sumatra.

PULO LAUT or Laurot Islands, are mostly high and form a group on the south coast of Borneo, stretching from lat. 4° 43′ S., to 4° 57′ S. Great Pulo Laut, at its north end, is in lat. 3° 13′ S. and long. 116° 41′ E., and is moderately elevated on its eastern side.

PULO MAJO, or Mayo, in lat. 8° 6½′ S., long. 117° 47′ 24″ E., fronts the gulf of Salee on the north coast of Sumbawa.

PULO MANCAP, Muncoo or Mankokh, a small low island on the S. W. coast of Borneo, in lat. 3° 5′ S. and long. 110° 11 E.

PULO NYAS or Nias, is the largest of the islands off the west coast of Sumatra, being 18 or 21 miles in breadth. In general, the land is high, well clothed with trees and partly under rice cultivation. It was formerly well inhabited; but many of the inhabitants were formerly purchased for the Dutch settlements at Batavia, the women being fairer than those of the adjoining coast.

PULO OBI or Oby, an island in the Gulf of Siam, in lat. 8° 25′ N., long. 104° 25′ E., is several miles in extent, with a high mountain in its centre.

PULO PANJANG, lat. 9° 18′ N., long. 103° 36′. Placed on Admiralty chart about eighteen miles too far west.

PULO PAPAN, in lat. 1° 32′ S., on the west coast of Borneo, forms two small groups of which the east island is the largest.

PULO PENANG, Penang, or Prince of Wales Island. See Penang.

PULO POOGALISE, see Rigas Islands.

PULO POPA, in the Pitt passage, and in about lat. 1° 12′ S., long. 129° 52′ E., is inhabited, and including its contiguous isles, extends east and west 15 or 18 miles.

PULO RAMIO, see Penang.

PULO REPON, or Saddle Island, in lat. 2° 24½′ N., long. 105° 25′ E., is the south-west detached island of the Anamba group in the China Sea.

PULO RONDO, in lat. 6° 4½′ N., and long. 95° 12′ E., is the most northern of the islands of Acheen, it is a high perpendicular rock of a round form.

PULO TIMOOANS, Tiomam or Teoman, an island in the China Sea, about 11 miles long. from north to south, its south end is in lat. 2° 43′ N. Firewood and refreshments may be had here.

PULO TINGAY, in lat 2° 17′ N., long. 104° 11′ E., 24 miles W. S. W. from Pulo Aor, in the China Sea, is conspicuous for a peak on it 2,046 feet high.

PULOTINJIL or Trowers Islands, is 12 miles distant from Klapper island, on the south coast of Java.

PULO TOOJOO, *i. e.*, seven Islands, lie in two groups extending eleven miles in latitude, in the tract from the Straits of Banca to the China sea, the latitude of the most northern is in 1° 7′ S., long. 105° 24′ E. They are all covered with trees except the most westerly.

PULO UBI, a high hilly island in lat. 8° 55′ N., and long. 104° 54′ E. It is covered with forest.

PULO VARELA, an island near Strait Durgan, in lat. 0° 47′ S., and long. 104° 28′ E.

PULO VARELA, in lat. 3° 47′ N., long. 99° 33′ E., about 24 miles off the shores of Sumatra, is a high island, visible from a distance of 24 miles. Good pine spars are here procurable.

PULO WAY. The largest of the Acheen islands, about 15 miles S. S. E. of Pulo Rondo. It is steep on most parts of its southern side.

PULO WARELA, a barren rock in the China Sea, in lat. 3° 16′ N.

PULOMAYA, see Indra.

PULOO-BANSH, Beng. Dendrocalamus balcooa, small variety.

PULPARRAH, a very holy place, situated about six miles from Surat on the river Taptee, is usually preferred to the immediate locality of the city. Pulparrah abounds with altars, hindoo temples, and sacred trees; and possesses a solemnity of appearance in admirable accordance with its sacred character.—*Poston's Western India, Vol.* i, *p.* 283.

PULPUL, Hind. Myrtus pimenta. All-spice.—*Riddell.*

PULQUE. The saccharine and mucilaginous sap of the Agave americana may be made to flow by incisions, in the stem: it readily ferments, and in Mexico yields on distillation an agreeable ardent spirit, called vino mercal. The incisions are made just before the flower scape is ready to burst. The dried flowering stems of A. americana also afford an almost impenetrable thatch; the fresh green leaves are cut up and given to cattle, and the centre of the flowering stem, split longitudinally, is by no means a bad substitute for a European razor strop, owing to minute particles of silica forming one of its constituents. The two products most deserving attention, however, are the extract which forms a lather like soap, and the fibre known in Southern India as the pita. The Mexicans also make their paper of the fibres of Agave leaves laid in layers.

PULSES are largely used in the E. Indies as the food of man and beast. They are eaten with, and supply to rice, and some other cereals, the nitrogenous or 'flesh-forming' material in which these are defective. The generic name in Malay and Javanese for all leguminous plants, is kachang, by adding an epithet to which we have the name of the species. Several species are regular objects of cultivation, as Phaseolus max, lunatus and radiatus; Dolichos kachang; Lablab vulgaris; Soja hispida; Cytisus cajan, and Arachis hypogea.

Botanical Names.	English.	Tamil.	Teloogoo.	Hindoostanee.
Lablab vulgaris..	....	Segapoo mochay..	Anoomooloo.	Saim ka puttee
Do. variety	....	Vella mochay..	Thella anoomooloo..	Suffaid saim ka puttee
Ervum lens..	Lentil..	Mussoor paroopoo..	Mussoor parapoo..	Mussoor paroopoo
Trigonella Fœnum Græcum.	Fenugreek..	Vendium..	Menthiloo..	Maitee
Cajanus bicolor..	....	....	....	....
Cajanus indicus..	Dholl Pigeon pea..	Thovaray..	Cunthaloo..	Thour
Do. variety	Do. ..	Segapoo thovaray..	Yerray cunthooloo..	Lal thour
Do. do.	Do. ..	Mala thovaray..	Conday cunthooloo..	Paud ka thour
Dolichos cultratus..	Red gram..	Karamanee..	Karamoodloo..	Bullar
Do. variety	White gram..	Chaday karamanee..	Do. ..	Suffaid bullar
Dolichos uniflorus..	Horse gram, Madras gram..	Kolloo..	Woolavaloo..	Cooltee
Do. variety	Black gram..	Karoopoo kolloo..	Nulla woolavaloo..	Kalle Cooltee
Arachis hypogea..	Ground nut, Manilla nut	Vair or nelay cadalay..	Vair sanegaloo..	Vailathee-moong ka puttee
Agati grandiflora..	Large-flowered Agathi..	Agathee veray..	Agathee or anisay..	Agathee ka beenj
Phaseolus mungo..	Mash..	Oolandoo..	Woothooloo..	Mash
" vulgaris..	French bean..	French beansoo..	French beansooloo..	Bakla
" radiatus..	Green gram..	Putchay pyroo..	Putchay pasaloo..	Hureea moong
" variety..	Black gram..	Karoopoo pyroo..	Nulla pasaloo..	Kalee moong
Phaseolus —— ?..	....	Pytheay varay..	....	....
Cicer arietinum..	Bengal gram..	Kadalay..	Sanegaloo..	Chenna
Canavalia gladiata..	Sword bean..	Segapoo thumbetten..	Yerray thumbetten kaya	Lal kudsumbal
Do. variety..	Do. ..	Vella thumbetten..	Thellay do. do.	Suffaid do.
Pisum sativum..	Common pea..	Vella puttanee..	Puttaneloo..	Buttanee
Pisum arvense..	Wild pea..	....	....	....
Cyamopsis psoraloides	....	Kothoo averay..	Kothoo averay kayaloo	Mutkeepully
Faba vulgaris..	....	....	....	Bakla

The ordinary pulses belong to the tribes Vicieæ and Phaseoleæ of the order Fabaceæ. All the cultivated varieties of beans have originated from Faba vulgaris; all the varieties of garden peas have originated from the Pisum sativum, a native of the south of Europe, and the field pea is the Pisum arvense. The flour of lentils contains more nitrogenous matter than any other of the leguminous plants.—*Cat. Ex.* 1862; *Crawfurd's Dict., p.* 361.

PULSU, Tel. Acetic acid.

PULSUNDRA, Tel. This Nalla Mallai

wood is of a reddish colour, strong and useful. —*Mr. Latham.*

PULUCK MUTEE, a river near Sohagpoor in Hoshungabad.

PULUHA, see Brahmadicas.

PU-LU-SHA-PU-LO, or Parshawar, capital of Gandhara.

PULUT, MALAY. A kind of rice. It is boiled in a bamboo joint by the Malay and Dyak races of Borneo. Considered as a delicacy and much prized for its nutritious qualities.

PULVER, also Schiesspulver, GER. Gunpowder.

PULVIS PYRIUS, LAT. Gunpowder.

PULWAR, is a smaller description of Ganges boat than the Puteli, and of neater build. It is used by natives in travelling, by European travellers of humbler means, or as a cook-boat, or for servants. See Boats.

PULWUL, HIND. Trichosanthes anguina.

PULWUL, BENG. Trichosanthes dioica. Diœcious snake gourd, is a small snake gourd the size of an egg; the seed is sown in the cold season and yields fruit from March to September.—*Riddell.*

PU-MARAM, TAM. Schleichera trijuga, *Willd.*

PUMBA, or Pamba, PERS. Cotton.

PUMEX, LAT. Pumice stone.

PUMLIMAS PALLAM, TAM. Citrus decumana, the shaddock.

PUMMALO, Citrus decumana, *Linn.*, *W. & A.*, *Roxb.* The shaddock. It has been ascertained that the mango, orange, pummelo, sweet lime, bilimbi and guava all bear pruning of the old wood, and that they produce much more fruit in consequence. Old branches if cut off the mango near its base are apt to produce canker in the trees, unless the cut surface is protected from the air by tar or white paint.

PUMICE STONE.

Pierre pouce,	FR.	Batu-timbul,	MALAY.
Bimstein,	GER.	Piedra pomez,	SP.
Pietra pomice,	IT.	Poosa-rai,	TEL.
Pumex,	LAT.		

A light spongy, vitreous stone, found usually in the neighbourhood of volcanoes, and supposed to be a lava or volcanic glass. It is used for polishing metals and marble, and smoothing the surface of wood and pasteboard. Pumice is quarried and exported in large quantities from Lipari and the Isles Ponxa, in the Mediterranean. Pumice stone in small pieces and very hard is found on the sea coast near Nizampatam. Numerous fragments of white pumice are found on the north-east point of Battam, and within the Singapore Strait or Pulo Sambo, called by Malays Batu timbul, or floating stone, who say it is found floating on the China sea and scattered on the beaches of the eastern coast of Johore. It is possibly from the Philippines. The pumice of the great Tomboro in Sambawa is blackish.—*Faulkner*; *Rohde's MSS.*

PUMP. In India, a number of trials have been made of different appliances for raising water as Belt, Lift, Chain and Rope Lift pumps, Hand, force, and garden-watering pumps, but on comparing the working of these with the ordinary Pecottah, it is ascertained that the Belt Lift pump only raises water to about 12 feet, and that steam power is requisite to keep up the velocity. The Chain and Rope Lift pumps work satisfactorily to a depth of 30 feet, but in deep wells the labor of raising the water is considerable.

PUMPALIMAS CHEDDI, TAM. Citrus decumana, *Linn.*, *W. & A.*, *Roxb.*

PUMPKIN, Cucurbita pepo.

Kaddoo,	HIND.	Laboo pringi,	MALAY.
Mit'ha kaddoo,	„		

This vegetable is grown in great abundance in all parts of the Deccan. It is much esteemed both by the Europeans and natives. It is generally sown at the commencement of the rains, and requires no particular care; the soil should be light and good. When young, about the size of a goose egg; if cut and boiled, it will be found to resemble the artichoke-bottom dressed in the same way.—*Riddell.*

PUMPKIN, white, the Lagenaria vulgaris, *Ser.*, and the Benincasa cerifera, are sometimes so called, B. cerifera is also called the white gourd, or white pumpkin. The Karens and Burmese cultivate a species of pumpkin or gourd, never eaten by Europeans, which they esteem a valuable addition to their curries.—*Mason.*

PUMPKIN PAGODA. In ascending the Irrawaddy river, close to the river bank, is small temple but of most original shape, looking like a great pumpkin with the thick en uppermost and a single spire rising from th top. This pagoda stands on a terrace white-washed work, encompassed down the water's edge with a succession of concentric sloping walls and parapets crown with trefoils. Behind is a small shrine containing a carved and gilded image, covering it was a brick 'Theing' with a pyramid many storied spire, the latter edifice execute with an accuracy and richness of ornamen unusual in modern Burmese brick work. Th whole as seen from the river might pass for scene in another planet, so fantastic and earthly was the architecture."—*Yule.*

PUMPLEMOSE, ENG. Citrus decuman *Linn.* The Pumplemose, or Pomelo, calle shaddock, is abundant in nearly all parts the East Indies.

PUMPLEMUS, MALAY. Citrus decuman

PUN, HIND. Jatropha curcas.

PUN, Sindi, the leaves of Typha elephantina, used for making mats and baskets.

PUN, nominal species of currency in India calculated by cowry shells; in Hindostan, a handful or about 80 shells; five pun or 400 cowries making an anna or 1½*d.*—*Simmond's Dict.*

PUNA or Poon. This wood is commonly called Peon in England. It is used for masts, yards, &c. That of Ceylon is of good quality, and superior to that of Malabar; but, from its small dimensions, its scarcity, and the trouble in obtaining it, is of little consideration. The largest said to have been found was eighteen inches in diameter, and sixty feet in height; but the largest Edye could discover was not more than nine inches in diameter, and thirty-five feet high. In quality it is much the same as the first sort in Malabar, which in the early part of the 19th century could be obtained at Mangalore from the native merchants at all times when the coast is open, (viz., from November to April) of three feet in diameter, and one hundred and ten feet long for the sum of 150*l.* sterling.—*Edye, Ceylon.*

PUNA, Hind. Ehretia serrata, a small tree with a white, hard, heavy, strong durable wood used by zemindars for their houses and implements. Leaves given as fodder to cattle. Wood not much valued.—*Powell's Hand-book, Vol.* i, *p.* 541.

PUNA, Hind. Saccharum violaceum.

PUNA BALLE in Tamil, and Punga maram in Malayala, Pongamia glabra, a beautiful tree and of much value; it grows to about two and a half feet in diameter, and from ten to fifteen long, spreading its branches to a great extent, and into curves of various dimensions, which are valuable for native uses, particularly in building country vessels. It produces a fruit from which oil is extracted, and used for lamps, &c. The Arabs prefer this oil to any other to mix with chunam, for the purpose of covering the bottoms of their vessels to preserve them from worms; it is also used for the purpose of curing rheumatic pains, by being applied warm with friction.—*Edye, M. and C.*

PUNAC, Singh. Cocoanut oil. See Cocoanut palm.

PUNACHA, —? near Kashmir.

PUNACHU, Tel. Hydrilla verticillata, *L.* *. Rich.*, *R.* iii, 578 and 751. The names with Pachi and Nachu, &c., are used indifferently for all sorts of herbaceous aquatic plants.

PUNAG, Can. Female tree of Calysaccion ngifolium.

PUNAGA, Sans. Calophyllum inophyllum.

PUNAG CHAMPA, Beng. Alpinia nutans, *Roscoe.*

PUNAGHATTI KI BHAJI, Hind. Illecebrum sessile.

PUNAGHENTI KURA, Tel. Illecebrum sessile.

PUNAGHATTI KI BHAJI, Hind. Punaghenti kura, Tel., Illecebrum sessile.

PUNAGIN BEK, Can. Viverra malaccensis.

PUNAGU-PILLI, Tel. Viverra malaccensis, *Gmel.*, *Blyth.*

PUNAJIN BEK, Can. Viverricula malaccensis, *Gm.*

PUNAJIN PILLI, Tel. Viverricula malaccensis, *Gm.*

PUNAK, Singh. Refuse of the cocoanut, after expressing the oil, used for cattle and poultry. Cocoanut oil.

PUNA KAD, in Salem, Kumari, Can., of Mysore and Canara, is the Pounam of Malabar, the Chena of Ceylon, and the Tungya of Burmah, and is a rude system of culture followed in all these countries, wherein secluded tribes and others clear parts of the forest. The Irular races and Kurumbar on the Neilgherries, the Malai, also, on the Shevaroys, the Punam cultivators in Malabar, the kumari cultivators of Canara, and the Karen in Burmah, all endeavour to obtain a precarious subsistence by scattering grain after burning the jungle, and thus avoid, to them, the irksome restraints of civilized life. The kumari cultivators earn a cheap, but wretched subsistence and live in miserable huts. A hill side is always selected, and at the close of the year a space is cleared. The wood is left to dry till the following March or April and then burned. The ground is then sown with Italian millet, Panicum italicum, as also with rice, Oryza sativa. In Canara, the seed is generally sown in the ashes on the fall of the first rain, without the soil being touched by a plough. It is fenced and weeded, and the crop gathered towards the end of the year. A small crop is taken off the ground in the second year and sometimes in the third, after which the spot is deserted, for 7, 10, or 12 years, until the jungle grows sufficiently high to tempt the tribe to renew the process. In Ceylon, the Chena lasts two years, and includes the culture of chillies, yams, sweet potatoes, cotton, hemp, &c. About the middle of the nineteenth century in Bekal, the most southern taluk of Canara, 25,746, or one-sixth of the rural population were engaged in it, but north of that taluk, it was carried on by the jungle tribes of Malai Kaders and Mahratai to the number of 59,500. Kumari was then prohibited in Mysore and put under great restriction in the Bombay presidency, and the Madras Government, in 1860, prohibited it in Government forests, without special permission, which they commanded to be given sparingly, and never in timber spots. Mr. Cannan, a coffee planter of Wynaad, says that in a spot thus treated, only plants re-grow unfit for and building purposes, and he had never been able, to get coffee to grow on it.—*Dr. Cleghorn in Reports to the Madras Government*, 1858, *&c.*, *Cleghorn's Forests and Gardens of India*, *p.* 126.

PUNAL, Hind. Oxylaphus himalaicus.

PUNAMALLEE, Lat. N. 13° 3'; L. 80° 7', E. in the Carnatic, a large military station, 12 miles W. of Madras. Dak bangalo, 89 ft., *Schl. Rob.*

PUNA MARAM, Tam., see Calophyllum.

PUNAMBAY WOOD, Anglo-Tam. Prosopis spicigera.

PUNAR, a river of Purneah.

PUNAREE, a river near Maharajpore in Dumoh, also a river near Bhamanee in Nursingpoor.

PUNAR JANMA, see Hindoo.

PUNARNAVI, Sans. Trianthema.

PUNATSU, Tel. Myriophyllum verticillatum, *Linn.*, or Valisneria verticillata.

PUNATU, Singh. Is the dried pulp of fruit of the palmyra tree, dried in the sun, then smoked in the houses, and eaten as cakes, for soup or in curry. The centre and its top are soft and spongy, containing a kind of coarse farina, intermixed with the under fibre, and in Ceylon, these parts are laid out to attract for the sportsmen, hares and wild hog.—*Tennent's Ceylon.*

PUNA-VERI, Tam. Cassia sophora.

PUNDARIKAMU, or Tellani padmamu, Nelumbium speciosum, *Willd*, *β*—Album, Sans. Pundarikah, *W.*

PUNAWA, a village, is situated 14 miles to the eastward of Gaya, between two hills of grey granite. To the north there is a fine old square tank called Budhokar-tal, and to the east another tank called Karamar tal. The principal object is a pillared temple of Triloknath.—*Bengal Asiatic S. Journal*, *No.* 32, 1864.

PUN, BASTARD, Mahr. Sterculia fetida. See Poon.

PUN BURI, Sindee. Bulrushes. See Typhaceæ.

PUNCH or Pukli, a pass leading into Kashmir, which joins the Baramuli pass at Uri. See Kashmir.

PUNCH, Hind. Five. See Panch.

PUNCHAGAH, a grain measure in the East Indies, = 24 cwts. 2 grs. 16 lbs.—*Simmond's Dict.*

PUNCHANGA, Sans., from panchan, five, and anga, the body.

PUNCHANAMA, Sans., from pancha, five, and anama, face.

PUNCHAYET, Hind. A body of arbitrators. Sir Thomas Munro affirmed that in his day the native litigant who had a good cause, always applied for a punchayet, while he who had a bad one sought the decision of a Collector or Judge, because he knew it was much easier to deceive them. In the village communities of India the punchayet is still used in India by hindoos in investigating offences against caste. The penalties are fine or expulsion; the members may be seen sitting on a mat under a tree, by the roadside or in the market-place, administering what Scripture calls justice 'in the gate;' their decision is final, and should they for instance sentence a man who had lost a cow by accident, not to be shaved by the village barber, even a Judge's order would not be sufficient to get a hair taken from his chin. The following Bengal proverbs illustrate the value set on this native jury system:—

Whatever ten persons meeting decide on whether it is successful or a failure, there is no shame.

If ten persons agree, then Bhagavan is a ghost.

Where ten persons are gathered together, God is in the midst.

If ten persons upbraid one, his life is vain.

I will go where ten go.

What ten persons say has a foundation.

The power of ten persons is equal to a lion's.

If seven or five deliberate, the work is done.

Seven thieves assembled can divide even peas.

Fully to understand the character and manners of the people, one would require to have lived and been educated among them as one of themselves. "I conscientiously believe," says Sir T. Munro, "that for the purpose of discriminating the motives of action and the chances of truth in the evidence of such a people, the entire life of the most acute and able Europea Judge, devoted to that single object, could no place him on a level with an intelligent hindo punchayet, which is an admirable instrume of decision." The saying is common, Punch men Purmesur, there is a divinity in th punchayet.—*History of the Punjab*, *Vol.* i *p.* 151; *Indian Statesman.*

PUNCHEE, a cloth worn by hindoos abo the loins.

PUNCHERIA, see India.

PUNCHRUNGEE of Dharwar, has a wa of silk and weft of cotton, worn ordin rily by dancing women, not considered fit fo respectable women, one 'than,' one rupe twelve annas.

PUNCH-SIR, an affluent of the Cabul rive

PUNCHU-CHOORA, Sans., from pancha five, or much, and choora, a crest.

PUNCHUMEE-VRATA, Sans., from pancha five, and vrata, the ceremonies connected wit a vow.

PUNCHU-RATNA, Sans., from pancha five, and ratna, a precious stone.

PUNCHU-RATNA TEMPLE has two

three rooms, and a single-arched roof with a large pinnacle or turret on the dome, and a smaller one on each corner. It is dedicated to the different forms of Vishnu, or Radha-ballabha, Gopala, Madana-mohana, Govindha, &c. —*Ward's View of the Hindoos, Vol.* ii, *p.* 2.

PUNCHUSHARA, SANS., from pancha, five, and shara, an arrow.

PUNDARIKA, a celebrated rishi.

PUNDARU, or Bandaru, TEL. Cinchona excelsa, or Hymenodictyon excelsum.

PUNDARAM, TAM. A priest of Siva.

PUNDAY, also Pundrica, CAN. Hibiscus cannabinus.

PUNDE CYANN, TAM. A Ceylon tree which grows to about twenty inches in diameter, and twelve feet in height. It is a close-grained wood, and resembles the English pear tree. It is used by the natives for various purposes in making farming utensils.—*Edye, on the Timber of Ceylon.*

PUNDERPOOR, a considerable town on the left bank of the Kistna river where is a temple to Balaji, an incarnation of Vishnu. Punderpoor and Tripaty are Vaishnava shrines.

PUNDIT, a learned brahmin.

PUNDNA of Sutlej, Glochidion velutinum, *W. Ic.*

PUNDRABEES, see Kunawer.

PUNDRASIN, PERS., PUSHTU. A water-melon of Candahar.

PUNDRI KACHA, or Panderi kh'ach'ha, the Almighty. See Hindoo.

PUNDUN, or Pangan, a reddish coloured wood, rather close-grained and strong, found from Raneebahal to Kasdiha or about forty miles in the Sonthal jungles but not very plentiful. It is used chiefly in making carts, also for planks, doors, &c.—*Calcutta Engineers' Journal, July* 2, 1860, *p.* 156.

PUNEERIA COAGULANS, *Stocks.*

Berry.

Hub-ul-yahood,	AR.	Shapranga,	PESHAWUR.
„ „ kaking,	„	Aroosa-pas-pardah,	PERS.
Jouz-ul-fota,	„	Puneer,	SINDI.
Khumzuray,	CANDAHAR.	„ -ja-fota,	„
Kakauj,	HIND.	Kuchoomun,	SHIRAZ.
Rajpootuka,	„	Kumri murja,	SYRIA.
Bin-poonka,	„	Akeedoleon,	TURK.
Halikabeem,	LAT.	Oosfadhoon,	YUNAN.

A plant of Arabia and Sind, used to coagulate milk.—*Birdwood's Vegetable Products.*

PUNEER MARAM, TAM. Guettarda speciosa.

PUNEETA, see Kush or Cush.

PU-NE THA, BURM.? A tree of Moulmein, wood soft, used in ordinary purposes of building.—*Cal. Cat. Ex.* 1862.

PUNEY KALI, TAM. Cowhage.

PUNG, MALAY. A Java wood, equally hard with pilang, and uniformly employed by the natives for pegs in constructing their prahus.

PUNG, see Kunawer.

PUNGA, TAM. Pongamia glabra. See Kurunj oil, Oil.

PUNGAILEE, a river of Bareilly.

PUNGA MARAM, the tree Punga yennai, TAM., Poonga or Kurunj oil, the oil of Pongamia glabra. See Oil.

PUNGAL, TAM. Lit. boiled rice, a Tamil festival when the sun turns to the north. See Pongal.

PUNGH-KIRAI, TAM. Amarantus frumentaceus, *Buch.*

PUNGHU PILLI. Civet act.

PUNG-MA-THEING, BURM. Blumea grandis, *DC.*

PUNGUL. A Ceylon tree which grows to about eighteen inches in diameter, and twelve feet in height. It is of little use. Its fruit, and also its juice, are used as applications to ulcers, &c. From the seed a fixed oil is prepared which is considered valuable in rheumatic pains, bruises, &c.—*Edye, on the Timber of Ceylon.*

PUNGUM TREE, ANGLO-TAM. Dalbergia arborea?

PUN-GYI, BURM. Poon-gyee or Phongyee, meaning Great Exemplar or Great Glory, is a name by which the members of the monastic rule of buddhism are commonly known in Burma.—*Yule's Embassy, p.* 23.

PUNI, HIND., balls of cotton from which thread is spun. See Cotton manufactures.

PUNICA GRANATUM, *Linn., Roxb.*

The Plant.

Ruman, Kilkul, Rana,	AR.	Madala,	MALEAL.
Dalim, Darim,	BENG.	Rumom paio,	MALEAL.
Rimmon	of the Bible.	Darim,	Murree.
Tha-lai,	BURM.	Anar, Gulnar, Nar,	PERS.
Anar, Gulnar,	DUK.	Darimba,	SANS.
Pomegranate,	ENG.	Delumghedi,	SINGH.
Rind of the fruit, Granati radix,	„	Magilam, Madalam maram,	TAM.
Anar, Gulnar,	HIND.	Dalim, also Dadima,	TEL.
Gangsalan,	JAV.	Pulla danimma, Danimma, Dalimba,	„
Daruni,	KAGHAN.		
Dalima,	MALAY.	BuloositoonRuman,	YUNANI.

The rind.

Fructus cortex,	LAT.	Baccæ tunica exterior,	LAT.
Rind of fruit,	ENG.	Nas-Phal,	HIND.

The root.

Granati radix,	LAT.	Root of pomegranate,	ENG.

Bark of root.

Radicis cortex,	LAT.	Rooman,	HIND.

Flowers.

Bulusitun Græco,	HIND.	Darim-pushp,	HIND.
Gul-anar,	HIND.	Balaustion of the Greeks.	

Bark of stem.	*Leaves.*	*Buds.*
Post-i-anar, PERS.	Darim patra, HIND.	Anar Kalli, HIND.

Seeds.

Anar-dana,	HIND.	Hub-ul-khil-khil.
Darimesar,	„	

The pomegranate, a native of the mountainous countries from Syria to the north of India, and Cabul, through Bokhara, Mezenderan and Asia Minor generally, must always have been an object of attention. It is the rimmon of the Bible, the rooman of the Arabs, and was well known to the Greeks and Romans. It is common now in almost all warm climates; the best fruits are those of Balabagh, lying under the snowy hills, near the Cabul river, and very large quantities are annually imported into the north of India from Cabul, and Cashmere. In the Himalaya and the plains, the pomegranate also occurs, but of inferior quality; the fruit is small, and is sold in the bazaar under the name of darmee; the rind, nas pal, is used in medicine and in dyeing, on account of its great astringency. The parts of this plant which were employed by the ancients, still are so in the east. Thus the flowers are the balaustion of the ancients, and in India, buloositoon is given as the Greek name of the double flower. They are devoid of odour, but have a bitterish and astringent taste, tinge the saliva of a reddish-colour, contain tannin, and strike a black with ferruginous salts. The rind of the fruit, especially of the wild plant, is extensively employed as an astringent and as a dye in the east. It is of a reddish-brown colour and smooth externally, but yellow on the inside; usually in irregular fragments, dry, hard, and leathery, of a very astringent taste. It contains of tannin 18·8 per cent. with 10·8 of extractive, and 17·1 of mucilage, and is used for tanning in some countries. The bark of the root was employed as an anthelmintic by Dioscorides and by Celsus, and still is so in India. It was reintroduced into practice by Drs. Buchanan and Anderson. The root itself is heavy, knotted, and of a yellow-colour; its bark is often sold in strips, sometimes with parts of the root still adhering to it. On the outside, of a greyish-yellow colour; on the inside, yellow, sometimes like that of the barbery. It has little smell; when chewed, colours the saliva yellow; has an astringent taste, without any disagreeable bitterness. It has been analyzed, but the source of its peculiar anthelmintic powers has not been discovered. It contains tannin (about 20 per cent.,) gallic acid, resins, wax, fatty matters and mannite. 'An infusion yields a deep-blue precipitate with the salts of iron, a yellowish-white one with the solution of isinglass, and a greyish-yellow one with corrosive sublimate, and potash or ammonia colours it yellow.' It is apt to be adulterated with the barks both of box and of barberry. The former is white and bitter, but not astringent; the latter yellow, very bitter, and not thus affected by the above four reagents. All parts are astringent, the rind of the wild fruit especially so, and useful in diarrhœa and advanced stages of dysentery; the flowers in infusion slightly astringent; the bark of the root astringent, but remarkably useful as an anthelmintic against tape worm. It may be given in doses of one scruple in powder; or a decoction may be formed by steeping for 12 hours fresh root-bark of pomegranate. The juice of the fruit is acidulous and sweet, and makes a pleasant sherbet for fever patients. The dried seeds, anardana, the pomegranate, with their fleshy envelopes are sold, and used in sherbets: are considered cooling. Naspal the bark of the fruit, is used in dyeing. Large quantities of fine pomegranates are annually brought from Cabul to Ajmeer. In the Dekhan there are two varieties of this tree, bearing white and red fruit—both sweet, but much inferior to the dried brought from Persia and Bussorah to the Bombay market. The tree grows easily from seed, and large fine juicy fruit, where the soil is good, is often produced. There is a variety which is generally sour, used by the natives for sherbet. By a continuation of layers from successive plants the fruit becomes almost seedless. The bark of the root is given in a decoction of 2 ounces in 2 lbs. of water, reduced by evaporation to 12 ounces. This quantity is divided into 6 doses to be taken daily, and repeated for four or five days. The rind of the fruit acts as a tonic astringent and anthelmentic, is used for tanning and powdered and boiled with milk is gived as an astringent in diarrhœa.—*Royle*; *O'Shaughnessy, pp.* 338, 339; *Gen. Med. Top., p.* 125; *Riddell*; *Powell's Hand-book, Vol.* i, *p.* 349.

PUNISHMENTS. The hindoos subject themselves to more devotional austerities, penances and mortifications, some of which are of a temporary and others of a permanent character, than, perhaps any people in the world. In the performance of the tapas the prescribed acts of devotion are termed mana, or the devotion that proceeds from the heart in profound silence; vauk, or devotion audibly pronounced; neyana, or devotion accompanied by religious ceremonies, purifications, &c. Arjun, in the performance of his tapas took food, during the first month of his austerities, only once in four days.—*Cole, Myth. Hind., p.* 165.

PUNJAB, a province of British India, conquered from a Sikh ruler, a successor of Runjeet Singh. By the treaty with the sovereign of the Punjab, Runjeet Singh, dated 26th April 1809, he undertook not to make or allow any encroachment on the states on the left bank of the Sutlej. The largest of these were:

Puttiala,
Jheend,
Nabha,
Kulsiah,
Maleir Kotla,
Furreedkot,
Dzalgurh,
Mumdot,
Raikot.

In 1838, Runjeet Singh formed one of the triple alliance with the English and Shah Shoojah, but he died in 1839. In 1840, his son and his grandson, both died by violence, to be succeeded by Sheer Singh, who was assassinated in 1843, after which great anarchy prevailed, which after years of desolation, terminated in invasion of the Company's territory, and on the 29th March 1849 the whole country was declared to be annexed. The Punjab was twice engaged in war, with the Indian Government, in 1845 and again in 1849, after which the entire Sikh dominions were incorporated with those of British India and followed by a rapid increase of its resources. The Punjab was annexed to India on the 29th March 1849 and on the 1st January 1859, it was erected into a separate Indian presidency, under a Governor. Punjab, Pers., literally the five rivers, is a name now applied to the territory on the north-west of India, watered by the rivers Sind or Indus; the Jhelum or Hydaspes; the Chenab or Ascesines; the Ravee or Hydraotes, and the Gharra or Hyphasis. It had the same name in Sanscrit from pancha, five, and ap, water. This country is in superficial area about 50,400 square miles. In its greatest breadth, it reaches from the 70th to the 75th meridian of east longitude, a distance of 293 miles, and in its greatest length, from the 34th to the 29th parallel of north latitude, a distance of 344 miles. In shape it may be likened to a vast triangle. The Punjab is remarkably well defined by geographical limits. On the north it has the Pir Panjal range of the vast Himalaya mountains; on the west, the Khyber and Soliman ranges, and the great river Indus, which runs almost due south to the Indian Ocean, being the western boundary of Hindustan; whilst on the south and east, it has the river Sutlej. The country is of an ovoidal form, lying between the parellels of 29° and 34° north, and the meridians of 70° and 76° east, and its area is estimated at 85,000 square miles. Five large streams, the arteries of the Indus, traverse this region, and divide it into four doabs, as the mesopotamia tracts enclosed betwixt two rivers are termed in India, and these give to it the name of Punjab or 'Country of the Five Rivers.' The modern names of these rivers, in their succession eastward from the Indus, are the Jhelum, the Chenab, the Ravi, the Beas, and the Sutlej. The Punjab has frequently been invaded from the N. W. during historic times. The Aryans in their migrations towards India, came through Affghanistan and the Punjab, ere it turned the borders of the Great Desert, and penetrated easterly in the direction of Delhi. They gradually overspread the territory of Upper India east and west between the Himalaya mountains and the Great Desert, without penetrating to the south for many centuries. They enslaved the aboriginal races as they subdued them, compelling them to till their own lands as serfs and taking from them the whole produce except what was actually required as food for the tillers of the soil. Their emigrations into the Indus country, occurred about B. C. 4000 and the opening to the Vendidad describes the succession of the foundation of the fourteen kingdoms, the last and most southern of which was thus land of the five rivers, the Punjab. According to Chevalier Bunsen, in the same way that political tradition represents that of the western aborigines (the Hamites and Shemites) so does the Arian one in the Vendidad, represent that of the eastern tribe in the primeval land. Semiramis brought a great army into the Punjab, but was defeated and driven back; and Alexander the Great entering by the Hindu-raj pass conquered it later and occupied it, and he then followed the line of the Indus to the ocean. The Greek colonists of the Punjab were placed first under. Philip, while the civil administration of the country remained in the hands of the native princes, Taxiles and Porus. Afterwards, on the murder of Philip by the mercenary soldiers, Alexander (Anabasis, vi, 2; vii) directed Eudemos and Taxiles to govern the country until he should send another deputy. It is probable, however, that the Greeks continued to retain the charge; for after Alexander's death in B. C. 323, Eudemos contrived by his general Eumenes to make himself master of the country by the treacherous assassination of king Porus. (Diodorus, xix, 5). Some few years later, in B. C. 317, he marched to the assistance of Eumenes, with 3,000 infantry and 5,000 cavalry, and no less than 120 elephants. With this force he performed good service at the battle of Gabiene. But his continued absence gave the Indians an opportunity not to be neglected; and their liberty was fully asserted by the expulsion of the Greek troops and the slaughter of their chiefs,—Justin, xv, 4—"Præfactos ejus occiderat;" again "Molienti deinde bellum adversus præfactos Alexandri." Chandragupta was present when Porus was murdered, he became the leader of the national movement, which ended in his own elevation to the sovereignty of the Punjab. Justin attributes his success to the assistance of banditti; Justin, xv, 4—"Contractis latronibus Indos ad novitatem regni solicitavit." But in this, Col. Cunningham thinks he has been misled by a very natural mistake; for the Aratta, who were the dominant people of the Eastern Punjab, are never mentioned in the Mahabharata without being called robbers. (Lassen, Pentapot Indica.) "Aratti profecto latrones," and "Bahici latrones." The Sanscrit name is Arashtra, the "kingless," which is preserved in the Adraistæ of Arian, who places them on the Ravi. They were the republican defenders of Sangala, or Sakala, a fact which points to their Sanscrit name of Arashtra, or "kingless." But though their power was then confined to the eastern Punjab, the people themselves had once spread over the whole country :—"Ubi fluvii illi quini * * * ibi sedes sunt Arattorum." (Lassen, Pentapot, Indica, from the Mahabharat.) They were known by the several names of Bahika, Jarttika and Takka; of which the last would appear to have been their true appellation; for their old capital of Taxilla or Takka-sila, was known to the Greeks of Alexander; and the people themselves still exist in considerable numbers in the Punjab hills. The ancient extent of their power is proved by the present prevalence of their alphabetical characters, which, under the name of Takri, or Takni, are now used by all the hindoos of Kashmir and the northern mountains, from Simla and Sabuthu to Kabul and Bamiyan. On these grounds, Major Cunningham identifies the banditti of Justin, with the Takka, or original inhabitants of the Punjab, and assigns to them the honour of delivering their native land from the thraldom of a foreign yoke. This event occurred most probably about 316 B. C., or shortly after the march of Eudemos to the assistance of Eumeres. It was followed immediately by the conquest of Gangetic India, Justin xv, 4, and in 316 B. C., the rule of Chandragupta was acknowledged over the whole northern peninsula, from the Indus to the mouths of the Ganges. Accordingly to Col. Tod the Yavan, or Greek princes, who apparently continued to rule within the Indus, after the christian era, were either the remains of the Bactrian dynasty, or the independent kingdom of Demetrius or Apollodotus, who ruled in the Punjab, having, as their capital, Sagala, changed by Demetrius to Euthymedia. Beyer says, in his Hist. Reg. Bact., p. 84: that according to Claudius Ptolemy there was a city within the Hydaspes yet nearer the Indus, called Sagala, also Euthymedia; but he scarcely doubts that Demetrius called it Euthymedia, from his father, after his death and that of Menander. Demetrius was deprived of his patrimony A. U. C. 562. Sagala is conjectured by Col. Tod to be the Salbhanpoora of the Yadoo when driven from Zabulisthan, and that of the Yuchi or Yuti, who were fixed there from Central Asia in the fifth century, and, if so early as the second century, when Ptolemy wrote, may have originated the change to Yutimedia, the 'Central Yuti.' Numerous medals chiefly found within the probable limits of the Greek kingdom of Sagala, either belong to these princes or the Parthian kings of Minagara on the Indus. The legends are in Greek on one side, and in the Sassanian character on the reverse. The names of Apollodotus and Menander have been decyphered, and the titles of 'Great King,' 'Saviour,' and other epithets adopted by the Arsacidæ, are perfectly legible. The devices, however, resemble the Parthian. These Greeks and Parthians must have gradually merged into the hindoo population. Recent travellers, Burnes, Masson, and Ferrier, met with tribes who claim a Grecian descent. According to Burnes, the Mir of Badakshan, the chief of Darwaz in the valley of the Oxus, and the chiefs eastward of Darwaz who occupy the provinces of Kulab, Shaughnan, and Wakhan north of the Oxus; also the hill states of Chitral, Gilgit and Iskardo, are all held by chiefs who claim a Grecian origin. According to General Ferrier, however, the whole of the princes who claim descent from Alexander are Tajiks who inhabited the country before it was overrun by Turki or Tartar tribes. The Tajik, now mahomedans, regard Alexander as a prophet. The Badakshan family are fair but present nothing in form or feature resembling the Greek. They are not unlike the modern Persian, and there is a decided contrast between them, the Turk and Uzbek.

Towards the commencement of the christian era this part of India appears to have been overrun by successive hordes of Scythians, whom some mighty revolutions in Tartary had expelled from their native seats. The Chinese historians say, that, about a century before this era, the Yuete (Gete or Jit), who occupied a vast country between China and the Teen-shan, or the Celestial mountains, were, after many sanguinary wars, expelled by the Heung-noo, or Hun, and forced into the countries of the Oxus and Jaxartes, whence they extended themselves to Affghanistan and the borders of India. The Indus was only a temporary barrier, and they appear to have occupied the whole country o the five rivers. These conclusions, heretofore formed from meagre historical evidence, are no confirmed by the discovery of coins of Pu jab rulers, whose names, Azes and Azilises, hav no affinity with Greek or hindoo nomenclatu and denote a barbarian origin. The gre Indian sovereign, Vicramaditya, expelled th Scythian princes from the Punjab, and his e (B. C. 56) is supposed to commence from a gre victory obtained by him over the barbarians i that country, which completed his conquest o all Hindustan. His empire, however, fell t pieces after his death, when new hordes of Scythians overran the Punjab, and established abo 20 B. C., a dynasty of kings bearing the nam of Kadphises. Coins of these kings have bee recovered, and their barbarous effigies clearl distinguish them from Greeks or hindoos. Thi dynasty is supposed to have reigned throug out the whole of the first century of our er when it was subverted by a fresh swarm o

Scythians, under the Kanerki kings. Between the dynasties, however, there is evidence, from the testimony of Apollonius Tyaneus, related by Philostratus that a Græo-Parthian king, named Phraotes, reigned in the Punjab, which fact is supported by coins of Undopherres and Gondophares, both called in the Arian legends upon the coins. The power of the Kanerki kings in the Punjab must have continued for some centuries, for in the topes or tumuli which have been opened in that country, Kanerki coins have been found along with these of Kadphises and other predecessors of the race, mixed with coins of the Sassanian monarchs of the third and fourth centuries of our era. That these Scythian invaders continued to pour into and occupy the Punjab, is a fact attested not only by Fa-heen, a Chinese traveller in India early in the fifth century (who crossed the five rivers, and found buddhism prevalent in that country), but by an inscription found by Colonel Tod in a temple near Kotah, in Rajpootana dated A. D. 409, which contains a memorial of a Jit prince of Salpoora at the base of the Sewalik mountains. Colonel Tod considers it to be proved beyond a doubt, "that these Jit princes of Salpoora, in the Punjab, were the leaders of that very colony of the Yuti from the Jaxartes, who, in the fifth century, as recorded by De Guignes, crossed the Indus and possessed themselves of the Punjab." Various indications appear in the Rajput annals of their conquests and settlements in this country, even as far as the Jelum.

The Sutlej or Gharra falls into the Indus, which is called also the Sind, and the Atok; into these five large rivers flow several of less importance, of which the Beas is perhaps the most full. Each of the districts of the Punjab which lies between two rivers is called a doab, from do, two, and ab, water, and of these there are five, viz.: the Jallander doab, between the Sutlej and the Beas; the Baree doab, between the Ghara and the Ravee, the Rukna doab, between the Ravee and the Chenab; the Jeteh doab, between the Chenab and the Jelum; the Doab-i-Sind Sagur, between the Jelum and the Indus. Accordingly the Punjab, is arranged naturally into five parts from the five doabs or mesopotamias, and as here mentioned they are called the Jallandar, Bari, Rechna, Jeteh and Sind Sagor doabs, between the several confluents of the Indus. The chief towns of the Punjab are Attok, Dera-i-Ghazi Khan; Dera-i-Ismael Khan; Jallandar; Jhelum, Kapertalla, Lahore, Leia, Multan, Peshawur. The Punjab has also districts on both sides of the river Sutlej, designated Cis Sutlej districts, east of that river and Trans-Sutlej states, west of that river. In the Cis Sutlej territory are the districts and towns of Ferozpur, Sobraon, Kithul, Loodiana and Umballa. The Trans-Sutlej States, are Husharpur, Dharmsala and Kangra. The sloping plain of the Punjab varies in elevation from 1,600 to 2000 feet above the sea. Lahore being but 900 and Jhelum about 1,600. It declines regularly to the south-western extremity. The soil of these doabs is of varied fertility; generally, it is very sandy, but they are rendered highly productive by irrigation from the rivers which traverse these plains. The rich and fertile tracts that border on the great rivers of the Punjab extending inland towards the centres of the "doabs," as far as the fecundating influences of their waters are felt, yield annually an abundant harvest of grains of all kinds and pulse, which form the staple articles of food to the great majority of the population. As a rule, the cultivators do not consume the wheat they produce, but keep it for sale, and subsist on the pulses, barley, and inferior grains. The plain districts of the Punjab, greatly resemble one another in their general physical features, the main difference consists in the fact that some are better irrigated than others, and that some include large tracts of sandy unproductive country, like the desert portion of Multan or Muzaffargarh. The climate of such districts is hot and sultry; the amount of rain that falls is at its minimum and cultivation is almost entirely dependent on canals and artificial irrigation. In this respect no doubt these districts differ widely from the rich plains of the Jallandar and Bari doabs, where not only do the great rivers fertilize the soil, but the periodical rainy season seldom fails to yield an abundant increase to the summer sown crops of the "kharif." The climate is in general characterized by dryness and warmth; little rain falls except in those parts extending along the base of the Himalaya and where the south-west monsoon is partially felt. The face of the country presents every variety from the most luxuriant cultivation to the most sandy deserts, and the wildest praries of grass and brush-wood. A traveller passing through those lines of communication which traverse the Northern tracts, would imagine the Punjab to be the garden of India; on the other hand returning by the road which intersects the central tracts, he would suppose it to be a country not worth annexing. The culture manifestly depends upon two causes, the lower Himalayan range, and the rivers. From the base of the hills southward, there stretches a strip of country from 50 to 80 miles broad, watered by mountain-rivulets, and for fertility and agriculture unsurpassed in Northern India. In their downward course the rivers spread wealth and fruitfulness on either side, and their banks are enriched with alluvial deposits, and fringed with the finest cultivation. These tracts, though unadorned with trees, and unrelieved by any picturesque features, are studded with well-peopled villages, are covered with two waving harvests in the year, and are the homes of a sturdy, industrious, and skilful peasantry. Within this tract are situated the sister capitals of Lahore and Umritsur, and most of the chief cities, such as Deenanugger, Buttala, Sealkote, Wuzeerabad, Goojeeranwalla, Ramnugger and Goojrat. The climate of the Punjab varies not only with the seasons but the locality. The heat is at its greatest intensity in the month of June, when the thermometer has been known at Lahore to rise as high as 112° in a tent artificially cooled. Even in the winter, that is to say, between December and the beginning of March, the thermometer at midday seldom falls below 70° and is often as high as 80°. The Climate for 8 months of the year is temperate, but for four months is hot and trying to the European constitution. In the Punjab, the cold increases as we rise in the hills or pass more towards the north, and, on the whole, the rain-fall is less and the aridity greater as we go further into the Himalaya, or proceed to the west either in the hills or plains. The most arid part of the plains of the Punjab is probably near and to the west of Multan, where the annual rain-fall is reckoned by fractions of an inch. "It is worthy of remark," writes Mr. Prinsep, "how singularly the results of neighbouring stations agree one with another in lines ranging from upwards of 70 inches in the Kangra valley (and even 105 at Dhurmsala,) to 10 inches on the east of the Sutlej, 5 inches at Gugaira, and say 1 inch at Multan, in the Bari doab." In the Bari doab the difference of fertility is almost entirely owing to the difference of rain-fall.

The Punjab rivers are constantly shifting their channels. The change in the Beas is the most striking, as that river has altogether lost its independent course, and is now a mere tributary of the Sutlej. But the fluctuations of the other rivers have been very remarkable. Thus the valley of the Chenab below Kalowal is nearly 30 miles broad, and that of the Ravi, near Gugera, is 20 miles, the extreme limits of both rivers being marked by well-defined high banks, on which are situated many of the most ancient cities of the Punjab. Multan was originally situated on two islands in the Ravi, but the river has long ago deserted its old channel, the nearest point of which is now more than 30 miles distant. But during high floods the waters of the Ravi still flow down their old bed, and General Cunningham had twice seen the ditches of Multan filled by the natural overflow of the river. Multan consists of a walled city and a strong fortress situated on opposite banks of an old bed of the Ravi, which once flowed between them as well as around them. But Mr. Powell mentions that some rivers are much more liable to be flooded to excess than others. The Markanda, in the Amballa district, at one time of the year is like an ocean; at another it will be a slender stream, hardly to be called a river. The Indus always contains a large body of water, but even this river is liable to become dammed up in the hills, whence it rises: the water then accumulates and bursting at length these dams, comes down with terrible force; once or twice these floods have occurred, giving only a few moments notice by a sound as of distant thunder, and then coming on with a sweep that spreads desolation for many miles. The risings of the Ravi, Chenab, and other rivers, is familiar to every one who has travelled in the Punjab, at some season the traveller has to cross a river on a bridge of boats not a hundred yards long, while at others, he has scarcely been rowed across the same river in six hours, the water having risen and extended to the size of a small ocean. This rise will frequently take place in the course of a couple of days, sometimes in a few hours.

The plains of the Punjab may be described as vast expanses of alluvial clay and loam, whose elementary constituents must once have been the same as now form the rocks of the huge ranges of mountains to the north. The principal constituents that produce a variety in the nature of soils, and one which is very important in the Punjab island, in fact the main distinction of soils (apart, from that of their containing or not containing "kalr," the efflorescent salt,) is that the soil is sandy, as in many portions of districts it is or that it is rich loam and clay.

The Punjab contains 32 districts in 10 divisions. The feudatory states are estimated to contain five millions of people and an area of 197,339 square miles. The 32 non-feudatory districts have a population of 17,611,498 covering an area of 101,829 square miles, or 173 to the mile. Of the people 9,403,810 are agriculturists and 8,190,127 are not directly connected with the land. Leaving out Delhi and Hissar it may be said roughly that the population has increased, in thirteen years, nearly two millions, and in density 21 to the mile. The density of population is very slightly less than that of France. It is higher than the average of all non-feudatory India, which is 159, and falls below that of the North-West, Bengal and Madras alone. In the division of Jullundhur, with its good rain-fall, there are 596 to the mile, omitting hilly Kangra. In the well-watered division of Umritsur the proportion stands at 513, in Umballa at 412, in

Delhi at 342 and in Lahore at 210. In the Derajat frontier it falls to 77 and in desert Multan to 73. The country between the Beas and the Sutlej, the home of the Sikhs is thus the most populous. The rate of population follows the rainfall, and the number of mouths waits on the facilities for cultivation, which re-act on each other. There are 59 millions of acres in the Punjab. Delhi has now supplanted Umritsur as the most populous city. The total population of the Punjab in 1868 was found to be 17,593,946 souls. But hitherto the population has in most official reports been roughly estimated at 15 millions. During the last 12 years there has been a very considerable increase, but in order to admit of a fair comparison, the population of the Delhi and Hissar divisions should be omitted, as these formed part of the North-western Provinces previous to the mutiny. These two divisions contain a population of 3,148,858 leaving 14,445,088 for the rest of the Punjab. At the census of 1852 the same portion of the Punjab was estimated to contain about 2½ millions. Some of the increase, however, is apparent only, owing to the more accurate enumeration effected during the recent census. The number of dwellings of all kinds was 4,021,769, giving an average population of 4⅜ per house. Of the total population 9,563,565 are males and 8,030,381 are females. They are divided into three classes—adults, including all persons over 18 years of age; youths and young women including all from 12 to 18, and children including all under 12 years. The results under these heads are as follows:—

Adults,	*Males*	5,351,006	*Females*	4,583,524
12 to 18,	,,	866,683	,,	608,823
Under 12,	,,	3,345,876	,,	2,838,034

The males both in the total and in each class considerably exceed the females. This would now seem to be the law of at least the tropical portions of Asia. Passing over the European and Eurasians, the number of native christians is stated at 2,949, which is probably not far from the truth. The rest of the population is thus classified. The Punjab census was first taken in 1865 and again in 1868. Area 17,611,498 miles or 65 million of acres, only 2·2 per cent. can read. The population of the feudatory states was estimated at 4,982,521. The other population is 17,611,498. The home of the Sikhs is the country between the Beas and Sutlej and is the most populous and Umritsur and Ferzepore are the two Sikh centres. The Sikhs in 1868, were in number 1,144,300.

In the Census of all British India, in 1872, the Punjab was found to have 19 millions the following are the general results as accepted by the Government of India for financial purposes:—

Bengal (Lieutenant Governor)		66,856,859
Madras (Governor, Council and Commander-in-Chief)		31,250,000
North-western Provinces (Lieutenant Governor)		30,778,000
Punjab (Lieutenant Governor)		19,000,000
Bombay and Sindh (Governor, Council and Commander-in-Chief)		14,000,000
Oudh (Chief Commissioner.)		12,000,000
Central Provinces (Chief Commissioner)		9,250,000
British Burmah (Chief Commissioner)		2,500,000
Ajmeer (Commissioner under Governor General)		833,000
Coorg (under Chief Commissioner of Mysore.		176,000
Paying Revenue to the Viceroy		186,143,859
Mysore	5,000,000	
Berar	2,250,000	
The 153 Feudatories	48,000,000	
Paying Revenue to native Nobles		55,250,000
		241,393,859

In the Punjab, the Jat all take the designation of Sing'h, and dress somewhat differently from the ordinary hindu Jat; but for the most part, they only become formally Sikhs, when they take service and that change makes little difference in their laws and social relations. The Jat of Dehli, Bhurtpur, &c., are a very fine race and bear the old hindoo names of Mull and such like and are not all Sing'hs. In Rajputanah, the Jat are quiet and submissive cultivators. They have now long been subject to an alien rule and are probably a good deal intermixed by contact with the Meena and others. When the struggles of the Sikhs for dominion closed with the demoralization of a powerful army, large bodies of men, who had till then coerced their own government, betook themselves to useful pursuits with manly forbearance, turning their swords into ploughshares and prosecuting commerce, trade and agriculture with surprising energy. Trained from their infancy to the use of arms, and capable of the most heroic fortitude, and most chivalrous devotion, the Punjabees have yet that feeling of respect for law, and entertain that wholesome dread of crime, which have been productive of the best social results. If it be believed that organized offences were rarely known in the Punjab, even in days of Sikh laxity, well elaborated statistics have since established such to be the case more than the most sanguine could hope, and experience has verified the general correctness of the statistics. The Punjabee is active and industrious by nature, the physical accidents of his country allow him but small room for choice as to the means of livelihood. The Punjab is by no means as productive as the well watered plains of Bengal, and to secure a remunerative return from its ungrateful soil necessitates consistent and well sustained application. When there is a dearth of employment in his own country, the Punjabee does not, as a rule, encumber his poor community by taxing its charity, his restless spirit of enterprise drives him out of his home in search of employment, and if he lives to return from the land of his sojourn, his friends not seldom profit by his venture. With fewer prejudices, fewer elements of passive hindrance, little or no respect for obstructive traditionary practices, the Punjabee is not averse to those salutary measures of reform of which his unfettered good sense seems to have an intuitive perception. Hence, he, of all the races subject to Britain, is best able to appreciate western opinions, and hence, he of all the subject races, has not only confidence in British honesty of purpose, but in the wisdom and justice of government measures. It is hardly possible for men whose experience extends only to the older provinces, to believe either in the existence of this powerful moral auxiliary, or in the extent to which it has been rendered instrumental in accelerating the progress and securing the success of government measures. Let it be recorded to the credit of the poor but honest Punjabeee, that he has placed the British government under great obligation in return for the many that have been conferred on him. Even in British troubles, this willingness on the part of the people to co-operate with them was neither weak nor dormant; long before the Punjabee had experienced the beneficial effects of British policy, his fidelity, so far as passive resistance to extraneous treachery may be so called, drew forth British acknowledgments. When a band of mountaineers attempted to stir up an outbreak in the Sind Saugor doab, so far back as 1851, their failure to draw supporters demonstrated the important fact, that the submission first imposed by force of arms had ceased to be a badge of bondage, and that the rights and responsibilities of citizenship were not likely to be long misunderstood. During the rebellion of 1857 the Punjabees stood foremost among the subject allies; the zeal they evinced in the destruction of the enemies of government cannot in fairness be wholly ascribed to the love of plunder, which, in certain cases, undoubtedly proved a valuable incentive. When streams of ill escorted convoys incessantly poured from the Punjab into the seats of war, the government gratefully testified that not a waggon was plundered, not a beast of burden stolen, nor a rupee of treasure lost. Even in the worst days of our trial government revenue was paid punctually throughout the Punjab, and wherever the emergency warranted a demand in advance, the money was forthcoming without a word of protest.

The N. W. frontier of British India is formed by the N. W. border of the Punjab. Omitting the Kashmir territory, this border commences at the top of the Kaghan valley adjoining the Chilas district: it skirts the range of the Black Mountain which separates Kaghan from the Indus and then reaching that river follows its left bank to Torbeila, where, crossing over, it runs along the base of the hills, encircling the Peshawar valley as far as the Khyber pass. From this point it is reflected back towards the Indus, and passing round the Afreedi hills to Kohat, thence proceeds westwards up the Miranzye valley along the base of the Orukzye and Zyemookht hills to the river Kurran. Here it again turns back and passing round the Waziri hills, strikes the Takht-i-Suliman range, in the Dehra Ismael Khan district, onwards from this it skirts the base of the Suliman range running due south, and joins the Sind frontier at Kasmor, presenting a border frontage of about 800 miles. The mountains are traversed by many passes leading from the Cabul highlands to the Indus valley, and are inhabited by a number of different tribes, of whom those located on the western side are subjects of the Cabul government, whilst those in the eastern slopes where the valleys mostly open directly, on to the Indus valley, and all drain into it, are, as regards government taxes and allegiance, thoroughly independent. The whole population of the Punjab, both high and low is above the average Arian type. The Punjabi is tall, handsome, high-featured and long-bearded.

The independent Affghan tribes dwelling along the outer face of the north-west Punjab frontier and inhabiting hills are as under.

Adjoining the frontier of Huzara District, Hoosunzyes.

Adjoining frontier of Peshawar District, Judoons, Bunoorwalls, Swatees, Raneezyes, Osmankheylees, Upper Momunds.

Adjoining frontier of Peshawar and Kohat Districts, Afreedees.

Adjoining frontier of Kohat District, Buzotees, Sepah, Orukzye, Zymoosht Affghans, Toorees.

Adjoining frontier of Kohat and Dehra Ishmael Khan Districts, Wuzeerees.

Adjoining frontier of Dehra Ismael Khan District, Sheoranees, Oshteranees, Kusranees, Bozdars.

Adjoining frontier of Dehra Ghazee Khan District, Khutrans, Kosahs, Lughtrees, Goorchanees, Murrees, Boogtrees.

The British Affghan tribes within the frontier, and British subjects, inhabiting partly hills and partly plains are:

Huzara District, Kurnoulees, Gukar, Dooms and Suttees, Kaghan Syuds and other tribes of Huzara.

Peshawar District, Eusufzyes, Khulees, Momunds of the Plains.

Peshawar and Kohat Districts, Khuttuks.

Kohat District, Bungushes.

Dehra Ismael Khan District, Bunnoochees, Murwutees, Butanees, Chiefs of Tank, Chiefs of Kolachee, Chiefs of Dehra Ismael Khan, Nootkanees, Loonds.

Dehra Ghazee Khan District, Dreshuks, Muzarees.

The N. W. Punjab frontier since 1849, has been a scene of frequent warfare. The Punjab and Affghan frontier for 600 or 700 miles is conterminous, and the mountain tribes along the frontier are independent alike of the Cabul and the British. In 1852-3, Colonel Mackeson commanded in a campaign at the Black mountain. In 1853, Lt. Genl. Sir Sydney Cotton's campaign was against the Panjtar and Sitanah. In 1860, Sir Neville Chamberlain commanded against the Waziri, and in 1863, Sir N. Chamberlain and another led in the Umbeyla campaign. In 1868, a field force proceeded against the Hazaras under Br. Genl. A. T. Wilde, C.B., C.S.I., with two Brigadiers, Colonels Bright and Vaughan to punish them for a wanton aggression on the people of Agror. The independent tribes can muster between 80,000 and 100,000 fighting men, viz.

Hassanzye and Swati or Kohistani on the Mahaban or Black Mountain	2,000
Otmanzye and Amazye on the eastern slopes	2,500
Gaddun, on the South-eastern slopes.	2,500
Yusufzye and Chagharzye	6,000
Sitana	1,200
Swat	18,000
Momund	10,000
Afridi	20,000
Orukzye	18,000
Zyemookht	8,000
Waziri	20,000
Shirani	5,000
Ashtarani	1,000

In the time of Baber, the rhinoceros was hunted on the plains of Attock, and wild animals are still very numerous. The plains of upper India, in which as Colonel Cunningham remarks, (Hist. Sikhs, p. 4) the Brahmin and Kshutree races had developed a peculiar civilization, have, however, been overrun by Persian or Scythic tribes, from the age of Darius and Alexander to that of Baber and Nadir Shah, and the long antecedent emigration of hordes of the Jut from the plains of upper Asia, and the prominent religious changes introduced by them have been alterations in the nature-worship and polytheist religions of the earlier occupants, the subsequent introduction of the mahomedan creed.

Rice is the chief product of the Lahore district. Kyes, loongee, daryai and other silk manufactures, are exported chiefly to Delhi, Umritsur and Peshawar; and kundla and gold lace work are made largely for local consumption and for export to Mooltan, Rawulpindee and Peshawar. Umritsur town being the commercial capital of the Punjab proper, its trade affords a better index of the resources of the province than those of the district to which it gives its name. This trade is carried on with Bokhara, Cabul, Cashmere, Calcutta, Bombay, Sind, Rájputanah, the North Western Provinces, and all the principal marts in the Punjab. Manufactures are largely carried on in the city. The most important are those of pushmina and silk goods, both of which give employment to large numbers of workmen. The pushmina goods are manufactured from the fine wool of Thibet, imported through Cashmere, and 4,000 looms are engaged in this trade, each of which is worked by two men. The workmen are all Cashmere mussalmans, and the manufacture is said to have been established since A. D. 1840. It declined during 1866 but is understood to be since reviving. The most valuable articles are the Cashmere shawls. The silk manufacture has long been established at Lahore, and has spread from that place to Umritsur, where it is now carried on to about an equal extent. The greater part of the raw silk is brought from Bokhara, but some is also received by way of Calcutta.

The Lower Punjab and Bhawulpur districts yield respectively 750 and 150tons of indigo. In the time of Runjeet Singh, the Punjab revenues were estimated at £3,250,000, of which, in 1844, the customs and excise duties amounted to £240,000. The annual value of the trade, including that of Cashmere, is estimated at five hundred thousand pounds, which represents a total of some five millions sterling from the period when British rule commenced in the Punjaub. It appears that sheep's wool, however fine, will never assume that permanent brilliancy of colour which is the peculiar characteristic of the Cashmere and Umritsur shawls, and that until the shawl has been washed and exposed to the sun for some time, it is impossible to ascertain whether or not sheep's wool has been used. It also appears that many of the native manufacturers have grown rich by thus adulterating the article, and that those who are poor hope to become rich also by the same means. All of them know that the fraud is punishable, but all defy remonstrance. Unless the practice can be checked, a meeting of the merchants was of opinion that the trade would be lost to the Punjab, and that it would once more be monopolised by the maharajah of Cashmere who, "adopts the most stringent and effectual means of repressing any attempt at, and punishing, frauds." The remedy suggested was that the City Punch or Trade Committee should be empowered to call on those engaged in the manufacture to sign an agreement on contract not to adulterate, under a penalty, which should be recovered in the Small Cause Court in the event of adulteration being proved. That the goods should be in the custody of the police till the case was decided. That on a first "conviction" the goods should be stamped to show that they were adulterated, and on a second that they should be impounded and destroyed.

This plan was successfully tried some years ago with good effect, but the manufacturers discovered it was not sanctioned by authority, and "returned to their mal-practices." On the south-west of the Punjab we have Beloochistan, a tract of country extending from the sea to the mountains north of Quetta, inhabited by migratory and pastoral tribes, with few products and manufactures of their own, but not inconsiderable importers of the silks and cotton fabrics of India. Proceeding north, we come to Affghanistan, a mountainous region lying between 30° and 36° north latitude, and 60° to 68° east longitude, with a population estimated at 4,200,000, abounding in fruits, vegetables, and wools, but more important as containing within its limits three great entrepots of trade between Persia, Turkistan, and the south,—Herat, Cabul, and Kandahar, —where the silk of Bokhara and Khotan, the shawl-wool of Kirman, on the south-west, and Khokand on the north-east; the assafœtida and madder dye of Affghanistan, are exchanged for the cotton and cloth fabrics of Europe and the indigo and the spices of the east. Passing the well-watered plains of Murghab and the petty Uzbak states to the north-west of the Bamian hills and the Kunduz districts, in whose eastern frontier are the ruby mines of Badakshan, and the lapis-lazuli quarries of the valley of the Kokcha, we come to the plains of the Oxus and Jaxartes, into which Russia has now passed, but formerly divided politically into the three Uzbak states of Khiva, Bokhara and Khokand. Of these, Khiva has a population estimated at 2,500,000; Bokhara, one of 2,000,000, but Bokhara is at once the most productive, and its capital (the ancient Torbakwa), a city of from 60,000 to 150,000 inhabitants, is the great depôt for the trade of Central Asia, occupying the position held in more ancient times by Balkh and Samarkand. Its silk is used throughout the north-west of India; its cotton is exported largely to the north, and the black lambskin-wool of Karakul, one of its provinces, is a staple article of trade; while it imports considerable quantities of tea, fur-skins, iron, and cotton goods. The caravans leave yearly for Russia via Orenberg and other frontier towns, and the trade with that country is estimated at upwards of £300,000 per annum; it has also a considerable trade with western China via Yarkund, with Persia via Mashed, and with India via Cabul and Peshawur passes. It is distant from the Russian frontier 65 days' journey, over rugged and inhospitable tracts, but the route to the Punjab via Cabul and Peshawur takes only from 40 to 45 days, and lies through countries comparatively fertile, the chief physical difficulty being the crossing of the Hindoo Koosh. Hence the products and manufactures of Europe ought, and do, to a great extent, already find a readier access to the Central Asian mart from the frontiers of India than from the frontiers of Russia. Leaving to the north Kopal, on the southern Russian frontier, we proceed eastward to the borders of Chinese Turkistan, including the provinces of Yarkund, Kashgar and Khotan; the former the entrepot of trade between China and Bokhara, and the latter celebrated from the time of Ktesias, for its mineral products, its jade and emeralds, its shawl-wool and flax, a considerable importer of furs, broadcloth, leather, and sugar, and at one time the entrepot of a vast trade with Hindoostan. Turning south we come to the kingdom of Kashmir, including its outlying province of Ladak, a feudatory of the British Government and the British provinces of Spiti and Kulu. The staple products and manufactures of Kashmir, are well known, but it is not so well known that, notwithstanding an exorbitant tariff, Kashmir imports yearly not less than £184,000 worth of the produce and manufactures of India and Europe. Between the British provinces and Ladak and the countries beyond, a trade exists chiefly in shawl-wool and charas (a resinous exudation of the hemp plant, used as a narcotic), which are taken in exchange for opium, the produce of the Kulu hills, otter-skins, cotton piece goods, spices and drugs; but the trade is not so flourishing as it once was, or as it might be. The principal channels through which the Punjab commerce ebbs and flows, between those countries and the Punjab, are as under:

The natural channels of trade between Affghanistan, Persia, Western Turkistan, and India are the passes of the Sulimani range and those leading to Peshawur; these are as follows: First.—The Mulla pass near Gandava, in the Khelati hills, level throughout, safe, and one that may be traversed in all seasons. Second.—The Bolan pass, leading through Shikarpur to Sakkur on the Indus, through which the trade of Affghanistan passes from Kandahar into Sind, a distance of 400 miles. This road is generally level, and the trade through it is valued at £50,000 per annum. Thirdly.—The Ghulwaira or Guleri pass, opposite Dera Ismael Khan. This, though somewhat unsafe, is the chief trade-route between Affghanistan and the Punjab; the trade through it is estimated at £294,000 per annum, and is in the hands of hereditary class of merchants called Povindahs. Fourthly.—The Tatara and Abkhana, passes leading from Cabul to Peshawur; these are practicable all the year, and are at present tolerably secure, and the trade through them, which is on the increase, is valued at £277,150 per annum.

Through these passes lies the route from Bokhara, which is distant 829 miles or from 40 to 45 days' journey, by the Hajigak pass of the Bamian range, the route usually preferred, and somewhat less by the passes of the Hindoo Koosh.

It may be interesting to remark that the bulk of the trade flowing from India through the Peshawur passes is said to come via Delhi and Umritsur, and not more than one-fifth part via Karachi and the Indus.

The natural, or, at any rate the most direct channel of trade for the countries of Eastern Turkistan, including Kashgar, Yarkand and Khotan, would be through the territories of the maharaja of Jammu and Kashmir, via Leh and Srinuggur to Umritsur;—a distance in all of 1,100 miles if the route to Leh by the valley of the Shayak river and the Karakorum pass is taken, and 983 miles by the more difficult over the Sasor and Kilian passes. But owing to the insecurity of the road between Yarkand and Leh and the heavy imposts upon goods passing through the Kashmir territory, the trade for the most part passes into India via Bokhara and Cabul; and of the trade which comes by Leh a considerable portion is brought by a more circuitous and difficult road through Kulu and Mandi, supply to avoid the exaction of the Kashmir custom-house.

The trade between Eastern Turkistan and India by the Leh route is estimated at £23,504.

Lastly, between Kashmir and the Punjab several practicable routes exist, the most frequented being that by Jummu and Banihal. The trade with Kashmir and Jammu is estimated at £384,850.

The great portion of the commerce flowing through these channels to and from the Punjab concentrates itself at Umritsur, whose trade now exceeds one million sterling per annum in value.

We have thus seen that a considerable trade with the countries of Central Asia does exist, and that there is a considerable demand for European and Indian goods; also taking Yarkand, Bokhara, and Herat, as the commercial foci of Central Asian trade, British India is practically nearer those markets than Russia.

The difficulties to contend with are great, arising partly from the social and political state of the nations through which the trade passes, and the physical difficulties of the countries which it has to traverse. The nations are for the most part in a semi-civilized state, on the border land, as it were of nomad and settled life bigoted adherents of the mahomedan religion, and inaccessible to European influence; and, as for physical difficulties, every skein of Bokhara silk in the market of Umritsur has to traverse a distance of upwards of one thousand miles, over unbridged rivers, and seven mountain passes—one of them 11,700 feet above the level of the sea; every English calico exposed in the bazaar at Yarkand has to perform a journey of least 525 miles from the Punjab, over passes of 11,300, 12,570, 13,446 feet in height to Leh, and thence over still loftier mountains and through an inhospitable route infested by robbers for 575 miles more.

But, on the other hand, to combat these difficulties we find in existence an indomitable mercantile energy; an energy which, albeit, in oriental fashion, crystalised, as it were, and made hereditary in certain tribes,—as the Babi of South Affghanistan, the Povindah of the Goleri pass, the Paracha of Turkistan, the Kiryakash of Yarkand,—is almost unsurpassed. Year after year their caravans stream into the Punjab, from Mashed, Cabul, Bokhara, Yarkand, bringing tales of perils overcome. Year after year the native ballads bewail the hardships of the travelling merchant, but they still stream on. It remains to be seen how far the British can assist these adventurous traders.

With regard to the trade with Yarkand and Eastern Turkistan, it would appear that, that it has been retarded and turned away from the direct route through which it formerly flowed, mainly from two causes,—the insecurity of the road between Yarkand and Leh, and the exorbitant dues levied by our feudatory the maharaja of Jammu and Kashmir on the goods passing through his territory. The following were the rates of duty levied on certain goods exported from the Punjab to Kashmir by the Jammu and Banihal road.

Cloth, Cotton, Woollen.—Percentage of duty.

		R.	A.	P.
Piece goods, English.	Long Cloth, Dimity, Jean, &c.	30	8	0
	Muslin, flowered piece goods, dress pieces	8	7	4
	Cambric, Linen, (Khasa, &c.)	15	12	0
	Colored Muslins, &c.	10	8	0
	Chintz, Scarlet, Cotton, Velvet	13	6	10
	Bundree Chintz	38	0	0
	Broad Cloth	29	11	0
Sugar candy		85	0	0
Sugar		126	14	0
Molasses		150	0	0
Coarse sugar		100	0	0
Tea		78	0	0

Kiriana-Spices, drugs, dyes, &c., from Rs. 19 to 200

Metals—Iron	90	0	0	Pewter	104	0	0
Copper	21	0	0	Tin	54	0	0

On the Ladak Frontire.

Metals—Iron	91	0	0	Molasses	137	0	0
Sugar	24	0	0	Goat-skins	16	0	0
Sugar candy	17	0	0				

The roads from Simla and Kulu in the direction of Chini on the east, towards China; and from Kulu to China on the north via Ladak to Yarkand, are being improved and made passable for laden beasts of burden. A bridge is being thrown over the Chandrabhaga at Koksur, at present the main impediment to travellers, another over the Sutlej at Wangtu.

Alum forms a very important product and article of commerce at Kalabagh, whence it is exported to all parts of the Punjab, and is taken also to Hindustan.

Amongst others in the Punjab the woods used as fuel are,

Alsine, sp.
Artemisia sacrorum.
Calligonum polygonoides.
Caragana pygmæa.
Crozophora tinctoria.
Ephedra gerardiana.
Eurotia ceratoides.
Hippophae rhamnoides.
Juniperus communis.
Juniperus excelsus.
Periploca aphylla.
Rhazya stricta.
Rosa webbiana.
Tanacetum tomentosum.

Near the Punjab railway lines, Phulai (Acacia modesta) furnishes a hard wood which is perhaps the best fuel given by any wild tree. It is only found in quantity near Umritsur and Jullundur. Dhak or palasa (Butea frondosa) has a wood too soft and light to furnish, unmixed, a really effective fuel. Jhand or kandi (Prosopis spicigera) covers very large areas in the central tract near Lahore, and grows more partially over many parts to the south. Its wood is open-grained and softish, and is very subject to the attacks of white ants, but it furnishes a fair fuel, and has hitherto been perhaps the chief source of supply for the locomotive in the Punjab. Next to it, as to quantity of fuel furnished, come the tamarisks, furas, lei, plichi, &c., (Tamarix orientalis and Tamarix indica) which from some miles south of Lahore southwards, cover hundreds of square miles of the low land.

The mineral springs of the Punjab are always situated either in the hills or in submontane districts; there are hot springs, saline and sulphurous waters. Petrifying streams, in limestone districts, are not uncommon. The Jawala mukhi range is a portion of the outer parallel of the sub-Himalaya. It is composed of a sandstone of the later tertiary period. The springs are situated all within a distance of about 30 miles near the base of the hills, on their south-westerly face, looking towards the Beas; all contain chloride of sodium or common salt and iodine, stated by Mr. Marcadieu, to be in the form of iodide of potassium in considerable quantity. In proceeding by order of their respective positions, and taking for a starting point the limits of the Jawala mukhi valley, naturally formed by an elbow of the Beas near Nadaun, the salt induretted springs are placed in the following order; 1st, Kooperah; 2nd, Jawala; (two springs); 3rd, Jowala mukhi; 4th, Nageah, and 5th, Kanga bassa. All the water from the five springs, one at Kooperah, three at Jawala, one at Nageah and one at Kanga bassa, after having undergone slight concentration by being exposed only for a few hours to the open air, is purchased by the Bunniahs at one anna per seer, or exchanged for the same value in attah, &c. The livelihood of the natives living in the vicinity of these springs is chiefly earned by this trade. They are convinced and tell all who question them that the water contains an efficacious principle which promotes the cure of the goitre. Nature offers this remedy ready formed, and in large proportions without the excess being injurious; and there is a chance of finding a sufficient quantity of salt to render it profitable in a commercial point of view. While the Jawala mukhi waters contain a large percentage of iodine, Dr. Fleming states as the result of his analysis that not a trace of it can be found in the rock salt of Mandi. The sulphuretted hydrogen spring at Danear, is considered sacred by the natives, who resort to it for cure in goitre and other diseases; it is situated about a quarter of a mile off the main road to Danera. The spring is not a thermal one, but its exact temperature has not been observed. A small way-side spring in the hills, near Dalhousie, has a strong chalybeate taste, and deposited the reddish precipitate indicative of iron. The temperature of Bishasht spring is 102° fahr., that of the principal spring at Manikarn 202° fahr. In the time of Baber, the rhinoceros was hunted on the plains of Attock. Wild animals are still very numerous. During the year 1859 the number of people killed or injured by wild beasts in the Punjab, were as under:—

Killed 474, viz., Men....	6	Injured 119, viz., Men...	33
Women.	1	Women...	3
Children.	467	Children..	83

The following number of wild beasts were destroyed during the year 1859.

Tigers 9.	Males............	6	Bears 187.	Males......	110
	Cubs............	3		Females...	40
				Cubs......	37
Hyenas 2.					
Leopards 202,	Males....	109	Wolves 1,174,	Males....	337
	Females..	36		Females.	308
	Cubs......	57		Cubs......	529

The amount of rewards paid for the destruction of these animals, 1,567 in number, was Rs. 5,724. The total number of animals destroyed during the year 1859, was nearly double that of 1858, but the loss of life was much greater. The casualties were chiefly in the five districts of Umballa, Umritsur, Goordaspoor, Sealkote, and Goojranwalla, and the last four especially, among children. In Goordaspoor (144), and in Sealkote (160), the number of children's deaths exceed the total number of casualties in the rest of the Punjab. Wolves are the most destructive, and nearly four times as many children were killed in the Umritsur district, as wolves. Gold-washing is carried on in certain streams in the Rawul Pindee, Hazara, and Attock districts.

Gold is found in minute scales in the sandstone of the Salt range, in a lower range of hills running parallel to the Himalayan chain, between the rivers Indus and Jhelum, and it is also found in small quantities in the sands of the Indus, Jhelum, Beas and Sutlej; but the occupation of gold-washing is not very remunerative, amounting on an average to not more than from 3*d.* to 6*d.* a day, and the proceeds of the annual lease of gold-washing amounted for one year only to £84. Gold dust is also imported from Ellache, in Kohistan. In Attock, the washing appears to be most successful along the low sandy border of the Chuch valley, where the Indus may be supposed to lose much of its rapidity after issuing from the Hazara hills. The gold in this locality is confined entirely to the alluvial deposits along the river bank, and seems to have been brought down from the mountains north of Hazara. Gold was much more plentiful in these washings after the great floods of 1841 and 1858, as, doubtless, the deposits in the upper bed of the Indus being disturbed by the unusual violence of the stream, it was brought down in considerable quantities. That gold exists in the hills to the north of Hazara, there can be little doubt; the people of the Chuch plain say, "that to the north of Khagan and the Black mountain, lies a country, the people of which are so simple, that they are unacquainted with the worth of the precious metals, although gold is everywhere found among the stones of that country, the inhabitants set no value upon it." Some people from Hazara, or Punjitar, paid a visit to this country and were able to obtain large quantities of gold, but at the cost of their clothing of which the inhabitants robbed them, although they made no opposition to their taking gold.

Mir Alum Khan, Lumberdar of Mouzah Goorgushti in Chuch, valley one of the lessees of the gold contract, stated that there are gold washings along the banks of the Indus, especially at Jellalia, Moomundpoor, Yaseen, Asghur, and Haroon. After the flood of 1841, for two years, the quantity found was considerable, also after the flood of 1858. The instruments used are a "Droon" or long cradle, and a bowl, and a kirni (digger), made of iron. To each "Droon" eight men are required. The master gets a double share. Gold is bought by the proprietor from the diggers at rupees 12 per tola. The lease in 1860, was rupees 40 per month, whereas in 1859, it was rupees 150 per month.

In Shahpoor, the gold-washing is carried on in most of the larger nullahs in the Chuckralla Ilaka, but that the occupation is not a very profitable one, is proved by the small number of "Droons," or cradles at work, the total average number of which on the various streams in this district is 30, and these pay to government a tax of 2 to 3 rupees per annum for each cradle. The sands of the "Imppio" afford a fair yield of gold in the neighbourhood of Lawa, but lower down the same stream, none is to be found.

In Peshawur, in the north Indus (above Attock) and the Cabul rivers, auriferous deposits are found, although not extensively, some of the boatmen in the cold weather work as gold-washers in gangs of from 5 to 7, and collect on an average 2 to 2½ tolas each in the season, the gold sells at Peshawur at rupees 15 per tola, this would yield them about two annas per diem while actually employed. A mine has lately been discovered near Candahar, but its value has not yet been fully tested by the Ameer. The gold-washings of these rivers might be advantageously examined by those who possess the necessary qualifications.

Pure Panjabi, is confined to the small number of Sikhs who are settled in the different cities and towns. The generally known tongues are, the Beluchi, the Jataki, the Persian, the Sindhi.—*Campbell, p.* 77; *Powell's Handbook*; *Econ. Prod. Punjab, p.* 139; *Calcutta Review, No.* lxxiii, *September* 1861, *p.* 5; *Steinbach's Punjab, p.* 43; *Hugel's Travels in Kashmir, p.* 27; *History of the Punjab, Vol.* i, *pp.* 61-63; *Sir Robert Montgomery's Report*; *Tod's Rajasthan, Vol.* i, *p.* 232; *Prinsep's Antiquities by Thomas, Vol.* ii, *p.* 176; *Smith's Biographical Dictionary*; *Ed. Ferrier's Journ.*; *Punjab official*; *Dr. Stewart's Punjab Plants*; *Mr. Temple's Report on the Punjab.* See Arians, Hindoo, India, Jat or Jet or Jut, Kathi, or Katti, Khyber, Kot Kangra, Ladak, Mahaban, Naptha springs, Petroleum, Sikhs, Saraswati, Santoria, Sati, Topes.

PUNJAB FOX, Eng. Vulpes pusillus, *Bly.*

PUNJAH, Hind., Pers. An open palm and fingers of the hand erected as a standard by mahomedans. They get the names of certain martyrs, viz., Punjah-i-Haidar, or Punjah-i-Murtuza Ali. At Umritsar in March 1846, when Gulab Singh was formally inaugurated as maharaja of Jumao, he exhibited the engagement with the Lama of Lassa, drawn out on his part in yellow, and on the part of the Chinese in red ink, and each impressed with the open hand of the negotiators dipped in either color instead of a regular seal or written signature. The 'Punjah,' or hand, seems in general use in Asia as typical of a convent, and it is moreover a common emblem on the standards of the eastern Affghans.—*Cunningham's History of the Sikhs, p.* 259.

PUNJAET, a part of a chapter in the Qoran.

PANJAGAVIYA, the five products of the cow.—*Burton's Sind, Vol.* ii, *p.* 288.

PUNJAN, Hind. Artemisia indica.

PUNJA PRANDU, Tam. Aquila pennata, *Gmel.*

PUNJAY, Hind. Ullum standards.

PUN-JAY-REE, Hind. A candle given to lying-in-women.—*Herkl.*

PUNJ BAI HILLS, see Kandahar.

PUNJEE of Dharwar, is a cloth used by well-to-do people, to dry themselves after bathing, and also worn as a waist cloth by poor people. Price one rupee.

PUNJEH-MIRIAM, Arab. Cyclamen europæum, *W.*

PUNJI or Panji, Tam. Gossypium, cotton.

PUNJIR, see Kohistan.

PUNJI VERAI, Tam. Cotton seeds.

PUNJNUD, signifying like Punjab, the ‘ five rivers,’ the united stream flowing into the Indus.—*History of the Punjab, Vol* i, *p.* 8.

PUNJUM, an unbleached, strong, fine cotton long-cloth made in India.—*Simmond's Dict.*

PUNJ-PAI, or Paiyeh, Pers. Crab.

PUNJPAO, see Khyber.

PUNJ-TAN, the five holy persons, viz., Mohummed, Allee, Fatima, Hussun, and Hosein.

PUNKABAREE. A thousand feet above Punkabaree in the outer Himalaya, the prevalent timber is gigantic, and scaled by climbing Leguminosæ, as the Bauhinia and Robinia which sometimes sheath the trunks or span the forest with huge cables joining tree to tree. Their trunks are also clothed with parasitical orchids, and still more beautifully there with Pothos (Scindapsus), Peppers, Gnetum, Vines, Convolvulus, and Bignoniæ. The beauty of the drapery of the Pothos leaves is pre-eminent, whether for the graceful folds the foliage assumes, or for the liveliness of its colour. From one steppe, the ascent to Punkabaree is sudden and steep, and accompanied with a change in soil and vegetation. The mica slate and clay slate protrude everywhere, the former full of garnets. A giant forest replaces the stunted and bushy timber of the Terai proper; of which the Duabanga and species of Terminalia form the prevailing trees, with Cedrela and the Gordonia wallichii. Smaller timber and shrubs are innumerable, a succulent character pervades the bushes and herbs, occasioned by the prevalence of Urticaceæ. Large bamboos rather crest the hills than court the deeper shade, and of the latter there is abundance, for the torrents cut a straight, deep, and steep course down the hill flanks : the gulleys they traverse are choked with vegetation and bridged by fallen trees, whose trunks are richly clothed with Dendrobium Pierardi and other epiphytical orchids, with pendulous Lycopodia and many ferns, Hoya, Scitamineæ, and similar types of the hottest and dampest climates. The forest is truly magnificent along the steep mountain sides. The proportion of deciduous trees is considerable partly, probably, due to the abundance of the Dillenia, Cassia, and other Sterculia, whose copious fruit was all the more conspicuous from the leafless condition of the plant. The white or lilac blossoms of the convolvulus like Thunbergia, and Acanthaceæ were the predominant features of the shrubby vegetation, and very handsome. All around, the hills rise steeply five or six thousand feet, clothed in a dense deep green dripping forest. Torrents rush down the slopes, their position indicated by the dipping of the forest into their beds, or the occasional cloud of spray rising above some more boisterous part of their course.—*Hooker's Him. Jour., Vol.* i, *pp.* 103, 108, 281.

PUNKAH, a hand, or swinging fan, used in India. Hand-punkahs are frequently richly ornamented with gold and silver, beetle's wings, peacok's feathers, &c., a fan carried by fuqeers. —*Simmond's Dict.*

PUNKEER, or peacock and horse modelled yachts and pleasure boats on the Ganges. —*Tr. of Hind., Vol.* i, *p.* 81.

PUNKHO, a weight for the precious metals used in Bengal = 0·14036 grain troy.—*Simmond's Dict.*

PUN MULLIKA, Maleal. Jasminum sambac, *Ait.*

PUNNA, Hind. Emerald, Corundum.

PUNNA, Hind. Ehretia serrata.

PUNNAGA, or Punnagamu, Tel. Calophyllum inophyllum, *L—R.* ii, 606, also Rottlera tinctoria, *R.* iii, 827; *Corr.* ii, 168. Br. 627 inserts this word on the authority of W. 542, but in S. K. it is given as a syn. of Calophyllyum inophyllum or Ponna in Br., who seems altogether to have mistaken the true meaning.

PUNNAKU KIRE, Tam. Melochia corchorifolia.

PUNNARKANI KIRE, Tam. Illecebrum sesile.

PUNNAM, Sans. Full moon.

PUNNAM, Maleal. Bassia latifolia.

PUNNE, Tam.? Civet.

PUNNEER MARAM, Tam. Guettarda speciosa, *Linn.*

PUNNEKALI, Tam. Mucuna prurita, cowage.

PUNNE PODALANG-KAI, Tam. Momordica charantia.

PUNNI, an Affghan clan. See Kaker.

PUNNUS, Duk. Fruit of Artocarpus integrifolia.

PUNNUGASHUNA, Sans., from pannaga, a serpent, and asha, to eat.

PUNNY, Hind.? A bamboo measure.—*Simmond's Dict.*

PUNSIRY, a weight for grain in the Nizam's territory, India, of 5 seers, or 9 lbs. 14 oz. 12 drs.—*Simmond's Dict.*

PUN-SEED OIL, Eng. Calophyllum inophyllum.

PUN-SPARS, Anglo-Maleal. See Calophyllum dillenia pentagyna, Pun, Poon.

PUNSUI, a Ganges boat. See Boat, Dengi.

PUNT, Maleal. Rubia cordifolia, *Linn.*

PUNT'HEE, Sans., from put'hu, a way.

PUNTVYAR, Maleal. Madder.

PUNUL, the sacred thread worn by the brahmins and some other castes.

PUNYABHADRA, see Inscriptions.

PUNYAHAVACHANAM, see Hindoo.

PUN-YET, Burm., see Resins.

PUNYU, Malay. The tortoise.

PUOAM, Tam., a tree of Malabar, of a light-red colour (Schlecheria) much like the Spanish mahogany. It is generally curved in its growth, and is considered very durable. It grows to about twenty-four inches in diameter, and seldom more than twenty feet high. It produces a fruit which the natives pickle, and from which also they extract an oil, which they use for rheumatic gout, bruises, and various complaints: it is considered by them to be valuable. The weight of this wood is about thirty-seven and a half pounds the cubic foot.—*Edye, M. & C.*

PUOAM PARASOM, Tam., a tree with which the natives of Malabar are well acquainted, and which they use for the masts and yards of pattamahs. It grows to about sixty feet high, and fifteen inches in diameter: it may be considered inferior to the mast peon before described.—*Edye, M. & C.*

PUPA, a genus of molluscs.

PUPA. In Entomology this term is applied to the third stage of existence of an insect, the egg being the first stage, and the larva or caterpillar, the second.—*Eng. Cyc.*

PU-PADRIA MARAM, Tam. Bignonia chelonoides, *Linn.*

PUPAKH, a Kazilbashi hat.

PUPALIA ORBICULATA. One of the sand binding plants.

PUPINA, a genus of molluscs.

PUPLI CHUCKAY. The bark of the Pupli root yields an orange dye, and is treated with alum, myrobolans, &c. This dye was exhibited from Bellary, Mysore and Salem, at the Madras Exhibition of 1855. It was noticed by Buchanan (Mysore 1, p. 168,) and was named by him somewhat doubtfully as Ventilago? a Rhamnaceous genus. Flowering or fruit bearing specimens of this scandent shrub have not been procured to settle the point in question. This dye stuff is in very common use in India, and deserves a fair trial in Europe. The pupli is seldom used alone, but generally as an adjunct with chay root, to produce a rich chocolate colour, or, if with galls, a black.—*M. E. J. R.*

PUPNAS, a river in Bhopal.

PUPRA, Hind.? A tree of Chota-Nagpore, hard, white timber.—*Cal. Cat. Ex.* 1862.

PUPPALI PALLAM, Tam. Carica papaya.

PUPPANTI MIRUTKUNDA, Tel. Acalypha indica, *Linn, Roxb., Wight.*

PUPPAYA, Duk. Carica papaya.

PUPRI or Papri, Duk., Hind. Carbonate of soda.

PUPUNHA TREE, Gulielma speciosa, *Mart.*, is the Piritu or Pirijao of Venezuela, the Pupumha of the Amazon district, and the Paripou of Guiana. It is a palm, of an intensely hard wood, sharp needle like spines are thickly disposed in rings or bands, round its slender cylindrical trunk. The Indians subsist for months on its farinaceous fruit.—*Seeman.*

PUR or Par, Guz, Hind. Feathers.

PUR, Tel. Eriodendron anfractuosum, *DC.*

PUR also Puri, Sans. A city, a town, written Pore and Poor.

PURALASA, see Hindoo.

PURAM-HUNGRU. Hindu religious mendicants, who go naked, observe perpetual silence, and appear regardless of all visible objects.—*Cole, Myth. Hind., p.* 932.

PURAMOOL, Beng. Nelsonia tomentosa.

PURAN DUKHT. See Sassanian kings.

PURANA, literally, old, sacred, the poetical books of the hindoos. Every Purana treats of five subjects; 1, the creation of the universe; 2, its progress, and the renovation of worlds; 3, the geneaology of gods and heroes; 4, chronology according to a fabulous system: and 5, heroic history, containing the achievements of demi-gods and heroes. Since each Purana contains a cosmogony, with mythological and heroic history, the works which bear that title may not unaptly be compared to the Grecian theogonies. This description is applicable to the eighteen mythological poems called Puranas, not to certain passages of each Veda, bearing the same name of Purana, and interspersed throughout that portion of the Vedas entitled Brahmana, or divine precepts. India, according to the Purana, was anciently divided into ten divisions, viz., five in the territory now styled Hindustan, Saraswati, Tirhut, Canouj, Gour or Bengal, and Guzerat, and five in what is now called the Dekhan, viz., Maharashtra, Orissa, Telingana, Dravada and Carnata. In these divisions ten languages were spoken. It is related in the Scanda Purana, that, when the whole earth was covered with water and Vishnu lay asleep on the bosom of Devi, a lotos arose from his navel, and its ascending flower soon reached the surface of the flood; that Brahma sprang from the flower, and looking around without seeing any creature on the boundless expanse, he imagined himself the first born. Vishnu, otherwise called, in this character, Narayana, with his toe in his mouth, reposes on a floating lotos leaf, this seems puerile, and, indeed, what popular exhibition of such subjects doth not; and may perhaps mean to represent a circle. The toe in the mouth, like the tail of a snake in its mouth, in mythological language, is interpreted Endless: applied to Time, Eternity: to a being, Eternal.

It is, however, in the Bhagavata or eighteenth of the Puranas or old books, in which Krishna is described in his complete apotheosis and in that he is represented as the eighth avatar of Krishna. The first Indian poet after Vedic times was Valmiki, author of the Ramayana, a complete epic poem, on one continued, interesting, and heroic action, and the next in celebrity, if it be not superior to it in reputation for holiness, is the Mahabarata of Vyasa. To Valmiki are ascribed the books subsequent to the Vedas the sacred Puranas, which are called, the eighteen, and which have the following titles:—1 Brahm, or the great one; 2 Pedma, or the Lotos; 3 Brahmanda, or the Mundane egg; 4 Agni or Fire—(these four relate to the creation); 5 Vishnu or the Preserver; 6 Garuda or his Eagle; 7 the transformation of Brahma; 8 Siva; 9 Linga; 10 Nareda, son of Brahma; 11 Scanda, son of Siva; 12 Marcandeya or the immortal man; 13 Bhawishya, or the prediction of futurity—(these nine belong to the attributes and powers of the deity); 14 Matsya; 15 Varaha; 16 Kurma; 17 Vamana, or as many incarnations of the Great One in his character of Preserver, all containing ancient traditions, embellished by poetry or disguised in fable. The eighteenth is the Bhagavata, or life of Krishna, with which the same poet is by some imagined to have crowned the whole series; though others, with more reason, assign them different composers. And they are differently arranged and named by other authorities.

The word Purana occurs in the Vedas; but what Puranas or parts of them existed then it is difficult to determine. As they were evidently written to counteract the influence of buddhism and work on the popular mind, it is, not at all unlikely that some of them were composed at an early date. Their composition is, however, supposed to have commenced in the 7th century A. D. Both Colebrooke and Wilson ascribe the authorship of the Srimat Bhagbata to Bopdeva in the 13th century A. D. after the appearance of the Vishnu Purana. The native tradition is strongly against this hypothesis. Babu Rajendralal Mitra, a distinguished oriental scholar, in noticing the Muktaphala says, "this work and another lately found by me in which the same author gives an abstract of the contents of the Bhagbata, afford strong presumptive evidence against the opinion now generally received by oriental scholars, that the Bhagbata was writtten by Bopdeva. A much stronger proof, however, is afforded by the Danasagara of Ballala Sena, king of Bengal, in which the Bhagbata is repeatedly quoted. That work also quoted from the Adi Purana, which Wilson supposed was composed within the last three centuries. Bopdeva, according to Colebrooke and Wilson, flourished in the 12th and 13th centuries; Ballala lived in the 11th. There is mention of the Puranas and even of the Bharata or Mahabharata in the Sutras of Asvalayana; but we doubt much whether the existing Mahabharata in its integrity is the work referred to. Neither the Ramayana nor the titles of any of the other Puranas are alluded to in the Vedas. But there are still grounds for thinking that the Ramayana was anterior to the Mahabharata.

Some of the Puranas are voluminous compositions. It has been said that they were the work of the same Vyasa by whom the Vedas were arranged and they are held in almost equal estimation. According to a definition furnished by many of them, a Purana should treat of five topics—primary creation, secondary creation, the families of the patriarchs, the reigns of the Manus, and the dynasties of kings. The actual Puranas conform in no one instance to this definition: the authors are often declared to be others than Vyasa, and they offer many internal proofs that they are the work of various hands, and of different dates, none of which are of very high antiquity. The oldest of them may not be anterior to the eight or ninth century, and the most recent to be not above three or four centuries old. In the present state of hindoo belief the Puranas exercise a very general influence. Some of them, or portions of them are publicly read and expounded by brahmans to all classes of people. Most brahmans who pretend to scholarship are acquainted with two or more of them, and particular sections, as the Devi Mahatmya are amongst the most popular works in the Sanscrit languages. Prayers from them have been copiously introduced into all the breviaries; observances of feasts and fasts are regulated by them; temples and towns, and mountains, and rivers, to which pilgrimages are made, owe their sanctity to legends for which the Puranas or the Mahatmyas, works asserted, often untruly, to be sections of them, are the only authorities, and texts quoted from them have validity in civil as well as religious law. The determination of their unauthenticated composition deprives them of the sacred character which they have usurped, destroys their credit, impairs their influence, and strikes away the main prop, on which, at present, the great mass of hindoo idolatry and superstition relies. That the Puranas represent in many instances an older, and probably a primitive scheme of hinduism, is no doubt true; they have preserved many ancient legends they have handed down all that the hindoos have of traditional history, and they furnish authoritative views of the essential institutions of the hindoos, both in their social and religious organization. But in their decided sectarial character, in their uncompromising advocacy of the pre-eminence of some one deity, or of some one of his manifestations, in the boldness with which they assert his pantheistic presence, in the importance they attach to particular observances, as fasting on the 8th, 11th, and 14th days of each half month, in the holiness with which they invest particular localities, in the tone and spirit of their prayers and hymns, and in the numerous and almost always frivolous, and insipid, and immoral legends, which they have grafted upon the more fanciful, dignified, and significant inventions of antiquity; they betray most glaringly the purposes for which they were composed, the dissemination of new articles of faith, the currency of new gods.

There seems good reason to believe that the Puranas in their present form accompanied or succeeded a period of considerable religious ferment in India, and were designed to uphold and extend the doctrines of rival sects, which then disputed the exclusive direction of the faith of the hindoos. It began perhaps in the third or fourth century of our era, having for its object the extermination of the buddhists, who in consequence were driven out of India to Siam, Java, China and Tibet. When the buddhists, whom all parties considered heterodox were expelled, their enemies began to quarrel amongst themselves, and in the eight or ninth century a reformer named Sankara Acharya is celebrated for having refuted and suppressed a variety of unorthodox professors, and established the preferential worship of Siva. He instituted in support of his doctrines, an order of mendicants which still subsists, and he is in an especial manner regarded as the founder of a system of belief adhered to by brahmans of learning, particularly in the south of India. The triumph that he obtained for the deity he patronized did not long survive him. Early in the eleventh century, Ramanuja a follower of Vishnu, undertook to depose Siva and set up his own divinity, not only in the belief of the people, but in the more substantial benefits of temples and endowments. Tradition records, that the great temple of Triveni, one of the largest and richest in the peninsula, now dedicated to Vishnu, was arrested from the rival votaries of Siva by Ramanuja and his followers. The ascendancy of the Vaishnavas was not undisputed in the south, and a new sect of Saivas, the Lingayites, sprang up in oppsition to them: the contest was carried on with popular violence, and in one of the disturbances that ensued, the raja of Kalyanpur was killed and his capital destroyed. The mahomedan invasion of the south crushed both the contending parties, and the predominance of the same power in upper India prevented the like violence of collision. The Vaishnavas there spread with little resistance under the followers of Ramanand, a disciple of Ramanuja, to whom or to whose pupils, the greater proportion of the mendicant orders in Hindustan owe their origin, and under two brahmanical families, one in the west sprung from a teacher named Vallabha, who established themselves as hereditary priests of the juvenile Krishna, and one in Bengal and Orissa descended from Nityanand and Adwaitanand, two disciples of Chaitanya, a teacher, with whom the popularity of the worship of Jagannath originated. A particular description of all the different divisions of the popular religion of the hindoos may be found in the sixteenth and seventeenth volumes of the Asiatic Researches.

These different orders and families are now almost exclusively the spiritual directors of the people. Some of them are rich and of brahmanical descent; some are poor and composed of persons of all castes. They are almost all, whether rich or poor, illiterate and profligate. Such literature as they occasionally cultivate, and it is one of the means by which they act upon the people, is vernacular literature, compositions in the spoken languages. These are mostly songs and hymns addressed to Vishnu, Krishna or Radha, tales and legends of individuals celebrated amongst them as saints, always marvellous, mostly absurd, and not unfrequently immoral, and vague and dogmatical expositions of elements of belief, which although in some degree discoverable in the Puranas, have assumed in novel and portentous prominence in the doctrines of the Vaishnava teachers and the practices of the people. These elements are passionate devotion and all-sufficient faith.

According to the geography of the Puranas, the earth consists of a series of central circle and six other annular continents, separated from each other by as many oceans of different fluid substances.

The Puranas do not afford any reliable information as to the state of the early occupants of India. The account which these books contain of the periods, dynasties, races, genealogies and kings of Vedic India, looks imposing, minute, and circumstantial. They describe two great dynasties of the sun and moon, branching off into separate kingdoms. Four great ages of the world, with an accurately defined lists of kings for each, and these lists all so framed as in appearance to strengthen and support each other. Containing also the very names found in the Vedas, with an elaborate system of dynastic change, and of intermarriages. But the hindoo of the middle ages, had an immoderate speculativeness, a love of wild extravagance, fiction and untruth. Colebrooke tells us (Vol. ii, p. 100,) that the Raghava-Pandivegam, an extraordinary poem by Caviraj, king of poets, is composed with studied ambiguity, so that it may at the option of the reader be interpreted as relating to the history of Rama, and other descendants of Dasaratha, or that of Yudishthira and other sons of Pandu. It tells in short, two distinct stories in the same words, as the following sentence will show.

Succeeding in youth to the kingdom of his variously valiant father, who departed for heaven, he dwelt happily in the city of Ayodya, which was adorned with elephants and upheld the prosperity of his realm.	Succeeding in youth to the kingdom of his father Vichitravirya, he dwelt happily in the peaceful city of Hastinapura, auspiciously inhabited by Dhritarashtra.

Writers with such perverted imaginations issued the yogas and genealogies of the Puranas, the little leaven of truth in some of them, being the names of a few Vedic kings, interspersed apparently at hap-hazard. The writer of the Vishnu Purana, in such a simple matter as writing out a list of rivers, puts down all he can remember, some twice over, and then adds to it to the names of about a dozen rishis, taken bodily from the Vedas. The Puranas have not only adding nothing to our stock of knowledge as to the state of ancient India, but have done much to retard research. For partly from the skill and elaborateness of the fiction and partly from the mutual support, which the Puranic writers gave each other, astronomy, poetry, legend, chronology and history all helping on the deceit, modern scholars received the dynasties and the historical eras of two or perhaps three of the Yogas, as having some reality. But the Rig-Veda does not contain many of the Puranic names nor even an allusion to them. It makes no mention of Solar or Lunar races. It knows nothing, and indeed can know nothing of Ayodhya, and Kusi, and Mithila, and Vesali and Magadha, or even of Indraprestha, while the Puranas on the other hand know nothing of dynasties in the Punjab, or on the Indus.

The best known is the Vishnu Purana, which is referred to the 11th century, by Professor Wilson. The Puranas have been thought by some, to represent Egypt as the theatre of action, and the wars related of Brahma, Siva and Vishnu, to be the legend of the wars between Osiris, Horus and Typhon; for Brahma, in his character of all destroying time, corresponds with Typhon; Mahadeva or Siva, that of the productive principle, with Horus or Hara; who assumes each of his characters on various occasions either to restore the powers or to subdue the opponents of Vishnu, or active nature, from whom his auxiliary springs.—*Wilson's Hind. Theat.*, *Vol.* ii, *p.* 58; *Wilson's Religious practices and opinions of the Hindoos, p.* 24; *Calcutta Review, No.* 109, *p.* 52; *As. Res.*, *Vol.* iii, *p.* 375; *Coleman; Moor, p.* 441; *Colebrooke's As. Res.*, *Vol.* vii, *p.* 202. See Inscriptions, Tantras, Vidya, Yama or Dhermarajah.

PURANADHISTHANA, the old capital of Kashmir, the present Pandrethan, possessed a tooth of Buddha.

PURANAI, one of Ayenar's wives.

PURANI, Punjab. Paini santa.

PURASHA, Tam. Thespesia populnea. Purasham-yennai, Tam. Oil of Thespesia populnea. See Dyes.

PURBI, Hind. A variety of tobacco.

PURBIA, Sans. A term applied to the natives of the eastern countries of India, or those lying in the east of the Ganges, beginning from Behar. At the commencement of the revolt of 1857, the Purbia of Oude and Hindustan in general, constituted three-fourths of the regular army of Bengal, and all of them, from community of country, although of different races, castes, and religions, had so strongly united together that the army had become quite a close service, open only to the few favoured classes. The strength of this feeling only became known when the Government tried and failed to introduce two hundred Sikhs into each regiment of the line. Purbeah, literally means a man from the east of the Ganges, from Oude and Bahar, from which districts the mass of the troops of the Bengal army, before the mutiny of 1857, were drawn.

PURBUTTEE, see Bazeegur, Nats, Khas.

PURCHO, BACHA, Hind. Echinops nivia.

PURDAH, a curtain a cotton cloth, with white and blue stripes used for curtains, &c. The word purdah, which means curtain or veil, is often metaphorically used, and implies that seclusion in which many females in India live, but in cases where ladies transact business, the expression must be taken literally, as they are seated behind a curtain, where they hear and are heard, and through the openings of which they see without being seen.—*Malcolm's Central India, Vol.* i, *p.* 279.

PURDEY'S ISLETS. They are small

low islands, covered with the trees ; and the Bat, which appears as two islands, has shoal-water and reefs round it.—*Keppel's Ind. Arch., Vol.* ii, *p.* 201.

PURREE NAHOWN, Hind., the fairy bath.

PURRUD, Hind., borrowed cloths.

PURRENBAY, Hind., Prosopis spicigera.

PUREE, a beautiful yellow Chinese pigment, in the composition of which the urine of the elephant is said to be a chief ingredient. It is brought to China in round lumps of various sizes in colour like orpiment, with a strong urinous smell, and little or no taste.—*Morrison.*

PURGING CROTON, Eng. Croton tiglium.

PURGING OIL. Oil of Curcas purgans.

PURGIR-CASSIE, Ger. Cathartocarpus fistula.

PURGING CASSIA, Eng. Cathartocarpus fistula.

PURHIN, Hind. Mullet fish.

PURIGADDI, Tel. Cyperus bulbosus, *Linn.*

PURI, a town in Orissa, famed for its temples, to Kishna, Balram, and Kali, known in Europe as Jagarnath. The idols are of wood, painted white, black and yellow, and are exposed twice a year.

PURI, Hind., a kind of sweetmeat.

PURI, Tel. Paddy. Unripened rice.

PURI DAMPA, Tel. Stalk, and Puri Gadda, Tel., root of Cyperus bulbosus, *Vahl.*, *Linn.*

PURIHARA, one of the four Agnicula tribes. The Purihara, or Pritihara, is scattered over Rajasthan, but do not seem to have any independant chieftainship there. At the confluence of the Cohari, the Sind, and the Chumbul, there is a colony of this race, which has given its name to a commune of twenty-four villages, besides hamlets, situated amidst the rivines of these streams. Mundawur (classically Mundodri) was the capital of the Purihara and was the chief city of Marwar which owned the sway of this tribe prior to the invasion and settlement of the Rahtore clan. The Purihara is the least of the Agnikula. They never acted a conspicuous part in the history of Rajasthan. —*Tod.* i, *p.* 106. See Agni, Agnicula, Khutri, Rajputs.

PURIK, see Maryul or Lowland, Ladak, India, Sheep, Tibet.

PURING, Hind. Jasminum officinale, shalpurni, Hind. is Desmodium tiliæfolium.

PURINSJI, Malеal. Sapindus laurifolius, *Vahl.*

PURITHI, Mal. Ananas sativus.

PURITY, mahomedans follow the Jews in their attention to outward purity. Before praying, it is necessary that one be undefiled. There are degrees of defilement, the least of which requires that the hands, arms and feet be washed before praying and for this purpose mosques are always provided with cisterns or tanks of water : in the desert sand is used. After greater impurities it is necessary that the whole body be washed, hence the longer they remain undefiled the purer their life ; Wuzzu, expresses the ablution and Hedas, the state of deflement, during the continuance of which they cannot pray. The Mulana Abu Ashah was said to use the water of purification twice in a month—that is, his life was so pure that for a whole fortnight he was not so much defiled as to make necessary a total ablution. Vir prœcipue emissione seminis fœdatur at mulier menstruorum. Amongst the brahmans sipping water is a part of the ceremony of purification. In the Mitakshara, on the subject of personal purification, the direction is 'let the twice-born man (after evacuations) always perform the upasparsa ;' *i. e.*, says the commentator, 'let him sip water.' According to Prof. Wilson the sense of the passage in Book vii, 4, is "that Nala sat down to evening prayer (as Manu directs 'he who repeats it sitting at evening twilight, &c.,) after performing his purifications and sipping water, but without having washed his feet ; such ablution being necessary, not because they had been soiled, but because such an act is also part of the rite of purification."

A hindoo becomes unclean by various circumstances, during which he is interdicted almost every religious ceremony, and forbidden to shave or cut his nails. In the act of purification the person shaves his head, bathes, and puts on clean apparel. A hindoo becomes unclean after the death of persons related to him by birth. If a child die before he has teeth, the family bathe immediately, and become clean ; or if a child die before its ears are bored, the family remain unclean one night. If a woman miscarry, the family become impure ten days. After a birth, all the members of the family in a direct line become unclean. A woman in her periods is unclean for three days ; but on the fifth day, after bathing, she may again perform religious ceremonies. Every person is considered as in some measure unclean while in a state of sickness, and from some religious services a sick person is wholly excluded. A brahman becomes unclean by the touch of a sudra, a dog, a mahomedan, a barbarian, &c., and all castes, by touching a woman in her courses, a dead body, ordure, urine, the food of castes, &c.—*Ward's view of the Hindoos, Vol.* ii, *p.* 147 ; *Journ. Ind. Arch., Vol.* v, *No.* 11 ; *Williams' Story of Nala, p.* 130.

PURIVRITTEE, Sans., from puree, prep. and vrittee, existence.

PURJLU, Hind. Oreoseris lanuginosa.

PURLU. A substance used in dyeing black with "pasuta," (alum and sulphate of iron) as the mordant.—*Powell's Hand-book, Vol.* i, *p.* 453.

PURMATA, Malay. A jewel.

PURNA, a tributary of the Taptee.

PURNA PALA, see Inscriptions.

PURNA, Sans. Chavica seriboo, *Miq.*

PURNEAH, a district and station town in Bengal, the town 283 miles from Calcutta.

PURPARUL. A close grained wood from the Sonthal jungles, esteemed equal to box, for which it was supposed it would prove an excellent substitute.—*Madras Spectator*, *29th Nov.* 1858.

PURPLE DENDROBIUM. Dendrobium secundum.

PURPLE FLEABANE, Vernonia anthelmintica.

PURPLE FLOWERED CORONILLA, Eng Coronilla picta.

PURPLE FLOWERED THORN APPLE, Datura fastuosa.

PURPLE YAM, see Lal Guranyo alu.

PURPLE MOUNTAIN EBONY, Eng. Bauhinia purpurea, *Linn.*

PURSA MARAM, Tam. Thespesia populnea, *Lam.*

PURSLANE.

Portulaca sasiya. | Portulaca oleracea.
Choolee, Hind.

Round stem, fleshy leaves, and slightly acid. It is used as an ingredient in salads. It is reared by seeds sown at the commencement of the rains, and will thrive in any soil. Leaves of a succulent nature harmless, tasteless, and inodorous, many varieties are cultivated on the plains for their pretty flowers, raised from seed. Purslane is as common a weed in the Tenasserim provinces as it is in America, and is used by the natives for a pot-herb.—*Riddell; Jaffrey; Mason.*

PURSUNG KAI MARAM, Tam. Thespesia populnea, *Lam.*

PURTALLAH, Hind., a leather belt.

PURTREE, a river near Landhoura in Seharunpur.

PURU, or Paurava. In the time of Alexander there were two princely races belonged to the Puru or Paurava, both called Porus by the Greeks. When the Arians had advanced further and large portions of what is now termed India were under their sway, we read of one monarch with many names—Divodasa, Atithigwa, Aswateha, Prastoka, Srinjaga and Puru. Three of these are found in one verse (Vol. 2, p. 34); "For Puru, the giver of offerings, for the mighty Divodasa, through Indra, has destroyed ninety cities. For Atithigwa the fierce (Indra), hurled Sambara from off the mountain, bestowing (upon the prince) immense treasure." Divodasa was a warrior and a conqueror; he is described as overcoming and destroying many cities of Sambara, reserving one for his own use. He made a successful expedition as far as Parnaya (Quere the modern Purniya?) In his old age at the head of a confederacy of twenty kings, Kusta and Ayu being the chief, he lead an army of 60,000 against the mighty and youthful Sa-sravas, is defeated and compelled to submit. And a writer in the Calcutta Review (No. 64, p. 432), views this war to be the historical foundation for the traditional great war of the Mahabarata. The age of Divodasa is estimated to have been about the time of Cyrus, and the engagement described to have been with some Satrap (Kshatrap), left by Cyrus, when he was occupied with his great Median, Lydian or Babylonian campaigns. It may, however, have been during the rebellions and troubles of the early days of Darius Hystaspes. And by a curious coincidence, Bentley places Garga (the bard of Divodasa) in 548 B. C., and the cautious Professor Wilson suspects an allusion to the buddhists, which could not be earlier than 545 B. C. —*Bunsen, Vol.* iv, *p.* 556. See Porus.

PURU, this kingdom according to Bunsen was established B. C. 3000 by the Aryan emigrants, who afterwards made conquests of Matmaru, Tansu and Iliva.

PURU, son of Yayati, the ancestor of the Kaurava and Pandava. See Hindoo; Pandu dynasty.

PURUDONA, or Ranabilla, Tel. Mallea rothii, *Ad. Juss.*—*W. and A.*, 397. Ekebergia indica, *R.* ii, 392.

PURUGUDU, or Nallapuru gudu, Tel. Anisonema multiflorus, *R.*—*W. Ic.*, 1899.—Phyllanthus mul, *R.* iii, 664.—*Rheede*, x, 27.

PURUK, see Ladak.

PURUM, Hind., of Dharwar narrow strips, sewn together, and used as curtains for the front of shops and houses, and also as tents to protect goods on transit. This is made of the waste warp-ends of pieces of cotton cloth joined together.—*W. C. Anderson of Dharwar.*

PURUM, another description used more for making bags, &c.

PURUMANANDA, Sans., from parama, excellent, and anunda, joy.

PURUMART'HU, Sans., from parama, excellent, and arit'ha, an object.

PURUMATMA. The hindoos do not discompose themselves at the names of God, or Ullah, because they consider these expressions synonymous with Purumeshwur—the Supreme Being, that is to say, the Purumatma, or Supreme Spirit of the Vedantee, the Siva of the Saivite, the Vishnu of the Vaishnuvite. This exalted being, they consider, does not interfere immediately in the affairs of men—

no question of scripture is necessarily brought forward by the introduction of his name. But when the names of Jesus Christ, of Mohammed are employed, the case is different; the hindoos understand these to refer to some man who appeared on this earth, whom Mlech believe to be of similar nature with Ram or Krishn, and the belief in whom is necessarily inconsistent with the belief in their own scriptures.—*Ras Mala Hindoo Annals*, *Vol.* ii, *p.* 441.

PURUM-ESHWARA, Sans., from param, excellent, and eeshwara, God, or more simply, *the glorious.*

PURUM-HANGSHA, Sans., from param, excellent, and angsha, a goose.

PURUNDHUR, a hill fort now resorted to as a sanitarium, is 4,300 feet high, 16 miles from Poona. An account of it is given in Blacker's History of the Mahratta War.

PURUPU KIRE, Tam. Portulaca oleracea, *Linn.*

PURPUT, also Papra, Hind. Oldenlandia biflora.

PURURAVAS, is always called a Rajarshi (Raja Rishi or royal saint.) In the classification of sages, there are three orders; the Rajarishi, or kingly sage, such as Janaka; the Brahmarshi or brahman sage, as Vasishtha; and the Devarishi or divine sage, as Nareda.—*Hind. Theat.*, *p.* 201; *The Hero and the Nymph.*

PURURVASAS, a king who had an amour with the celestial courtezan Urvasi.

PURUSH, *B. & H.* Thespesia populnea.

PURUSHA, Sans. Man: mind.

PURUSHA. A hindu hymn or verse.

PURUSHAMED'HA, Sanc., sacrifice of a man, human sacrifice; see sacrifice.

PURUSHA-RATNAM, Tel. Ioinidium suffruticosum, *Ging.*

PURUSHA SUKTA, see Caste.

PURUSHOTTAMA, one of the names of Vishnu. A name of Krishna as Vishnu. According to the Harivansa, Rukmini was the daughter of Bhishmaka, king of Kundina, and was solicited in marriage by Krishna, of whom she was enamoured; but the son of Bhishma, Rukmi, jealous of Krishna's fame, and being incensed by the death of Kansa, his friend, was hostile to the match, and negociated his sister's marriage with Sisupala king of Chedi, likewise inimically disposed towards Krishna. All the kings of India were invited to the wedding, and amongst them came Krishna, who seeing Rukmini proceed to offer her devotions at a temple, waylaid her on her return, and with the assistance of his brother Balarama and his kinsmen arried her off to Dwaraka. A hot pursuit followed, and an engagement took place in which Rukmi was struck to the ground by Kesava, but his life was spared at his sister's ntercession, and Krishna remained possessed of his prize. The marriage was solemnized at Dwaraka, and Rukmini remained the chief of Krishna's wives. He had ten sons by her, of whom Pradyumna is the most celebrated. The rape of Rukmini is also narrated nearly in the same words, as in the Harivansa, in the 5th Section of the Vishnu Purana, and more in detail in the tenth book of the Bhagavat, and in the Krishna Janma Khanda of the Brahmavaivertta Purana.—*Hind. Theat.*, *Vol.* ii, *p.* 82.

PURUSHITA, see Priests.

PURUSH-PIPOOL, *B & H.* Thespesia populnea.

PURVA PAKSHA, Sans. Reasons contra: uttara paksha, Sans. Reasons pro.

PURVI, Gr. Wheat.

PURVO. A class of hindoos in Bombay, almost exclusively employed as clerks and copyists.

PURVOE, Anglo-Indian. Parbhu, *Wils.*, these according to Col. Tod, are descendants of the ancient Guebre. The Purvoe (Parbhu) of the N. west of the Peninsula of India, is a clerking caste, who claim to be descendants of Chandra Sena, a rajah of Malabar. Brahmans deny this claim and assert that they are of menial origin.—*Wils. Glossary.*

PURWANDURRA, a valley near Kabul, see Lord.

PURWAR, Hind. Trichosanthes anguina.

PURWAN, a river near Benaee in Kotah.

PURWATI. The Purwari of the Bombay army, along with the 2nd Battalion of the 42nd Highlanders, defended Mangalore for 6 months against a force of 40,000 men, and then capitulated honourably.

PUSA GURI VENDA, Tel. Seed of Abrus precatorius, Sans. Syn. of Kasmirah, *W.*, Pushkarah, *W.*

PUSANIAS, see Silk-worm.

PUSA RAI, Tel. Pummice stone.

PU-SE-KIA-LO-FA-TI, or Pushkalavati.

PUSHA, see Kush.

PUSHAN, Pushan, Bhaga. See hindoo.

PUSHAWEE, see Kush.

PUSH'H, a Rind tribe. The great Rind tribes are sub-divided into 44 branches, and though not Brahui are denominated Baluch. Their traditions affirm them to have immigrated ages ago, from Damascus and Aleppo. Their language is the Jetki in common with that of the other inhabitants of Kach gandava and Mard-i-Rind means a brave man. The Rind of Kach gandava are of the Utan-zye divisions.

The Utan-Zye dwell at Suran.
„ Dumbki and Jakrani, dwell at Lehri.
„ Doda Marri dwell at Kahan.
„ Bugti in the hills east of Lehrat, Sing
  Saloh and Teriki.
„ Homarari dwell at Tambu.
„ Jamali „ Rojan.

Of these Rind tribes, the Dumbki, Jakrani, Bugti and Doda Marri, have always been distinguished by their rebellious and predatory habits. They indulged these in attacks on the British armies west of the Indus. The Marri tribe is considerable and inhabit the eastern hills of Kach Gandava, and a peaceful and obedient portion of the tribe are in the hills west of the province below Jell. A large portion are at Adam Marri, on the S. E. frontier of Sind. The Marri of Kach Gandava are notorious for their lawless habits and make frequent inroads on the plains. They and the Maghazzi seem to have emigrated from Mekran to Kutch gandava, at different periods and to have become incorporated with the Jut cultivators. The following minor Rind tribes reside in the north eastern hills of Saharawan.

Kallai at Lup.
Kuchik at Kirta.
Pushh at Johan.
Mandarari at Robdar.
Pugh at Kajuri.

On the western banks of the Indus are two great Rind tribes, the Gurchani, who inhabit Harand and south of these the predatory, but nearly independent, Mazari tribe. The Maghazzi have only four families, the Butani at Jell, being the chief. They are the deadly enemies of the Rind, but are probably of the same race. The Maghazzi are sub-divided into four principal families or clans, of which the Butani of Jell are the most illustrious and give the chief or sirdar, to the whole. They boast of being able to muster 2,000 fighting men, and between them and the Rind a blood fued long existed. The Maghazzi and Rind are alike addicted to the use of ardent spirits, opium and bhang.

PUSHI, see Kocch.

PUSHIARAGUM, Tam., Tel. Topaz,

PUSHINI KAIA, Tam., also Pushni kiray, Tam. Cucurbita maxima, *Duch.*, *W. & A.*

PUSHKALAVATI, or Peukelaotis, Pukkhalaoti, Pukkala, stupa of the 'eyes-gift.' Pushkalavati, or Peukelaotis, according to General Cunningham, the ancient capital of Ghandara was Pushkalavati, which is said to have been founded by Pushkara, the son of Bharata, and the nephew of Rama. Its antiquity is undoubted, as it was the capital of the province at the time of Alexander's expedition. The Greek name of Peukelaotis, or Peucolaitis, was immediately derived from Pukkalaoti, which is the Pali, or spoken form of the Sanskrit Pushkalavati. It is also called Peukelas by Arrian, and the people are named Peukalei by Dionysius Periegets, which are both close transcripts of the Pali Pukkala. The form of Proklais, which is found in Arrian's 'Periplus of the Erythræan Sea,' and also in Ptolemy's 'Geography,' is perhaps only an attempt to give the Hindi name of Pokhar instead of the Sanscrit Pushkara. According to Arrian, Peukelas was a very large and populous city, seated not far from the river Indus. It was the capital of a chief named Astes, perhaps Hasti, who was killed in the defence of one of his strongholds, after a siege of thirty days, by Hephæstion. Upon the death of Astes the city of Peukelaotis was delivered up to Alexander on his march towards the Indus. Its position is vaguely described by Strabo and Arrian as "near the Indus." But the geographer Ptolemy is more exact, as he fixes it on the eastern bank of the river of Suastene, that is, the Panjkora or Swat river, which is the very locality indicated by Hwen Thsang. The river here mentioned is the Kophes, or river of Cabul; and the bearing and distance from Peshawur point to the two large towns of Parang and Charsada, which form part of the well known Hastnagar, or "Eight Cities," that are seated close together on the eastern bank of the lower Swat river. These towns are Tangi, Shirpao, Umrzai, Turangzai, Usmanzai, Rajur, Charsada, and Parang. They extend over a distance of fifteen miles; but the last two are seated close together in a bend of the river. and might originally have been portions of one large town. The fort of Hisar stands on a mound above the ruins of the old town of Hashtnagar, which General Court places on an island, nearly opposite Rajur. "All the suburbs," he says, "are scattered over with vast ruins." It seems to General Cunningham not improbable that the modern name of Hastnagar may be only a slight alteration of Hashtinagara, or "city of Hasti," which might have been applied to the capital of Astes, the prince of Peukelaotis. It was a common practice of the Greeks to call the Indian rulers by the names of their cities, as Taxiles, Assakanus, and others. It was also a prevailing custom amongst Indian princes to designate any additions or alterations made to their capitals by their own names. Of this last custom we have a notable instance in the famous city of Delhi; which besides its ancient appellations of Indrapastha and Dilli, was also known by the names of its successive aggrandizers as Kot-Pithora, Kila-Alai, Tughlakabad, Firuzabad, and Shahjahanabad. It is true that the people themselves refer the name of Hashtnagar to the "eight towns," which are now seated close together along the lower course of the Swat river; but it seems to General Cunningham very probable that in this case the wish was farther to the thought, and that the original name of Hastnagar, or whatever it may have been, was slightly twisted to Hashtnagar, to give it a plausible meaning amongst a Persianized mahomedan population, to whom the Sanscrit Hastinagara was unintelligible. To the same cause he would attribute the slight change made in the name of Nagarahara, which the people now call Nang-nihar, or the "Nine streams." In later times Pushkalavati was famous for a large stûpa, or solid tower, which was erected on the spot where Buddha was said to have made an alms-offering of his eyes. In the period of Hwen Thsang's visit it was asserted that the "eyes gift" had been made one thousand different times, in as many previous existences: but only a single gift is mentioned by the two earlier pilgrims, Fa-Hian in the fifth century, and Sung-Yun in the sixth century.—*Cunningham's Ancient Geography, pp.* 49-51.

PUSHKARAM. This native feast only occurs every twelve years, and lasts during twelve days, takes place in Rajahmundry. Its chief ceremonies consisted in bathing. The Godavery, is the sacred river and the delight of all hindoos who come to bathe in it from places so distant as Balasore, Calcutta, and even the holy city of Benares.—*Ibid.*

PUSHKARA MULANU, Tel. Costus speciosus, *Roxb.*, *Sm.*

PUSCHKI, Rus. Cannon.

PUSHM or Pashm also Pul, Pers. Wool. The Pushm of the wild sheep and ibex is of a delicate grey colour and finer and softer than that of the shawl goat. The wool produced in the Thull, is shipped at Bukkur, or Leia, and sent down to Bombay, and averages 10 Rupees a maund. In Loodiana district Pushmina is prepared from "Pushm," the fine hair of the Tartar goat. The hair is brought down on mules through Ladak, Rampoor and Bussahir, and in exchange for cotton piece goods, brass and iron are taken back. The price of Pushm varies from Rs. 2 a seer. On receiving the "Pushm" the manufacturer's first business is to separate the coarser from the finer or underneath hair; out of each seer about 6 chittacks of the latter are taken. It is then washed in rice water and made into thread. This sells at from Rs. 4 to Rs. 12 per seer according to quality. The thread made of the finest hair is woven into the well-known Rampoor chudders, which are extensively manufactured. From the coarser thread are made shawls of sorts and the cloth known as pushmina.—*Ann. Ind Adni, Vol.* xii, *p.* 108.

PUSHPAKAVIMANA, a self-moving chariot.

PUSHMEE, Hind., wool, Sylees made of it, are worn by fuqeers.

PUSHPAMITRA, see Magadha, Sunga.

PUSHPARAGUM, also Pushyaragam, Tam. Topaz.

PUSHT KOH HAZARAH, see Berber.

PUSHT ALU, Pushtoo., a kind of plum. Alu balu, Pushtoo, a cherry. Alu Bokhara, Pushtoo, a kind of plum.

PUSHTANEH or Affghans.

PUSHT BARNI, Hind. Uraria chetkubra.

PUSHTOO. The term Affghan is acknowledged by a mulitude of tribes speaking the same dialect—the Pushtoo or Affghani but the term itself has no known signification, and is manifestly borne by many people of very different origin, though the people are said to call themselves Pushtoon. According to Captain Raverty, the people who dwell about Cabul and Kandahar, Sharawak and Pishin, are designated B'r-Pushtun or Affghans; and those occupying the district of Roh, which is near India, are called L'r-Pukhtun or Lower Affghans. Persian is the official language of Affghanistan, but the Pushto is alike the common tongue of the uneducated people, of the families of the Sadozye kings, and of the dwellings of the Amir. There are, however, two divisions of the Affghans, termed Pushtun and Pukhtun, who speak Pushto and Pukhto respectively. The Pushto being the western dialect with affinity to Persian, and the Pukhto the eastern with many Sanscrit and Hindi words. The Pushto is spoken, with slight variation in orthography and pronunciation, from the valley of Pishin, south of Kandahar, to Kafiristan on the north; and from the banks of Helmund on the west, to the Attock, Sindhu or Indus river, on the east; throughout the Sama or plain of the Yuzufzye's, the mountainous districts of Bajawar, Banjhkora, Suwatt and Buner to Astor, on the borders of Little Tibet, a tract of country equal in extent to the entire Spanish peninsula. Also, throughout the British districts of the Derajat, Banu Tak, Kohat, Peshawar and the Samah or plain of the Yuzufzye's with the exception of Dera Ghazi Khan, nine-tenths of the people speak the Affghan language. Since the invasion of Mahmud of Ghazni in the eleventh century, there has been a constant influx into India of Affghans, as conquerors and settlers and this has been so great from particular districts that some tribes have altogether disappeared from Affghanistan. In some localities in India, the Affghan settlers are said to have preserved the Pushto almost to its purity up to the present day, having from the outset married amongst themselves. In some parts of Bundelcund and in the territory of the Nawab of Rampur, whole towns and villages may be found in which the Affghan language is still almost exclusively spoken and is the medium of general communication. Captain Raverty considers that although on numerous points, the Pushto bears a great similarity to the Semitic and Iranian languages it is totally different in construction, and in construction, and in idom also, from any of the Indu-Sanscrit dialects.—*Capt. H. G. Raverty's Grammar and Dictionary to the Pushto, Pukhto, or Affghan language.*

PUSHYA BARMA, see Inscriptions.

PUSHYE, see Kaffir.

PUSILAWA, a valley in Ceylon, overhung on its south eastern side by a chain of wooded hills, the last of which, Munera-galla rises upwards of 4,000 feet above the level of the sea and commands a prospect of indescribable beauty and magnificence; embracing far and wide, mountains, forests, rivers, cataracts and plains.—*Ten.*

PUSINI-KAI, Tam. Cucurbita maxima. *Duch.*

PUSINI-KIRE, Tam. Greens of Cucurbita maxima. In books the Pusini-kai is also stated to be the Cucurbita hispida and the Lagenaria pipo.

PUSK OLAY, see Olay.

PUSPUTNATH TEMPLE. The Bhagmutty is here crossed by two narrow Chinese-looking bridges, resembling those on the willow-pattern plates. It is at this sacred spot that devout hindoos wish to die with their feet in the water. Here it is that the bodies of the great are burnt; Martabar Singh was reduced to ashes at the end of the bridge, and so was the Ranee not three months before Oliphant's visit, together with two favourite female slaves, whose society she did not wish to relinquish.—*Oliphant's Journey, pp.* 75, 77.

PUSPUTTY, seems to be meant for Pusapati, which is the family name of the maharaja of Vizianagram near Vizagapatam, and perhaps was that of Seetaram Raz also. The Pusapati therefore probably stands for Seetaram Raz or his family.—*Oram's Report on Kimedy, p.* 2.

PUSSALU, Tel. Glass beads.

PUSSEEL FLOWERS, Anglo-Sindh. Capparis aphylla, *Roxb.*

PUSSEREE, or Pan-siri, Hind., a weight of 5 seers, each 2lbs. 6oz. troy, but varying considerably in different localities, and analogous to the viss or dhurrah.—*Simmond's Dict.*

PUSTUL, Hind. Abies smithiana.

PUSTHAKALU, Tel. Books.

PUSTHAKUM, Tam. A book.

PUSTPA also Asvudum, Sans. Thespesia populneus.

PUSUEL, Hind.? Oryza sativa. *L.*

PUS-WAEL, Singh. Entada, pusœtha, *De Cand, W. & A., Roxb.*

PUT RAJANNA, see Oriza sativa.

PUTA.——? Fishmaws.

PUTA GHONKULU, Tel. Agaricus campestris. See Kalan.

PUTA or Potta Tani-maram, Tam. Careya arborea.

PUTAJAN, or Jiya puta, Hind. Putranjiva Roxburghii. A tree of moderate size, the length of trunk to first branch 12 feet and girth 5 feet. Wood white, hard, not very heavy, strong and durable, close grained, used for zemindar's houses and agricultural implements. Leaves used as fodder, and the fruit used by brahmins as necklaces.—*Powell's Hand-book, Vol.* i, *p.* 541.

PUTA JILLEDU, or Puttajilledu, Tel. Wrightia tomentosa, *Rom.* and *Sch.*—*R.* ii, 6 —*W. Ic.* 443.— *Rheede*, ix, 3 and 4.

PUTALLI MARUM, Tam. Givottia rottleriformis, *Griff.*, *W. Ic.*

PUTA-TANNI MARAM, Tam. Careya arborea, *Roxb.*, *Corr.*, *Rheede.*, *W. & A.*

PUTCHALAI MARAM, Tam. Putchalai wood, Anglo-Tam. Dalbergia paniculata.

PUTCHA-PAIRU, Tam. Phaseolus mungo.

PUTCHAPAT, Beng. Pogostemon patchouli, *Pellet.*

PUTCHAPAT, Marrubium odoratissimum a well-known article in Bengal. Its source was long doubtful, although most extensively used by the natives of this country. The drug is called in Bengallee as well as in Hindee, Pucha Pat, and is found in every bazaar, almost throughout Hindustan, there exists no Sanscrita name for this leaf, which is largely imported by Mogul merchants; it is used as an ingredient in tobacco for smoking, and for scenting the hair of women, the essential oil is in common use for imparting the peculiar fragrance of the leaf to clothes among the superior classes of natives, the people of the peninsula are peculiarly fond of this perfume, as are also the Roman Catholic inhabitants of this country generally.—*Cat. Ex.* 1862; *Dr. Wallich's Transactions of the Medical and Physical Society of Calcutta for* 1835; *O'Shaughnessy, p.* 493.

PUTCHUCK

Kust-i Hindi,	Ar.	Sepuddy,	Maleal.
Kust-i-Arabi,	„	Kust-i Hindi and Kust-i,	Pers.
Kust, Kustus,	Gr.		
Kut, Ooplate,	Guz.	Kushta,	Syriac.
Putchuck, Kut, Ooplate,	Hind.	Kushtam,	Sans.
Costus arabica,	Lat.	Godu mahanel,	Singh.
Pucha,	Malay.	Kostum, Putchuck,	Tam.
		Changala, Kostom,	Tel.

Putchuk is the name by which a fragrant root is designated in the price-currents of Calcutta and Bombay, whence it is exported to Canton, being highly esteemed by the Chinese as an incense, neither the plant which yields it nor the place where it grows were discovered until very recently. It is now known to be the Aucklandia costus and to be a native of Kashmir. The discovery is interesting, as the Putchuk is a substance which was known to the ancients. Dr. Royle, while in the north-western provinces of India, obtained a root which formed a considerable article of commerce, and which was said to be brought from still farther north, that is, from Lahore. It was warm and aromatic in taste, fragrant in odour, and frequently called Orris-Root (Iris-Root) by Europeans in India, though by the natives in northern India it is called Kooth. On comparing specimens of Kooth which he obtained in northern India with what was called Putchuk in Calcutta, he found that they were identical, and he was subsequently informed by Mr Beckett, who was long settled as a merchant in northern India, that what the latter purchased from Umritser under the name of Kooth he sold in Calcutta by that of Putchuk, so that there can be no doubt of the identity of the two substances; but all that had been ascertained with respect to the place where it was produced was, that it seemed to be to the north of the Sutlej. Kooth, being used in India as a medicine, as well as exported to China, is described in the Persian works on Materia Medica in use in that country, and has assigned to it Kust as the Arabic, Kooshta as the Syriac, and Koostus as the Greek name. Three kinds are described. Dr. Royle states that he was only able to meet with two kinds in India, one called Koost-Hindee, and the other Koost-Arabee. These evidently refer to two of the three kinds of Costus described by Dioscorides as the Arabian, Indian, and Syriac. There can be little doubt therefore that the Kooth or Putchuk is one of the kinds of Costus of the ancients, which was highly esteemed by them and formed an ingredient in their most famous compound alexipharmic confections, such as the Theriaca and the Mithridatium. It was also highly esteemed by them as an incense, as, in the line of Propertius—" Ure puer costum Assyrium redolentibus aris;" and is mentioned by Horace as 'Achæmenium costum. ('Od.,' iii. 1.) The identity of Kooth and Costus was, however, long ago ascertained, though not generally known, as is evident in the following passage from Garcias ab Horto, in Clusius ('Exot.,' lib. x.) " Est ergo Costus dictus Arabibus Cost aut Cast; in Malacca, ubi ejus plurimus est usus, Pucho, et inde vehitur in Sinarum regionem." In McCulloch's 'Commercial Dictionary,' Putchook is described as " the root of a plant growing in Sind. When burned it yields a fine smell. The Chinese beat it into a fine powder, which they burn as incense in the temples of their gods." Of the Putchuk, 6,697¾ bazaar maunds, of the value of 99,903 rupees, were exported from Calcutta in the year 1837-38. On Dr. Falconer's proceeding on his journey to Cashmere, Dr. Royle requested him to make inquiries respecting this substance, and he discovered that it was exported from the valley in large quantities to the Punjab, whence it finds its way to Bombay and Calcutta; and that it is sold in China at an advance of about 300 per cent. on the price at which it is gathered in Cashmere. Dr. Falconer subsequently found it growing in great abundance all round the elevated summits of Cashmere. From the plants with which it is associated, and the circumstance under which the Koot grows, being one of the Compositæ, or Thistle tribe with feathered seed, of which when once established the dissemination becomes easy, Dr. Falconer had no hesitation in thinking that it could be produced to an unlimited extent, of the best quality, in the Himalaya at elevations of from 7,500 to 9,000 feet above the sea, and that the Choor mountain alone might be brought in a few years to produce thousands of maunds of it. Preparatory to diffusing the Koot, or Costus, he introduced it into the Himalayan nursery attached to the Saharunpore Botanic garden. Finding that it belongs to a new genus, he named it Aucklandia, in honor of George, earl Auckland, Governor-General of India. In the mountains of Cashmere, it is called Koot, it is a gregarious herb, six or seven feet high. Its roots are dug up in September or October, chopped up into pieces from two to six inches long and exported without further preparation. The greater portion being sent viâ the Punjab to Bombay, whence it finds its way to the Red Sea, Persian Gulf and China. Another portion being sent across the Sutlej and Jumna to Hindustan. In Cashmere the cost of its collection and transport to a mercantile depôt, is about 2*s*. 4*d*. per cwt.: but at Jugadree on the Jumna, it has increased to about 16*s*. 9*d*. or 23*s*. 4*d*. per cwt., and in the Chinese ports it fetches nearly double that price the cwt. The Chinese burn the roots as incense in the temples of their gods; and they also attach great efficacy to it as an aphrodisiac. The imports into Canton in 1850, were 854 piculs, valued at 5,150 dollars. In Cashmere it is chiefly used for the protection of bales of shawls against insects. The exports for Calcutta average about £1,500 annually.—*Royle, on the Productive Resources of India*; *Royle's Illustrations of Himalayan Botany, p.* 360; *O'Shaughnessy's Bengal Dispensatory*; *Simmond.*

PUTCHA UTU WOOD, ANGLO-TAM. See Model-wood.

PUTCHA-PAIRU, TAM. Phaseolus mungo, *Linn.* Ph. radiatus.

PUTCHI KULLU, TAM. Emerald, literally green stone.

PUTCHUK, HIND. Cossyphis aucklandia.

PUTELI, a boat of the Ganges. See Boat.

PUTERA, SIND. Typha elephantina, *Roxb.* The leaves are employed in the East for making mats and baskets.—*Simmond's Dict.*

PUTHAN, see Pathan.

PUTHARMAN, HIND., of Murree hills, Callicarpa incana.

PUTHEN, see Kuki.

PUTHORIN, HIND. Nima quassioides.

PUTHUCHERI or Pudhucheri Valli kelangu, TAM. Dioscorea purpurea of Pondicherry.

PUTHUR KA-PHOOL, or Pathar ka phool, Duk. Lichen rotundatus.

PUTIANG, see Khumia; Kuki.

PUTIKI, Tel. Grewia salvifolia, *Heyne*—*W. & A.* 282.—Not *R.* ii, 587.

PUTIKI, Tel. Grewia Asiatica, *L.*—*W. & A.* 289—*R.* ii, 586.

PUTIKE, Tel. Goughia?

PUTICARAJA, Sans. Guilandina bonduc. *Linn.*, *W. & A.*

PUTI TANNI MARAM, Tam. Caryota urens.

PUTKA or PATKA, Hind. A cloth worn as a kummurbund or waist-band.

PUTKANDA, Hind. Gardenia tetrasperma, also Achyranthes aspera, and Crozophora plicata.

PUTKAY CHAWUL CH'HURANA, Hind. A mahomedan ceremony.

PUTKARI, or Patakri, Duk. Alum.

PUTLANEE, Singh. Xygophyllum simplex, *Linn.*

PUTOL, Beng. Trichosanthes dioica.

PUTOO, Singh., dish made by the Singhalese, of Kelingooo flour, or meal from the young shoots of the palmyrah-palm, scraped cocoanut, and unripe Jack-fruit, and steamed over a boiler.—*Simmond's Dict.*

PUTPUTI-CHEACH-KA, Beng. Isolepis articulata.

PUTRA, Hind., a son, Su-poot, Hind., means 'worthy', or 'good issue' (putra.)

PUTRA JIVI CHETTU, or Kuduru jivi, Tel. Putranjiva Roxburghii, *Wall.*—Nageia putranjiva, *R.* iii, 766—*W. Ic.* 1876—*Rheede*, vii, 59. Putra a son and jiva life, *W.* 541—*Br.* 626, Putrajivaka, and S. K. Putrajivi.

PUTRA JUVVI, Tel. Ficus comosa *Br.* iii, 552; *Cor.*

PUTRANJIVA ROXBURGHII, *Wall.*

Nageia putranjiva, *Roxb.*, *W. Ic.*, *Rh.*

Wild olive.	Eng.	Kudura, juvi,	Tel.
Jiya puta,	Hind.	Putra, jivi,	„
Pongolam,	Maleal.	Yarala,	„
Putrajiva,	Sans.	Mahaputrjivi,	„
Kuduru, jivi,	Tel.		

An ornamental tree growing all over India, from the Himalaya to the south of the peninsula, and a native of the various mountainous countries of Coromandel and Hindoostan. Coromandel, Patna, Monghir hills, and from Sylhet to the Kheree jungle, where it grows to be a large timber tree with an erect straight trunk and a large spreading shady head composed of innumerable expanding branches, with bifarious branchlets. Flowering time March and April and the fruit ripening in January. Wood white, close-grained and very hard. The Sanscrit name is compounded of pootra, a son; and jeeva life. The hindoostani name jeeapootra, is similarly derived. The nuts are strung by parents round the necks of their children, to keep them in health. Extensively sold in the bazaars of upper India.—*Roxb.'s Fl. Ind.*, *Vol.* iii, *p.* 766; *Royle's Illust.*, *p.* 100; *O'Shaughnessy*, *p.* 611; *Rohde's MSS.*

PUTRA KARI, Sans. Euphorbia netilfolia.

PUTROTSAVAM, on the birth of a brahmin child, the ceremony called "Putrotsavam" is performed and on this occasion, the father presents sugar and sugar-candy to relatives and friends. On the 11th day, the mother is anointed with the oil of the oriental sesamum. This practice of anointing with oil, is wholly confined to the hindoo community, the mahomedans whether of India or western Asia are not acquainted with it, and it may therefore be surmised that the Arab descendants of Ismail separated at an age when the ancestors of the Hebrew people had not adopted the rite. It is probable that the Hebrews learned the practice in Egypt or from their Assyrian neighbours, and that the anointing of kings which European nations have adopted was handed down through the Old Testament. On the same day (11th) "Punyahavachanam" or the purification rite for the mother and house is performed. It is then that the child receives its name—that of some one of its grand, or great grand parents,—by the father writing it three times, with a golden ring, in unhusked rice, spread on a plate. This naming is called "Namakaranam," and is followed by the guests bestowing blessings on the young one, as they scatter rice, coloured with turmeric, over it, and the mother who are seated in the midst of the assembly. The father then distributes money to the poor, and entertains relatives and friends. On this night, for the first time, the child is put into the cradle by the female guests, some of whom sing religious songs while others rock the little one, and at the close, the assembly are dismissed after being presented with betel-nut, plantains and boiled pigeon pea, Cajanus indicus. The birth of a girl is less a source of rejoicing because of that part of the hindoo creed which lays down that parents and other ancestors attain Swargalocum or Indra's heaven, through a son's efforts.

PUTRUJ BARK, Hind. Cinnamomum nitidum, *Nees.*

PUTRAY, a board on which dough is kneaded and moulded.

PUTRONJI. See oil.

PUTSA-KAIA, Tel. Colocynth. Cucumis colocynthis.

PUTSA PESALU, Tel. Phaseolus radiatus.

PUTSO, Burm., a cotton cloth, about four yards in length and one in breadth, which, with Burmans, is put round the hips, and when worn long extends to the ankles. In the absence of the jacket or "Enji," the long end of the Putso is thrown over one shoulder, in a graceful manner, and then it not a little resembles a highland plaid and kilt.—*Winter's Burmah, p.* 54.

PUTSUN, Hind. Crotalaria juncea.

PUTTA, Qu. Patta— ? Corchorus olitorius.

PUTTA, Tel. Bark.

PUTTA, or Puta, Tel. Wrightia tomentosa.—*Rom. Et. Sch., W. Ic.*

PUTTA BUHYE, the great 'register of patents' of Mewar. Heentah was burthened with the service of fourteen horse and fourteen foot; its rek'h, or nominal value, in the putta-buhye or 'record of fiefs', being seven thousand rupees; Buhye is the ordinary term for a ledger.

PUTTAH, Hind. A double-edged sword, with a guard-handle, or basket-hilt.—*Simmond's Dict.*

PUTTAI, Tam. Putta, Tel. Bark.

PUTTAKI, Sans. Alum.

PUTTA PODARA YARALA, Tel. Vallaris dichotoma, *Wall., W. Ic.*

PUTTARA (err. Paytara) a large rattan or bamboo close basket.

PUTTA JILLEDU, Tel. Wrightia tomentosa, *Rom.*

PUTTA KOKKA, Tel. Agaricus campestris, *L.*

PUTTANG or Pattang, Duk., Guz., Hind., Mahr. Cæsalpinia sappan, *Linn.* Sapanwood.

PUTTANI, Tam. Pisum sativum, see Batani.

PUTTA PALA or Korivi pala, Tel. Ixora parviflora, *Vahl.*

PUTTA PODARA YARALA, Tel. Vallaris dichotoma, *Wall.—W. Ic.* 438—R. ii, 19.

PUTTATA, also Alu, also Rutal, Guz., Hind. Sweet potatoes,

PUTTA THAMARA, Maleal. Macaranga indica, *R. W.*

PUTTA TIGE. Niebuhria oblongifera, *DC.* Capparis heteroclita, *R.*

PUTTAY, Tam. Bark.

PUTTEE, Hind. A leaf of the Sorghum vulgare, *Linn.*, held between the lips and sounded.

PUTTEE or Pattee, Hind. Writing leaves of the Palmyra, see Olay.

PUTTEE, Hind. A mahomedan rite held on the third day after the woman's confinement.—*Herkl.*

PUTTEUN KI SEND, Duk. Euphorbia netilfolia, *Linn.* E. nereifolia.

PUTTE WAGH, Mahr. Felis tigris, *Linn.*

PUTTEE, Hind. The side locks over the temples.

PUTTEN, a Cochin-Chinese coin of the value of ten pice (4*d.*,) which has recently become the general circulating medium, available for all ordinary purposes. Eighteen putten and six pice, should go to the rupee, but it varies two or three pice, according to local circumstances.—*Simmond's Dict.*

PUTTI, Tel. Properly Patti or Pratti, Gossypium indicum, *Lam.*

PUTTOO a thick woollen blanket woven on the Spiti hills. A coarse thick fabric made of the refuse wool and long hair from the shawl goat.—*Simmond's Dict.*

PUTTOO a Rajpoot sovereign who perished in the defence of Cheetore; he was only sixteen years of age, and had lately married. To check any compunctious reluctance that he might feel in leaving his wife behind, his heroic mother armed the young wife as well as herself and with her descended the rock and the defenders of Cheetore saw her fall fighting by the side of her Amazonian mother.—*Tr. of Hind., Vol.* ii, *p.* 381.

PUTTOOA or Juanga, a forest tribe inhabiting the tributary Mahals of Cuttack to the south of Singbhoom, in the Mahals or Killahs of Keonjur, Pal Leyra, Dhekenal, and Hindole. They are said to number, 1,500 persons of all ages and to occupy 15 different localities, thirty villages in Keonjur, and six or seven in Pal Leyra and Hindole. Their stature is diminutive, men 5 ft. 2 in., women, 4 ft. 3 in. or 4 in. The men dress like peasantry of the country: the women, however, only cover their persons in front and behind by a bunch of twigs with the leaves attached, kept up by a strip of bark or a string of beads. These leaves are changed daily. Their pursuits are chiefly those of the chase, in which they employ dogs, and the bow and arrow.—*Ben. As. Journ., No.* 4 *of* 1856; *Dalton's Ethnology of Bengal.*

PUTUN, see Korum devi.

PUTURA, a river of Bhopal.

PUTUR, 13° 26′; 79° 34′, in the Carnatic, on the northern foot of the Nagari pass. Dak bangalo, 523 feet above the sea.—*Schl., Ad.*

PUT-VER, Maleal. Madder.

PUTU VERUSEN NAR, Maleal. Crotalaria juncea fibre.

PUTWA, Hind. A braider, a maker of fringe and tape.

PUTWA, Hind. String and rope made from the fibre of Bauhinia racemosa.—*Simmond's Dict.*

PUTWARREE, Hind. A registrar or collector under an Indian zemindar, or land-holder.—*Simmond's Dict.*

PUTWURDHUN, a powerful family, of Mahratta brahmins, with estates near Kolapore.

PUVANDI, Tam.? Sapindus emarginatus, *Vahl.*

PUVANG KAI, also Puvarsang-kai. Tam. Fruit of Thespesia populneus.

PUVANKU RUNAL, Maleal. Vernonia cinerea, *Less.*

PUVARASA MARAM. Thespesia populnea, *Linn.*

PUVVU DANIMMA, Tel. Punica granatum, *L.—var. B.* Double flowers.

PUVVULA GURIVENDA, Tel. Flowers of Abrus precatorius.

PUVVU GUTTI GADDI, Tel. Amphidonax karka, *Lind.*—R. i, 347. Sans. Nata, W.

PUVVULU PUTIKE, Tel. The common yellow composite.

PUVU MARAM, or Pu maram, Tam. Schleichera trijuga.

PUVUNU, Sans. from poo, to purify.

PUWAH or Puwa. Trans.-Indus, manured soil.

PWAI NGYET, Burm. Is a resin found in the bazaars throughout Pegu. It is yielded by the Shorea robusta or the Saul-tree of India, which occurs plentifully in the forests on the Shan side of the Sitang, east of Toungho, and also, but to less extent, in the forests of the Prome district. An observer had not found, however, that this dammer is obtained from these forests, as none of the trees appear to have been perforated for it, so that the supplies of this article are probably brought down to Pegu from forests beyond the frontier.—*McClelland.*

PWAN-HIA, Chin. Midsummer root.

PWO, eight tribes in Burmah speak the Pwo dialect. The Pwo and the Sgau as we approach the sea-board, are found mingled more or less together from Bassein and the Sitang to Mergui, living in the same villages, but apart from, though more numerous than, the Sgau. The Sgau call them Pwo, but their own name is Sho, and the Burmese call them Meetkhyen, or in some sections Talaing Karen. They are muscular and prefer the plains. All the Pwo burn their dead.—*Mason, p.* 92. See Karen.

PWON, a tribe with Shans on their north and south on the righ bank of the Irrawaddy in L. 24° 30′ N.

PYÆ BAN NYO Burm. Cassia, *sp.*

PYAK, Hind. Alnus.

PYAUNG-PYION, Burm.? In Tavoy, a compact, heavy, yellow wood.—*Mr. Blundell.*

PYCNONOTUS HÆMORRHOUS, *Gmel.* The bulbul, the Condatchee bulbul, which, from the crest on its head, is called by the Singhalese the "Konda cooroola," or Tuft bird, is regarded by the natives as the most "game" of all birds; and training it to fight was one of the duties entrusted by the kings of Kandy, to the Cooroowa, or headman, who had charge of the king's animals and birds. For this purpose the bulbul is taken from the nest as soon as the sex is distinguishable by the tufted crown; and secured by a string, is taught to fly from hand to hand of its keeper. The bulbul of Ceylon, the Condatchi bulbul, is the Pycnonotus hæmorrhous. Another bulbul is the Pycnonotus leucogenys.—*Gmel.*

PYDI-TANGEDU or Pydu, Tel. Cassia sophora.

PYEN DAN GNA LEN, Burm. Sida, *sp.*

PYEN-KADO, Burm. Inga xylocarpa.

PYEN-MA, Burm. Lagerstrœmia macrocarpa, *Roxb.* In Amherst, its timber used for house posts, carts, boats, paddles, oars, &c. It is a capital wood, and would answer for all the purposes of common saul; specific gravity 0·920.—*Cat. Ex.* 1851.

PYENG-KHADO, Burm.? In Tavoy, a small sized, heavy, close grained, red wood.—*Mr. Blundell.*

PYHURA, Hind., of Bundlecund, Cotton-gatherer.

PY-IN-TA-GAR-NE-THI, Burm. Galls.

PYKAR, Hind., of Doab, Cotton-gatherer.

PYKARA, a small river on the Neilgherry hills.

PY-NA-THE, Burm. Artocarpus, species.

PYOO, Burm. Arundo.

PYOUNG, Burm. Sorghum vulgare, also S. saccharatum, *Pers.*

PYOUNG-BOO, Burm. Zea mays, *Linn.*, *Roxb.*, the Maize.

PYRAMID. The three principal pyramids of Egypt are seen from Cairo. They stand upon the first hill between Cairo and the western bank of the Nile, in going thither from Geesh. They are built of soft calcareous stone, of the same nature as the rock on which they stand. It is thus presumable, that all the polished stone has been taken from the same place, and wrought at small expense. The purpose of erecting the pyramids of Egypt, seems to have been to use them as they have been supposed to be the granaries of Joseph; to have been built by king Saurid, before the flood, to preserve himself and the public records: as having been built by the Israelites in their captivity (Josephus) as temples; and the stone chest a font, (Shaw and Bryant;) the tomb of Cheops, who is supposed to have built them; as having been built by the shepherd kings, in the early Pharaohnic ages; they have been supposed to have been built for astronomical purposes, (Wilkinson) and to have served for tombs. (Wilkinson.) To keep the people employed and poor. (Aristotle, vol. vii); the historian Manetho says, that Suphis and his successor built the two greatest of these pyramids. Each of these huge piles stands upon a square plot of about eleven acres, and its four sides met at a point about five hundred feet high. The stones were quarried out of the neighbouring hills, and some from the opposite side of the Nile, and are all of a great size, and carefully cut into shape. In the limestone quarries of Toora, opposite to Memphis, the sculptures on the face of the rock tell us of the size of the stones there cut. In one place six oxen are dragging along a sledge with a block of stone on it, which measures eight feet by four; and the early date of the sculpture makes us suppose that this stone was to form a part of the casing for the pyramids. We see in these buildings neither taste nor beauty, but their size and simplicity raise in us a feeling of grandeur, which is not a little heightened by the thought of the generations which they have outlived. They take their name from the words Pi-Rama, the mountain, and though when compared with mountains they may perhaps seem small, when measured by any human scale they are found to be truly gigantic. They are the largest buildings in the world. It is not easy to imagine the patience needed to build them.

First Pyramid,	Base.	746	ft. sq.	Perp. height.	450 ft.
Second	„ „	690¾	„	„	447 „
Third	„ „	354½	„	„	203 „

The second pyramid is in some points of inferior workmanship to the great one.—*Sharpe's History of Egypt, Vol.* i, *p.* 24.

PYRAMIDAL FORMS, are those ordinarly given tc the temples of the non-Aryan races of India. All Fijian temples have a pyramidal form and are often erected on terraced mounds; in this respect reminding us of the ancient central American structures. We meet the same terraced mounds also in Eastern Polynesia, with which Fiji and all other groups of the south sea, shares the principal features of its religious belief. The supreme god in Fiji is Degei (pronounced Ndengei) known in the other groups as Tanga-roa, or Taa-roa, Tanga being his proper name, "roa" an adjective, signifying "the far-renowned," perhaps, also, the "most high." To him is attributed the creation and government of the world; and there are no images of him, nor of any of the minor gods, collectively termed "Kalou." His sway is universally acknowledged by the natives, and no attempts are ever made to elevate any local gods above him Bure-Kalon is the temple.—*Galton's Vacation, Tourista, p.* 269.

PYRETHRON, Gr., of Dioscor. Anthemis pyrethrum, *H. Kunth.*

PYRETHRUM INDICUM, *H. Kunth.*

Anacyclus pyrethrum, *Dec.* | Anthemis pyrothrum, *L.*

Indian fever few,	Eng.	Pyrethron,	Ger.
Pellitory of Spain.	„	Zoenil,	Punjab.
Akerkurra,	Hind.	Akarakarm,	Tam., Tel.

This root was known to Dioscorides and is still employed in Eastern medicine. The plant is a native of the north of Africa, whence it has been introduced into the south of Europe. Hayne believes that the root is yielded by a nearly allied species which he calls A. officinarum, ix, t. 46, and which he found cultivated in Thuringia.—*O'Shaughnessy.*

PYROLIGNEOUS ACID, is made from cocoanut shell in India, Acetic acid, from Cytisus cajan.

PYROPE. A variety of garnet, brought from Burmah. It is characterized by giving to transmitted light a yellow tinge, or as the natives say, the colour of the ox's gall; and hence the Burmese name, which, in Pali, signifies ox-gall.—*Mason.*

PYROSOME, a genus of molluscs which is often met with spread over great tracts of the tropical oceans, which at night gleam with their phosphorescent light. These, like the Compound Ascidians, consist of large colonies of small individuals, aggregated in the form of a cylinder open at one end. These molluscs are often observed in shoals floating on the surface of the sea, emitting a bright phosphorescent light of a greenish lustre.—*Hart.*

PYRRHOCORAX ALPINUS, the alpine chough, feeds on mulberries. This species is easily distinguished from the Cornish chough (also a native of Ladak) by the bill being shorter, and yellow, instead of red.

PYRRHOSIA HORSFIELDII, *Blume.*

Horsfieldia odorata, *Wd.* | Myristica horsfieldii, *Spr.*

Wild nutmeg,	Eng.	Kat-jadika,	Tam.

A tree of the forests of Travancore; its mace is used in medicine.—*Drury's Useful Plants.*

PYRRHULA AURANTIA is the orange coloured bullfinch and red-headed bullfinch is P. erythrocephala; the latter is not uncommon in shady groves and woods of the lower and middle regions; about 6 inches in length, head, neck and breast reddish yellow, becoming fainter towards the belly; the vent and rump white; back bluish-ash; quills and tail glossy black.

PYRULA, a genus of molluscs.

PYRUS ACUPARIA, *Gœrtn.*

P. ursina, *Wall.*

Ranthual,	Chenab.	Battal,	Jhelum.
Wampu, Litsi,	„	Rangrek,	Sutlej.
Mountain ash,	Eng.		

A small tree of the Punjab Himalaya, at 8,500 to 11,500 feet.

PYRUS COMMUNIS, *Linn.*

P. sinensis, *Lindley.*

Kumusra,	Ar.	Tang, Batang,	Jhelum.
Kummitei,	„	Batank,	„
Pear tree,	Eng.	Kishta, Bahira,	Pushtu.
Nak, Amrud, Naspati,	Hin.	Chooi,	„

This plant of Kaghan, is the pear tree of English orchards, easily distinguished from the apple tree by the shape of its fruit. The pear tree is not common in Deccan gardens though some trees are to be found having been brought chiefly from Bangalore; the fruit is of a tolerable large size but coarse and hard, which only renders it fit for baking and stews. The same kind of fruit is found in the upper provinces of Bengal. Wallich found a species of pear tree growing on limestone mountains, near the Irawady; Mr. Mason had never met with it in the Tenasserim provinces.—*Cleghorn's Punjab Report, Kulu and Kangra, p.* 81; *Eng. Cyc.*; *Riddell*; *Mason's Tenasserim*

PYRUS CYDONIA, *Linn.*

Cydonia vulgaris, *Pers.*		Behee,	HIND.

The quince tree has probably been introduced from China or Bengal, but is now to be met with in many gardens. It grows like the apple. The fruit is plentiful at Sattara, and Dr. Riddell met with it at Poonah. In other parts of the Deccan he has seen the tree in blossom, but the fruit did not set,—perhaps for want of proper treatment.—*Riddell.*

PYRUS KUMAONENSIS, *Wall.*

Ban-pala,	BEAS.	Aria,	PUSHTU.
Litsi, Mahaul,	CHENAB.	Ehrh,	"
Chota,	JHELUM.	Kanglu,	RAVI.
Chitana,	KAGHAN.	Maul,	"
Mail tang,	"	Mar-phol,	SUTLEJ.
Doda, Dodar,	HIND.		

A plant of Kaghan and the Punjab-Himalaya from 6,000 to 10,500 feet.—*Cleghorn.*

PYRUS LANATA, Pyrus crenata and Pyrus pashia all furnish edible fruits, are indigenous to the Himalayas, the two former are called "Paltoo" by the natives.

PYRUS MALUS, *Linn.*

Tuffah,	ARAB.	Chooi,	PANGI.
Apple tree,	ENG.	Tsoont,	"
Seb,	HIND., PERS.	Paloo,	PANJAB.
Sher,	JHELUM.	Manra,	PUSHTU.
Seo-cho,	LAD.	Amroo,	"
Kooshoo,	"	Khajoo,	RAVI.
Malus,	LAT.	Seba,	SANS.
Choong; Choont,	PANGI.	Li,	SUTLEJ.

The apple tree is found in the Sutlej valley between Rampur and Sungnam, in Persia, all over the Deccan, and at Bangalore. The apples of Kunawar want flavor compared with those in Kashmir. The two sorts of apples commonly found in most native gardens in the Deccan, are said to have been first introduced from Persia. They are of a small description; one sweet and luscious, grows in bunches; the other, which is larger, has a rough taste, and is better adapted for tarts. The trees may be propagated by layers, suckers, and even cuttings. The young plant should never be allowed to throw out branches at less than two or three feet from the ground, all the buds beneath must be rubbed off. Never plant them closer to each other, than from nine to twelve feet and if there is sufficient ground, keep them separate from other trees, so that they can either be wintered or watered as required. Remove all suckers round the stem of the tree, or from the roots, unless required for stocks, then cut them clean off with a sharp knife. The trees may be opened immediately after the rains, if not in blossom. Pluck off all the leaves carefully and beware, in so doing, that the blossom buds are not injured, which native gardeners in the careless manner of stripping the leaves, are very apt to do;—then prune the tree. As soon as the blossom appears set, put plenty of old rich manure to them, and water well every third day until the fruit is nearly ripe. If you continue watering after this, it makes the fruit mealy and insipid. When the fruit is all gathered, cease to water the trees, and as soon as the leaves turn brown and dry, which will be in the course of a month, then open the roots for two or three days, cover with manure again, and water well as before, when you may probably get a second crop in April or May.—*Cleghorn's Punjab Report, p.* 65; *Riddell, on Gardening.*

PYRUS SINICA, the Sand pear of China. It is cultivated in Northern India.

PYRUS TOMENTOSA, *Roxb.* Cydonia vulgaris, *Pers.*

PYRUS VARIOLOSA, *Wall.*

Kithoo, Keut,	BEAS.	Batangi,	JHELUM.
Keiut, Kithoo,	CHENAB.	Shindar; Tang,	KAGHAN.
Gadkooji,	"	Tangi,	"
Shogul,	CHAMBA.	Mahool; Mehal,	KUMAON.
Wild pear,	ENG.	Kiat,	RAVI.
Sanjad,	HAZARA.	Shegool,	SUTLEJ.

A small tree grows in all the warm valleys of Kamaon, wood close-grained, brown, compact, used in Ladak for boards of books and printing blocks and for making native combs. The fruit eaten, when over-ripe and decaying, like the European medlar. The elevation is from 3,000 to 7,000 feet. The tree is frequent in Murree and Hazara. This is found in the Sutlej valley between Rampur and Sungnam at an elevation of 3,000 to 7,000 feet. When rotten, the fruit becomes sweet.—*Thomson's Travels*; *Cleghorn's Punjab Report, p.* 65.

PYSONEE, a river near Singpoor in Banda.

PYTAN-KAI, TAM. Dolichos tranquebaricus.

PYTHAGORAS, a learned Grecian. See Damon, Kapila, Vedas.

PYTHAGOREAN BEAN, Nelumbium speciosum, *Willd.*

PYTHEUS, see Serpent.

PYTHIAN APOLLO, see Krishna.

PYTHON, a name of Apollo. See Krishna.

PYTHON, of the Greeks, the Peten of the Hebrew and Bœten of the Arab, was a fabulous huge serpent. It had an oracle at Mount Pernassus. Apollo is said to have slain this serpent, hence his name Pythius.

PYTHONESS, (πυθωνες) of the Greeks, was a divining woman, as in Acts, xvi, 16.

PYTHON, a genus of reptiles.

Fami. Xenopeltidæ.

Xenopeltis unicolor, *Rein.*, S. India, Pegu, Andamans.

Fam. Pythonidæ.

Python reticulatus, *Schn.*, Nicobar, Tenasserim.
„ molurus, *Linn.*
Boa constrictor, *Linn.*
Gongylophis conicus, *Schneid*, Upper India.
Eryx johnii, *Russell*, Pind Dademkhan.

The python snake is often observed hunting after frogs in damp situations; it is known to the natives by the name of Ajda, and is a true python, and not as some travellers have named it the boa constrictor, which it is needless to remark is not a native of Asia.

PYTHON MOLURUS, *L.*

P. trivittatus, *Schl.—Russell*, 1, *pl.* 22.
Boa or Rock snake, of Europeans in Madras.

This is found all over the country, but has not been seen longer than 19 feet. One was killed in Travancore, after having swallowed a a doe-spotted deer.

PYTHON RETICULATA, *Gray.* It is the Ceylon boa, attain a length of 20 feet. Anakonda of Ceylon. It is occasionally of great size, but perhaps rarely exceeding twenty feet, though Mr. Sirr mentions that when full-grown, it is said to measure from 17 to 20 and even 25 feet long, with a circumference of two and a half feet.—*Sirr's Ceylon.*

PYU, the Burmese who occupied Prome distinct from the Burmese proper.

Q is the seventeenth letter of the English alphabet, and has but one sound, somewhat similar to *k* or hard *c*, but formed near the root of the tongue. In English it never ends a word, as it does in French and other European languages. Its nearest sound in the Arabic, Persian and Hindustani is represented by the letter ق as in taluq, killah, but it may be represented by the letter *k*. In English it is always followed by the letter *u*, the two letters being in general, pronounced like *kw*, as quake, quack, quick, queen, but in some words the *u* is silent as in pique. But, although the three consonants, C, Q, X, are called superfluous in English grammars, Q, historically represents a Hebrew and an Arabic letter: hence it has been generally so employed by the learned. The English always have *u* after Q. In Qâl قال the Q is a deep soft K, formed at the root of the tongue.

QADIRI, a subjunction to names of a tribe of fuqeers. Qadireea, an order of devotees.

QADIR WALLEE, a celebrated mahomedan saint.

QAF, a fabulous mountain.

QAFEELA, Ar. A body of travellers, a caravan.

QAMUT, Ar. Part of the Takbeer, or mahomedan creed.

QAZEE, Ar. A judge, civil, criminal, and ecclesiastic.

QÆAM, Ar. The standing position in mahomedan prayer.

QIBLA, Ar. The temple of Mecca.

QOOFOOL, Hind., a lock for resolving mysteries.

QOORBANEE, Ar. The sacrifice, see Kurban, sacrifice.

QOOTOOB SAHIB, or Qoottoob ood Deen, lies buried at Qootoob, a town near Delhi named after him, in which the late Shah Alum and many members of the royal family of Delhi are buried. His tomb is much frequented by pilgrims, he being one of the most renowned and venerated of the moosulman saints.

QORAN, Ar. The Holy book of mahomedans. It was originally in Arabic, but is now in Persian, Hindi, Malay. It was translated into English by Mr. George Sale.

QOWL-BEERA, Hind. The betel contract, a ceremony of mahomedans.

QUADRUMANA, Cuvier's name for his second order of Mammiferous animals, an order which must be always viewed by the Zoologist with great interest, inasmuch as it contains those forms among which will be found the nearest approach—though the distance is still great—to man. The order Primates of Linnæus consisted of the genera Homo, Simia, Lemur, and Vespertilio.

QUAGGA, also written couagga, is the equus quaccha, *Gm.*, a native of Africa. It resembles the horse more than the zebra. Its voice is not unlike the bark of a dog.—*Cuvier.* See Kyang.

QUAH-LAY, Malay. Mucuna pruriens.

QUAIL. Mr. Gould recognises the common quail of India as distinct from the European quail. The quails of British India, are arranged by Jerdon under the Genus Perdicula, the dwarf partridges, or bush quails, and the sub-family Certurnicinæ or true quails, also the sub-family Turnicinæ or bustard quail.

Perdicula cambayensis, *Latham*, jungle bush quail, all India.
„ asiatica, *Latham*, rock bush quail, Dekhan S. of Nerbudda.
„ erythrorhyncha, *Sykes*, painted bush quail, Ghats of S. India.

Coturnix communis, *Bonaterre*, large gray quail, or European quail, Europe, India.
;, coromandelica, *Gmel.*, rain quail, black breasted quail, all India.
„ novæ-zealandiæ, *O. & G.*, New Zealand.
„ pectoralis, *Gould.*
„ realteni, *S. Müller.*
„ histrionica, *Hartl.*

Excalafactoria chinensis, *Linn.*, blue breasted quail, British India to Philippines.
„ novæ-guineæ, *Gmel.*, New Guinea.
„ adamsoni, *Verreaux*, Celebes.
„ minima, *Gould*, „

Turuix taigoor, *Sykes*, black breasted bustard quail, Ceylon, British India.
„ ocellatus, *Scopoli*, Hill bustard quail, Himalaya to Malayana.
„ dussumierii, *Temm.*, larger button quail, all India.

Sykesii, *A. Smith*, button quail, all India.

Coturnix communis, the common quail of Europe, Asia, Africa, is chiefly migratory and is abundant in India, though M. Gould considers the race of this country to be distinct. The rain-quail (Coturnix coromandelica) is plentiful during the monsoon. The Bush-quail occurs in low jungle. Now and then among the prickly shrubs by the margins of the fields, a covey of ten or twenty bush-quail (Perdicula asiatica) sprang up with a whirring noise. Quails are haunted in N. China. The hawk is loosed to the quail which it seizes in its talons,—the falconer then rushes up and takes all in a net.—*Adams*; *Jerdon*; *Blyth*. See Birds.

QUAKERS, see Sands.

QUAKING GRASS, Briza.

QUAMOCLIT, a genus of climbing plants of the natural family of Convolvulaceæ, chiefly found in the hot parts of America, but species are indigenous both in India and China.

QUAMOCLIT ALBA, pure white, common, easily grown from seed, *Jaffrey*.

QUAMOCLIT COCCINEUM, *Choisy*.

Ipomœa coccinea, *L.*	Convolvulus coccineus, *Spr.*

A native of West Indies.

QUAMOCLIT PENNATUM, *Voigt*.

Convolvulus pennatus, *Des.*
„ quamoclit, *Spr.*
„ pennatilius. *Salis.*
Ipomæa quamoclit.

Myat lase nee,	BURM.	Surya ratnalu,	TEL.
Jasmine rouge,	FR.		

The French and Burmese call this beautiful little creeper red jasmine, the English name it China creeper, and the botanists quamoclit or dwarf bean. It is quite naturalized throughout the Tenasserim provinces, the French name is both more descriptive and euphonious than either of the others.—*Roxb*; *Mason*; *Voigt*.

QUAMOCLIT PHŒNICEUM, *Choisy*.

Ipomœa phœnicea, *Roxb.*	Kasi ratnalu, *Tel.*

A very handsome climber with crimson flowers, tube long and slender; grows readily from seed—*Jaffrey*.

QUAMOCLIT VULGARIS. The Indian forget-me-not, sometimes called the star creeper, from the shape of the flower which is of a deep rosy red.—*Jaffrey*.

QUARA TAUVIL, EGYPT. Cucurbita lagenaria—*Linn.*

QUARRYMEN, or masons the Upera wanloo, or Wadi wanloo of Telingana, are employed in digging tanks, making salt, and in road-making.

QUARTZ is nearly pure silica. It occurs both massive and in crystals of all sizes and of a great variety of colours. It breaks into tabular, cubical, pyramidal, and conical masses; usually shining or glistening on the surface; the fracture is conchoidal in one direction, coarse and plintery in the others; occasionally it has a parallel fibrous fracture; but the surfaces are most frequently triangular on one side. This nd the conchoidal fracture with the shining r translucent appearance, distinguish it from lspar. It crystallizes in hexagonal pyramids, s harder than felspar, cannot be scratched by teel, becomes opaque when heated but does ot melt without addition. Specific gravity ·650. Is much used in the bodies of pottery nd in making enamel and glass. Quartz rock as been found the richest in metals of all the Indian rocks. At Callastry it contains lead ore mixed with silver; at Nellore, copper; at Nagpore, manganese and lead ore and copper; micaceous iron ore is a very common product of this rock.

Green and red Quartzose sandstone of Vellore, used formerly by farriers, but now replaced by sills of corundum and lac.

Yellow Quartzose sandstone, of Woodiagherry used formerly for giving a first edge to swords, daggers and implements, hard, rough and well suited for grindstones.

Quartz, is the hardest component of granite, and is also the least liable to change, it forms about one-third of the whole constituents, and is a source from which much of the sand on the surface of the globe is derived.—*Journ. of Asiatic Soc.*, *Vol.* xiii, *p.* 161; *M. E. J. R.*

QUASI, see Khyber.

QUASSIA, a bitter drug, the woods of Quassia excelsa, and Q. amara.

QUASSIA AMARA.

Bitter quassia,		Quassienholz,	GER.
Bois de quassie,	FR.	Lenode quassia,	SP.

This native of Surinam, Guiana, Colombia, and Panama, was introduced into Bengal by Lord Auckland. It thrives tolerably well in the Calcutta Garden. Quassia wood is a very pure and simple bitter, and has been much employed in bilious and intermittent fevers, dropsies from debility, atonic gout, and indeed in all cases in which bitter tonics are advisable. The English brewers use it freely as a substitute for hops, although it is thought to have some degree of narcotic power, a decoction of quassia being much used as a poison for flies. Quassia is with mueh difficulty reduced to powder, and is consequently given in the forms of extract, tincture, infusion, and decoction.

QUASSIA SIMARUBA.

Bitter, or mountain damson.
Simaruba amara, *Lindley*.

The bark is used medicinally.—*O'Shaughnessy*, *p.* 267.

QUASSIENHOLZ, GER. Quassia.

QUAURYETE, MEX. Tobacco.

QUDUM-BOSEE, or Zameen-bosee, HIND. A humble salutation.

QUDUM-I-IBRAHEEM, PERS., the footstep of Abraham.

QUDUM-I-MOOBARIK, PERS., the blessed footstep.

QUDUM-I-RASOOL, PERS., the footstep of the messenger, Mahomed.

QUEDAH, see Kedah.

QUEEKSILBER, GER. Mercury.

QUEEN.

Malikah, AR., HIND., PERS.		Reime,	FR.
Queen,	ENG.	Rani,	HIND.

QUEEN BALKEES, see Saba.

QUEEN LAGERSTRÆMIA, ENG. Lagerstræmia regina.

QUEEN OF SHEBA, see Saba.

QUEEN'S WOOD, Brazil wood, Cæsalpinia.

QUEEN COCOANUT, the fruit is of a bright gold colour, and the blossoms, both of that and of the common kind, are very effective among the dark leaves.—*Frere's Antipodes, p.* 162.

QUEEN MOUNT, see Malacca fort.

QUEIJO, PORT. Cheese.

QUEL PERT, an island in the gulf of Leatong, about 42 miles long and 17 miles broad. The Quelpertians are very unprepossessing in their appearance, rude and boisterous in their manner, and of very gross habits.—*Marryat's Indian Archipelago, p.* 182.

QUEMOY, A large island separated from Amoy by a channel from 5 to 7 miles wide, in the centre of which is little Quemoy island.

QUERCACEÆ, *Mirb.* The nut tribe of plants comprising, 5 gen. 60 species, viz., 2 Carpinus; 2 Corylus; 9 Castanea: 46, Quercus; 1 Lithocarpus.

QUERCUS. The oaks, and the chestnuts are well-known for their rich and luxuriant growth, and as forming the ornaments of European forests, The barks of oaks, alders, birches, willows and poplars abound in gallic acid and tanning, and all have therefore been frequently employed for that purpose, also as tonics and febrifuges, Quercitron, the bark of the North American Quercus tinctoria, dyes wool yellow. Gall-nuts called majoo phul, are imported into India, being produced by the puncture of Cynips quercusfolii or Quercus infectoria a native of Asia Minor, Armenia, and Kurdistan. Q. Ilex and Q. Cerris afford inferior galls. The cupules of the glands of Q. Aegilops, called velonia and velani (a corruption of βαδανι) and velameda by the modern Greeks are collected in Ceos, and used for the same purposes. The Kermes insect fixes itself upon Q. coccifera, hence called Kermas oak, a native of the S. of Europe and N. of Africa, Q. Ballota, sweet-acorn oak, that probably described in Persian works under the names shahbulloot and bulloot-ool-mulik, is a native of Spain. N. of Africa and of parts of Greece; this having acorns free from tanning has been long used as food by the inhabitants of the above countries. It might, very probably, as well as the Cork-tree, (Q. Suber), a native of the hot parts of Spain and France, be naturalised in the plains of Northern India; where Q. incana, from elevations of 5,000 to 7,000 feet in the Himalaya, is perfectly at home. The acorns of this species are sold in bazaars under the name bulloot, being used by the natives in medicine. The nuts of others of the Amentaceæ are used for food as Spanish chestnuts, the beech and hazel-nut, the first contain sugar, and the two latter much oil, for which they are often subjected to expression. The nuts of the hazel, abundant in the Himalaya, may be met with in bazaars under the name binduk or finduk. An edible nut is afforded by the Indian chestnut. Castanea indica, *Roxb.*, a native of the mountains of Sylhet, where it is called nikari. Wallich found seven different species of oak growing in Burmah and on the Tenasseaim Coast. Quercus fenestrata, Q. turbinata, Q. velutina, Q. Amherstiana and Q. Tirbbæ. Three or four are natives of the Tenasserim provinces, and all afford useful timber, though inferior to the English oak. The following grow in Japan:

Quercus glabra, *Thbg.*
„ acuta, *Thbg.*
„ glauca, *Thbg.*
„ cuspidata, *Thbg.*
„ serrata, *Thbg,*
„ glandulifera, *Blume.*
„ dentata, *Thbg.*
„ phyllyraoides, *A. Gray.*
„ sieboldiana, *Bl.*
„ urticæfolia, *Bl.*
„ canescens, *Bl.*
Quercus variabilis, *Bl.*
„ aliena, *Bl.*
„ crispula, *Bl.*
„ burgerii, *Bl.*
„ sessifolia, *Bl.*
„ salicina, *Bl.*
„ myrsinæfolia, *Bl.*
„ gilva, *Bl.*
„ grosseserrata, *Bl.*
„ lacera, *Bl.*
„ marginata, *Bl.*
„ lævigata, *Bl.*

The Quercus genus is found from the northern to the most southen parts of India, the mountains of Sylhet, Chittagong, Penang, and Taong Dong, and from moderate elevations (Q. incana, or ban of the hill people) to the limits of forest (Q. seme-carpifolia, or khursoo.) The last species varies much in appearance, and as this is likewise observed in others, the number of Himalayan oaks at present enumerated, is probably excessive. The oaks in Kunawar, are of three species, the leaves of all being lance-shaped, more or less serrated, and some exactly like holly. They are the Mouroo, and the Khursoo, which grow to 12,800 feet, and the Ban which disappears at 8,000.

Some of the other trees are rhododendron, maple, plane, ash, hazel, horse-chesnut, rose, mountain-ash, and juniper. Oaks are found in the Himalaya, Nepaul, Kumaon and Sylhet, and in many parts of the S. E. of Asia. All travellers in the Himalayas, testify to the abundance of their oaks. The people employed by Dr. Wallich gathered a considerable number of species, and Dr. Royle assures us that they are found from moderate elevations up to the limits of trees. He adds that they are found from the northern to the most southern parts, on the mountains of Sylhet, and in Chittagong, Penang, and Taong Dong, and from moderate elevations, as in the case of Q. incana—from 5,000 to 7,000 feet,—to the limits of the forest where Q. semecarpifolia disappears; but at 10,000 and 12,000 feet, on the southern face of the Himalaya, as at Choor, Kedarkanta and Changshel, the Quercus semecarpifolia generally forms the forests at their highest limits, though other species of Quercus are found below, with Taxus, Betula, Deodara, Pinus excelsa, and morinda. Dr. Hooker tells us that oaks grow in the valleys of the eastern Himalaya, in eastern Bengal, and in the Malay peninsula. No oak nor chestnut, he says, ascends above 9,000 feet in the interior of Sikkim, where they are replaced by a species of hazel (Corylus); in the north Himalaya, on the other hand, an oak (Quercus semecarpifolia) is amongst the most alpine trees, and the nut is a different species, more resembling the European. On the outer Sikkim ranges, oaks (Q. annulata ?) ascend to 10,000 feet, and there is no hazel. It is not generally known, he adds, that oaks are often very tropical plants; not only abounding at low elevations in the mountains, but descending in abundance to the level of the sea. Though almost unknown in Ceylon, the Peninsula of India, tropical Africa, or South America, they abound in the hot valleys of the Eastern Himalaya, East Bengal, Malay Peninsula, and India islands; where, perhaps, more species grow than in any other part of the world. Such facts as this, he remarks, disturb our preconceived notions of the geographical distribution of the most familiar tribes of plants, and throw great doubt on the conclusions which fossil plants are supposed to indicate. The evergreen oaks observed by Mr. Fortune in the Himalayas, were Quercus dilatata and Q. semecarpifolia: also, the Quercus sclerophylla and Q. inversa, the last two with large and glossy leaves, not unlike the Portugal laurel at a distance. Captain Gerard tells us of three species of oak in Kunawar the leaves of all being lance shaped, more or less serrated, and some exactly like holly. They are the Monroo and the Khursoo which grow at 12,800 feet, and the Ban (Q. incana), which disappears at 8,000 feet. Major Benson, writing in British Burmah, remarks that Quercus fenestrata, Quercus urbinata, and Quercus velutina, produce good, durable, timber, resembling that of the Dillenias in density and elasticity, though the trees o not grow of that size to make the timber of he same value as the Dillenias, "Zinbuin." and the Dillenias are not only valuable as imber trees, but for ornamental purposes. Dr. Mason tells us that Dr. Wallich found seven ifferent species of oak growing in Burmah and n the Tenasserim Coast, all of them yielding seful timber, though inferior to the English ak, and 23 species are named in Japan, but any of the Javanese kinds, appear to be pecu- r to the Indian Archipelago, or only occur ar the south eastern angle of Asia, where ey reach their most southern limits, being rcely known in a wild state, in the southern misphere. Dr. Wight gives, in his Icones, ercus acuminata; armata; castanicarpa; estrata; ferox; lanceæfolia, lappacea; semiserrata, squamata; turbinata.—*Gerard's Account of Kunawar, p.* 67; *Royle's Ill. Him. Bot., pp.* 17 *to* 45; *Dr. Mason's Tenasserim*; *Eng. Cyc.*; *Thunberg's Travels*; *Hooker's Him. Jour., Vol.* i, *pp.* 87, 11, 114, 436; *Hodgson's Nagasaki, p.* 342; *Dr O'Shaughnessy, p.* 607, *and Ben. Phar., p.* 517; *Roxb. Fl. Ind., Vol.* iii, *pp.* 633 *to* 641; *Capt. Gerard's Account of Koonawur, p.* 67.

QUERCUS, *Species.*

Reen Wood, ANGLO-PUSHTOO ?

An evergreen oak, bearing acorns, growing in the Mehra forest, near Abbottabad, Hazara. It is a large spreading tree, and supposed to be the American oak.—*Cal. Cat. Ex.* 1862.

QUERCUS ACUMINATA.

Hurnee, HIND.

QUERCUS AMHERSTIANA, *Wall.*

Tirbbee, BURM.

A large tree of Martaban, used in boat-building. It grows also in Tenasserim and Burmah and affords useful timber though inferior to English oak.—*Dr. Mason.*

QUERCUS ANNULATA.

Bani,	KOTGARH.	Ban-kahoo,	PUSHTOO.
Ban-kan,	PUSHTOO.	Hunne Phuliat, Funiat	„

The ring cupped oak grows in the outer ranges of the Sikkim Himalayas, to the height of 10,000 feet.

QUERCUS BALLOTA, *W.*

Barbary oak,	ENG.	Buloot-ul-mulk,	PERS.
Shah-bulloot,	PERS.		

This is probably the tree described in Persian works as Shah bulloot and Buloot ul mulk, and mentioned by Theophr. It is a native of Spain and Greece. The acorns of Q. incana are sold in the bazaars as a madicine, under the name of Balloot. Roxburgh says that a species of oak, Quercus fenestrata, is a native of the mountains in the vicinity of Sylhet; on the Tenasserim coast the same species grows indigenous not fifty feet above the level of the sea.—*O'Shaugnnessy, p.* 607; *Mason.*

QUERCUS CHINENSIS, the Chinese Oak, is a beautiful species found in mountainous places in China, and is said to have exactly the habit and appearance of a Spanish chesnut. —*Eng. Cyc., Royle's Ill.*

QUERCUS DILATATA.

Q. taxiflora,		Here'u,	CHAMBA HILLS.
Mohru.		Marghand,	KANAWAR.
Barungi,	HAZARA.	Chora,	KAGHAN.
Bar,	MURREE HILLS.		

This is a fine evergreen oak of the Himalayas, found in the Sutlej valley between Rampur and Sungnam at an elevation of 6,000 to 9,000 feet. It yields an excellent heavy wood. The timbers of all the oaks are good, hard, and so heavy, that they will not float. Quercus dilatata appears to be the species most esteemed.—*Fortune ; Cleghorn's Punjab Report, p.* 64.

QUERCUS FENESTRATA, *Roxb.* Grows in the Khassia hills, is a native of the mountains in the vicinity of Sylhet, and grows in Burmah and the Tenasserim provinces not fifty feet above the level of the sea. It affords useful timbers.

QUERCUS FLORIBUNDA.

Barcha, HIND.

This is found in the Sutlej valley between Rampur and Sungnam at an elevation of 9,000 feet.—*Cleghorn's Punjab Report, p.* 64.

QUERCUS ILEX.

Balut,	AR., HIND.	Bre,	PUNJAB.
Barungee,	MURREE.	Chota,	LAHOUL.
Evergreen oak,	ENG:	Khar-paloo-cherai,	PUNJAB.
Kori,	KAGHAN.	Ghwara	„ „
Charai, Chora,	HIND.	Iri,	PANGI.
Chur, Jari,	„		

Reen or Reenj ; Reeng.	Dharoo ; Deroo.
Hoary oak.	Vari, Salt Range.
Ireen.	Kharshoo, Shundar.
Maroo.	Dhagun-ban.

This is a plant of Kaghan, and is found in the Sutlej valley between Rampur and Sungnam at an elevation of 5,000 to 8,000 feet, it is the principal firewood in the hill stations. Much of the fuel and charcoal is made of this oak. The English residents at Dhurmsala use this timber for beams and rafters. The tree attains its full size in 100 years, and a very old tree yields a log or trunk to first branch from 16 to 20 feet in length (?), and 6 feet in circumference ; wood of a red colour, hard, tough and heavy, coarse grained, liable to warp, and to decay if exposed to wet ; useful for building purposes ; leaves given as fodder to cattle. Its acorns, Balut sil supari are sold in the bazaars of the N. W. Provinces under the name of Shah Baloot. Used for indigestion, diarrhœa and asthma. Recommended for chronic diarrhœa in children, after burying in the earth to remove their bitter principle, then washing and grinding.—*Cleghorn's Punjab Report, pp.* 63, 4 ; *Balfour, p.* 205 ; *Mr. Barnes' Kangra Settlement Report, para.* 147, *Commr. Jullundhur ; Powell's Hand-book, Vol.* i, *p.* 385.

QUERCUS INFECTORIA, *Olivier.*

Afees,	AR.	Dyers oak,	ENG.
Pyeen-ta-gar-nee-thee,	BURM.	Majoo-phal,	HIND.
Maa-phal,	DUK.	Maja-kanee,	MALEAL.
Gall oak ; Gallnut oak	ENG.	Mazoo,	PERS.

Asia Minor, Armenia and Kurdistan, a shrub 4 to 6 feet high, when punctured by a cyneps an astringent juice exudes, which becomes the gall nuts of commerce.—*O'Shaughnessy, p.* 608.

QUERCUS INVERSA, an ever-green oak, of the Himalayas, with large glossy leaves, not unlike the Portugal laurel.—*Fortune.*

QUERCUS LANCEÆFOLIA, *Roxb.* A tree of the Garrow hills and Assam. Wood light-coloured like the English oak but harder and reckoned, where it grows, one of the most durable timbers.—*Voigt ; Roxb. Fl. Ind., p.* 634.

QUERCUS LANATA.

Reang, HIND.	Q. Lanuginosa.

In many localities in Kumaon this species takes the place and name of Quercus incana.

QUERCUS LAPPACEA, *Roxb.* A tree of the Khassya mountains. Wood strong, in colour like that of the common oak, but hard and more close grained.—*Voigt ; Roxb. Fl. Ind.*

QUERCUS LAXIFLORA.

Barungi, HIND.

A large tree, wood used in house-building.

QUERCUS LUCIDA and Q. muricata, *Roxb.* are Penang trees.

QUERCUS PEDUNCULATA, its bark is used in medicine.—*Ben. Phar., p.* 217.

QUERCUS PRINODES, *Linn.*

Quercus serrata, *Roxb.*	Shingra, HIND.

A tree of the Garrow hills, yields a useful timber.—*Voigt, Roxb. Fl. Ind.*

QUERCUS SCLEROPHYLLA, an evergreen oak of the Himalayas, with large glossy leaves, not unlike the Portugal laurel at a distance.—*Fortune.*

QUERCUS SEMECARPIFOLIA, *Wall.*

Alpine oak,	ENG.	Khareu,	PAN.
Bauchur,	PANJ.	Kharshu,	„
Jaugal	„	Kharao,	„
Parungi,	„		

Seldom grows below 8,000 feet, and ascends above the range of pines. It is one of the most alpine trees of the north Himalaya. It is an ever-green species. Its acorns are named Shah baloot. It is found in the Sutlej valley between Rampur and Sungnam at an elevation of 9,000 to 12,000 feet. It is a magnificent tree, and its timber much esteemed by the natives. Wood white, and heavy ; subject to insects and liable to warp : used for making charcoal, and by zemindars for ordinary house-building purposes ; produces also good and large timber.—*Royle ; Cleghorn's Punjab Report, p.* 64 ; *M. R. Barnes' Kangra Settlement Report, para.* 14, *and Balfour, p.* 204.

QUERCUS SEMISERRATA, *Roxb.*

Thit-kya, BURM.

A tree of British Burmah. Wood used f plugs or pins, to join together the three piec which compose the body of a Burmese ca wheel.—*Cal. Cat. Ex.* 1862.

QUERCUS SERRATA.

Shingra, DUK.

These trees are only found in the hill sta tions, where they have been grown from see by private individuals. At Mahableshwar, few plants have been grown, more resemblin a shrub than a tree.—*Riddell.*

QUERCUS SPICATA, *Buch.* A tree

Nepal, of the Garrow hills, the Khassya mountains and Chittagong. Wood lighter colored than English oak, but equally close-grained and apparently as strong.—*Voigt.*

QUERCUS TIRBBÆ.

Tha baik, Burm.

Grows in Burmah and the Tenasserim provinces. It affords useful timber though inferior to English oak.—*Mason.*

QUERCUS TURBINATA, grows in Chittagong: in Burmah, it affords useful timber though inferior to English oak. Roxburgh says it is only used for fuel.—*Roxb., p.* 636.

QUERCUS VELUTINA.

Tha ghau, Burm.

Grows in Burmah and the Tenasserim provinces. It affords useful timber though inferior to English oak.

QUERQUEDULA, the Teal genus of birds, comprising as under:

grecca, *Linn.*, common teal.
circia, *L.*, blue winged " "
glocitans, *Dallas*, clucking teal.
javana, *Budd*, Java teal.
manillensis, *Gm.*, Manilla teal.
numeralis, *Mull..* Eastern teal.

QUESO, Sp. Cheese.

QUETTA. The valley of Quetta, or Shawl, is situated in 67° E. long., and 30° to 30° 20, N. lat. It is about 15 or 20 miles in length, and from 4 to 6 in breadth. It is bounded to the westward by the Chah'l Tan range, having a strike of S. S. W. by N. N. E. Quetta is about 5,900 feet above the sea. The mountainous table-land of Beluchistan extends from Cape Monze, on the south to the Affghan mountains north of Quetta, or from 25° to 30° 40′ N. latitude, and is consequently about 340 miles in length. In breadth it extends from the level plains of Kutchee eastward, to Nooshky on the borders of the Seistan desert eastward, extending thus about 150 miles. But its breadth is by no means uniform: widest about the centre, it gradually narrows southward, until, at Cape Monze it is only a few miles broad.

QUICKLIME.

huk,	Arab.	Iswet,	Rus.
Chaux,	Fr.	Churna,	Sans.
Kalk,	Ger.	Honnoo,	Singh.
Chunam, Chuna, Guz.	Hind.	Hunnoo,	"
Calcina, Calce,	It.	Cal,	Sp.
Calcium,	Lat.	Chunamboo,	Tam.
poor,	Mal.	Sunnum,	Tel.
ureh,	Pers.		

The common method of obtaining quick lime is by the process of burning, in which limestone mixed with wood, coal, or charcoal, exposed to a strong heat; in this way the carbonic acid is expelled, and the product called quick lime is the result. It is white, of a pale gray tint, opaque, inodorous, and its taste acrid and alkaline. When water is poured upon quick lime it heats, crackles, swells, and a bulky white powder is obtained, called slaked lime. Lime is used as a manure and as an ingredient in mortar. In several metallurgic processes, it is used as a cheap and powerful flux; it is also extensively employed in soap-making, leather-dressing, dyeing, and medicine, besides many other purposes in common life and the arts. In oriental commerce, the term Chunam is applied to quick-lime made from calcined shells.—*Faulkner.* See Chunam.

QUICKSILVER, is said to occur about 6 miles from Colombo and Trincomallee. While some excavations were making in the laterite on the sea-face of the fortress of Cannanore, in 1857, globules of fluid mercury were found in the cells of the laterite, giving the appearance of its being of natural occurrence.—*As. Ann. Reg.* 1799; *Joinville's MSS.* See Mercury.

QUIGAMBO of West Indies. Abelmoschus esculentus, *W. & A.*

QUILLS.

Plumes a ecrire,	Fr.	Penne de scrivire,	It.
Posen, Feder kiel,	Ger.	Stivoli,	Rus.
Kulm,	Guz., Hind.	Canones para escribir,	Sp.

The hard and strong feathers of the wings of geese, ostriches, turkeys, &c., used in writing. —*Faulkner.*

QUILON, on the Malabar coast, in lat. 8° 53 N., long. 76° 33′ E., is a town of considerable importance. Collam, Coilon, Coulon or Quilon, was built, A. D. 825; and was at one time a place of considerable importance. The natives of the country begin their era from its foundation, in the same manner as the natives of Cochin begin theirs from the origin of the island of Vaipeen. In former days there were a great many weaving-looms, and manufactures of cotton and stoneware here. Alexius Menezes, the first Archbishop of Goa, built an excellent fortress here, which afterwards fell into ruins, being neglected by the Dutch.—*Colonel Heber Drury.* See Nicolo-di-Conti.

QUINARIA LANSIUM, *Lour.* Syn. of Cookia punctata, *Retz.*

QUINCALHARIA, Port. Hardware.

QUINCE of Bengal, Eng. Syn. of Ægle marmelos.

QUINCE. Cydonia vulgaris.

Behdana, Hub-us-suf-furgul,	Ar.	Quitten korner,	Ger.
Semen de Coig,	Fr.	Behdana,	Guz., Hind., Pers., Tam.
Quincunx,	"	Melacotogna,	It.

The Quince is a native of the south of Europe and grows in Persia: its fruit is stewed and it makes good marmelade.

There are three kinds of quinces (1), Shakkar, or sweet; (2), Tursha, sour; (3), Miyana, or middling. The first is eaten fresh and has a delicious perfume; the second is dried, candied, &c., the seeds of all are demulcent, and used in sherbets and as a cooling drink in fever.—*Powell*; *Hogg's Vegetable Kingdom.*

QUINCE SEED.

Behdana, Hub-ul-suf-furgul,	ARAB.	Quittenkorner,	GER.
Semen de Coig, Quincunx,	FR.	Behdana,	GUZ., HIND., PERS., TAM.
		Melacotogna,	IT.

These are oval, acute seeds, plain at one side, convex at the other, often triangular, truncated at one end, of iron colour externally, and internally white. They abound in mucilage, and are an article of the materia medica. This seed constitutes an important article of commerce in India, being highly valued as a demulcent tonic, and restorative remedy by the Hindoos and Mahomedans all over the East. They are imported into Bombay and Calcutta from the Persian Gulf; and into Northern India they are brought from Cabul and Cashmere.—*Faulkner.*

QUINGAMBO of West Indies, Abelmoschus esculentus, *W. & A.*

QUINQUEGENTES. See Semitic races.

QUINQUINO, also called myrrh seed or the white balsam, is prepared from the balsam of Peru tree, Myrospermum peruiferum and from M. pubescens.

QUINQUILLERIA, SP. Hardware.

QUINTUS CURTIUS, see Kelat, Khuzistan or Arabistan.

QUISQUALIS INDICA, *Linn.*

Da-way-hmaing, *Burm.*

Chinese Honey Suckle. | Rangoon creeper.

A scandent shrub, with beautiful flowers of various colours, from white to orange and deep-red; has a very powerful perfume towards night. It grows from layers, or seed, but the latter are very difficult to find. In Tenasserim this elegant scandent shrub is seen trailing its long arms around our bowers and verandahs, buried in thick lively foliage, and gracefully flinging out its thousands of sweet-scented flowers which change their tint from white to rose, and with the clouds at sunset, deepen into richest crimson. The flowers are scarlet outside and yellowish white within, and hang in large clusters, very useful in covering walls or trellis work, the scent at night is unpleasant to some persons. It is a very common plant in the gardens of the Dekhan and may be raised from seed or layers.—*Jaffrey*; *Mason*; *Riddell.*

QUITTENKORNER, GER. Quince seed.

QUIVER. Throughout South Eastern Asia, the bow and arrow, has almost disappeared, the only people using it constantly in war and for the hunt, being the Andamaners—but at the annual "langar" of the nizam of Hyderabad, there are still to be seen a few soldiers in the procession, armed with bows. Recently too in the beginning of 1870, the editor met a small body of men, seemingly on some predatory excursion, one of whom was armed with the bow and a quiver full of arrows. In April 1863, a few days before the editor arrived at the Andamans, a British sailor was killed by an Andamaner who was captured.

QULUM, AR., the pen of record.

QULUNDUR, PERS., a class of fuqeers or devotees.

QUOIN HILL, called Jibl Mia Ally, at the Straits of Babel Mandeb, is 865 feet above the sea.

QUOIRENG, the Quoireng tribe, has a language distinct from those of the Songboo and Pooeeron but with a great similarity in all other respects. They inhabit all the hills north of the Koupooee, between the high range that skirts the valley of Munnipore and the Burak, as far as the Angamee tribe, from whose aggression they have suffered much. From these aggressions and their own feuds, they have much decreased in number, but are still a very considerable tribe, possessed of much energy which developes itself in trade with the Angamee and the British frontier district, see Natunas islands.

QUOI-TOTA-KURA, TEL. Amaranthus tristis.

QUTB-UL-MULK, a sovereign of Golcondah, near Hyderabad in the Dekhan.

QUTUB SHAHI, a dynasty of Golcondah, see Hyderabad in the Dekhan.

R

R, the 18th letter of the English languge is a semi-vowel and a liquid, and in the English tongue has two distinct sounds, the one, as in ran, free, morose, and when at the beginning of words or syllables, produced by an expulsion of vocalised breath, the other sound when followed by a consonant, and when at the end of words, is formed by a vibration of the tongue near the root, as in hér, ford, startling. In words derived from the Greek language, the letter h is usually written after r, as in rheumatic, rhapsody, rhetoric. R has various modifications in the languages of the East Indies. It is changeable into l, and the Chinese who cannot pronounce r, always use l in its place. Usually it has the sound of r in *round*, run, ruin. In the Hindustani it has a rough sound as r or rh, which alternate with the cerebral letters d, and dh, and in Telugoo, Karnatica and Tamil, it has a harsher sound. The r of the Tamil and r of the Malayalam are in some respects identical, and when doubled as rr, have the sound of tt. The Sanscrit vowel sound ri is modified in the peninsula of India into ru.

RA A god of the ancient Egptians, was rshipped separately from Osiris.

RAABEUH-KHEYL. See Khyber.

RAAMAH of Ezekiel xxvii. 21 to 23, is the odern Reima.

RA-GANGADEVA. See Inscriptions.

RA-KHOUNG-THA. See India.

RA SRI BAHMA. See Inscriptions.

RA SRI MAHA DITYA. See Inscriptions.

RAB. AR. HIND. PERS. Juice; jelly; nounced răb.

RAB. HIND. Arum colocasia; Colocasia tiquorum.

RABAN. HIND. Chionanthus, *sp. Schott.*

RABAN. HIND. A Panjab tree of moderate se; wood white, soft, light; used by zeminrs for their houses and implements. Bark used dicinally; leaves used for fodder.—*Powell's ndbook, Vol.* 1, *p.* 542.

RABBA. See Sterculia acuminata.

RABBAN. At'ha is a Turkish word, acrding to Odoric, signifying father. Taking it connection with Rabban, it may be noted at in 1288 there came on a mission from the khan of Persia to the court of France a cerin Nestorian bishop, who is termed by the roniclers Rabban Ata.—*Yule, Cathay*, I. 118.

RABBET. Lepus cuniculus.

RA-BER, on the road, properly rah-bur, rrupted by the Pindarri to labour, the signation of their forays.—*Tod's Rajasthan, ol. I. p.* 19.

RABHAS. See India.

RABI. HIND., also written Rabbi and called by the people "Hari," the spring harvest, crops sown in winter and cut by Har, early summer. The spring, or Rabi, crop is sown after the rains, and reaped at the commencement of the hot weather.

RAB-I-SUS, also rab-us-sus, HIND. Glycirrhiza triphylla, liquorice, literally sweet juice.

RABNADAB ISLAND, the southern extremity of which is in lat. 21° 50′ N., is a large island, 18 or 20 miles to the eastward of the Hooringattah entrance of the Ganges.

RABOK. MALAY. Fireworks.

RACACHON or Racahont. ARAB. A substitute for chocolate; a preparation of roasted acorns, powdered with sugar and aromatics. —*Simmond's Dict.*

RACE, a term used by ethnologists to distinguish the people from different branches of the human family. The word is not in use amongst Europeans in the East Indies, by whom the people of the country are collectively called natives, and their several races are designated castes. But there is no doubt that the brahmin, the Kshetrya, the Rajput, the Vesya, the Sudra hindu, the Moghul, Syed, Persian and Pathan mahomedan, and the Burman, Karen, Mon, Malay, Papuan, and Arafura, the Jat, the Baluch, the Brahui, the Parsee, and the Bengali are all of different races, as also, are many of the non Aryan peoples of India, the Pariah or Dher or Mhar, the Chackeli, Chuckler or Madhara, the Dom and hundreds more. This subject has been largely disposed of under the word India. Bishop Heber early observed that the people of the mountains, and of all the hilly country adjoining Burdwan, are a race distinct from those of the plain, in features, language, civilisation, and religion.

The Khatree is a race numerous in the Upper Punjab, and about Delhi and Hurdwar, and found along the Ganges as far as Benares and Patna. They divide themselves into three principal classes; I. the Charjati or four clans, viz.; Seth, Marhota, Khunna and Kuppoor. II. Bara jati, viz. Chopra, Talwar, Tunnuhu, Seigul, Kukker, Mehta, &c. III. Bawun-jai or fifty-two clans, amongst whom are Bandari, Meindrao, Sehti, Suri, Sani, Unnud, Buhseen, Sohdi, Behdi, Teehun, Bhulleh, &c. The Broopshoo people are hindoos of a different race from the Bhot, and winter and summer live in their black tents with their flocks and herds of sheep, goats and yaks. They are very ugly, with Tartar faces, and the men let their coarse black hair hang in one pig tail behind.

The population of all the islands of the Pacific group is presumed to date from Oceanian migration, which has been laid down in the following order—Malayan, Protonesian, Papuan Polynesian.

A well-known writer, classes the inhabitants of the Archipelago into two great races, totally different in their physical aspect and in their moral character. He says, the Polynesian race extend from Marianna to Easter Island and from Hawaii to New Zealand, with no greater variety in the language than is to be met with in European tongues derived from the same source. The second race are distinguished by the usual Ethiopian features, and occupy New Holland, New Guinea, New Caledonia, and the Fiji. The physical conformation of the Papuan, and particularly the squareness of his head, distinguishes him from the African negro. That writer assumes that one island has supplied another with population, based upon the principle of contiguity, and deduces therefrom that Torres Straits, being the narrowest portion of the ocean which separates Australia from New Guinea, constitutes a reason for deriving the Australian source from the Papuans.

It is difficult to define the extent of early occupancy, and to determine where this migration ceased on the Australian continent, since there are physical evidences, as well as other indications of a strong character, which denote that Tasmania and Australia consisted formerly of an undivided terra firma.

The Papuan race are clearly either from the Moluccas or an adjoining island, where the negro characteristics are shown to have been more strongly developed than those to be met with around the continent of New Holland; and although the island of New Guinea, from its situation and importance, has enjoyed the advantages of certain civilizing influences at a comparatively early period, it has nevertheless retained the strongest features of its settlement throughout a varied intermixture. The natives of New Guinea have, almost generally, the woolly head, sometimes frizzled, and occasionally in pipe-like knots, the thick lips and squat noses, which indicate their negro connection, while their colour ranges from the sallow hue of the Sandwich Islander to the dark copper of the Bornese. The face is suggestive of the Mongol type, being square and angular; and in many parts of the island of New Guinea the obliquity of vision common to the Chinese is apparent. Recent investigations would seem to denote also that they are frequently distinguished by a Jewish cast of features, and that, instead of their presenting indications of a pure nation, as well as the distinctive type of a great race, there is abundant evidence to the contrary. Coming, in all probability, from one of the small western islands in the route from the north-west or the Moluccas (originally peopled from the Philippines), the Papuan race are found to spread over a large area and extend round the Caroline Islands. Blakaland states that the geographical boundary of the Papuan is coincident with the north-west monsoon, which may be described as extending from the Equator to 10° or 15° north latitude, and in longitude from Sumatra to the Fiji Islands, from which circumstance and their ignorance in navigation the inference is that they have travelled from the west into the Pacific only so far as the prevailing winds allowed. If Australia were an open country, accessible at the time of the settlement of New Guinea, it is more than probable the Papuan would have peopled it themselves; the same facilities which enabled the natives of Sumatra and Java and other islands of the Eastern Archipelago to visit the islands of the north and north-eastern Continent, where evidence of antiquity exists —also afforded the opportunity of crossing the coral reefs of Torres Straits, and examining the mainland of Terra Australis. It would be an unsound hypothesis which assumes either the entire omission of so large a continent, or a failure of occupation consequent upon the sterility and unpromising character of its coast approaches. The resemblance of the Australians to some of the tribes inhabiting the southernmost settlements of the Arafura Sea, and the proximate intermediate islands of Torres Straits, is doubtless owing to the inhabitants of the great islands, and of the group of settlements in close contiguity to the coast, being of coeval distribution. The Australians possess the wide-spreading nose, receding forehead, and rapid eye of the African, the thin and muscular limbs of the Zulu, and the long silky hair of the Western Malay, with not a little of the latter's skill and daring—[illegible] to these types respectively the natives of north and north-west Australia approach nearer than to any other. In many features of their superstitions they assimilate to the north American Indians, and to some of the tribes of the Pacific, strongly resembling the latter in their interm[illegible] and in the practice of piercing the septum of the nose. In physical appearance the Australian [illegible] prepossessing. The eye is full and expressive, the head and body erect, and the chest well thrown forward. All the men have thick beards [illegible] hair. This is a distinctive feature, and is [illegible] shared generally by the Mongolian, Negro, Malay, or the natives of the Celebes, the latter of whom may be presumed to have enjoyed facilities for effecting an intermixture with the Australians.

Native Australian women are met with wh[illegible] hair, in spite of the abominable practices [illegible] which it is commonly subjected, is compar[illegible] tively soft, the head being covered with a profusion of loose natural curls.

The instruments of warfare in general use by the two contiguous races vary no less than their respective customs, language, and physique. The most remarkable weapon of the Australian is entirely unknown to the Papuan, who, in fighting, use the bow and arrow. Although an advance towards civilization is claimed for the Papuan, it is observable only where the natives have been susceptible of impressions in their early intercourse with the Malays and traders of Java, from whom a great many of their customs are copied, and more recently by contact with the Dutch, who have settlements on the different islands. This evidence tends to throw doubts on Australian identity with the Papuans, as we have the fact of entirely different races inhabiting the two large islands, and separated by a distance of only 140 miles. The facilities of intercourse, rendered at all times difficult by the dangers and intricacy of the 'Straits,' have been further lessened by the hostility of the coast tribes, so that the trafficing with the native Australians and intermixture has been confined to those people, who, aided by a superior skill in navigation and also in the construction of their vessels, have enjoyed the advantage of the trade winds. Had the northern migration penetrated beyond these intermediate islands lying between Papua and Australia, there would have been ample indications of the connection in both races. Hunt thinks that it is difficult to determine, from what race the Australian sprang, for there is not one of the great families into which the human race has been divided with which they may be properly classed.' Strzelecki, who mixed among the Australian tribes of the greatest diversity, says,—'In his physical appearance he does not exhibit any features by which his race could be classed or identified with any of the generally known divisions of mankind.' Perhaps the most practical account that given by Wilkes, who in his American exploring expedition, says,—'They differ from any other race of men in features, complexion, habits, and language, their colour and features assimilate them to the African type, their long black silky hair has a resemblance to the Malay, their language approximates to the American Indians, while there is much in their physical traits, manners, and customs to which no analogy can be traced in any other people; their most striking distinction is the hair.'

One Professor, whose experience and attainments entitle his opinion to considerable respect, infers from recent discoveries a strong resemblance between the original inhabitants of the small European Cantonment and the Alfurian.

The large extent of Australian coast land which offers itself to the seaboard of China, embracing without doubt the locale of the earlier settlements, has been advanced in favour of the theory that the occupation of Australia, together with the principal settlements as far east as New Guinea, resulted from one common migration, the parent source being the Chinese Seas. It is well known, from the period of the earliest discovery by Europeans, that the Chinese, the Malay, and the Celebians visited the south-eastern islands of the Indian Ocean, and had their stations on the Australian coast, trading with the inhabitants, and conveying from thence cargoes of trepang, shells, &c.; and we have strong indications of the Malay influence throughout the different parts of the Northern Continent pervading even some of the native customs. The only evidence presented in support of the above theory, however, is that afforded by the discovery recently of a tribe on the Balonne river, to the north-westward of the Upper Warrego, the head of both sexes being quite bald. In other respects they share the characteristics of the Mongolian. These people speak a different dialect to the neighbouring tribes, who hold no intercourse with them, regarding them in fact with a degree of superstitious awe. The expression of colour, a most important element of race, and which is uniform throughout the island, forbids the supposition of any great intermixture with a lighter type.

The nomadic existence and habits of the Australians have caused a union of diverse sections of the native race distributed over the continent, producing tribes speaking a different language, and presenting finer specimens of men. The north-east natives, for instance, are the most warlike and of superior physical power; while those on the north-west coast are the most ingenious, maintain a purer idiom, and, according to the latest explorations, are more readily susceptible of civilizing influences. An immediate local intermixture has invariably resulted in a degenerate descent, and these results have been painfully perceptible in the settled districts, where the worst influences of civilization have wrought their effect on the physical character.

The north-west coast of Australia being the most accessible to the Island of Timor, favours the hypothesis that it was by these people the great island was first occupied. In the language there is about the same variety and intermixture of Malay, while we have an uninterrupted line of islands as stepping stones, almost direct to the Timor group, from the great Malayan source—Sumatra. No tradition of settlement exists amongst the Australians, but on the eastern and north-eastern coasts natives are found who evince a higher and more intelligent organization, who are also in the possession of tastefully finished and skilfully constructed canoes, and who evidently enjoy hereditary laws and customs. Ancient weapons are known to have been used among them, and we have a knowledge of figures and sketches, some apparently of great age being outlined upon the rocks along the northern coast. Grey discovered several curious figures in caves, and the outline of a man's hand boldly defined on a rock in the Glenelg river, besides tombs of ancient appearance. There are also numerous native drawings and rude impressions of men and animals along the coast of the Gulf of Carpentaria, of Finder's and Depuch's islands and near Sydney, all indicating native origin and settlement to be of a remote period. Further evidence in favour of the antiquity of the Australian race is afforded by recent discoveries made in Victoria, the latest of which is that of the bodies of three aboriginals petrified into solid marble, the veins, muscles, &c. of which could be distinctly traced through what is now a group of stone blocks, perfectly sound and whole. They were found in a sitting posture near the surface, together with an ancient stone weapon, so that the present custom of burying the dead is thus shown to have been practised at least many centuries ago, for the situation of their deposit, and the condition in which they were found, preclude the idea of these remains having been buried otherwise than during the recent period of formation. Occasionally, traces of large kilns or mounds, composed of burnt clay, stones, and debris, are to be met with, overgrown with timber and nearly buried, on which they cooked their repasts of wild animals; but neither these ancient cairns, nor the fossiliferous remains of aboriginals which have been exhumed at different periods, illumine the obscurity which surrounds the race of Australians.

In the border districts of British India, into which intruding races have come, the distinctions of races are very marked. In the vicinity of Darjeling are mahomedan and hindu natives from the plains of India; the Bhootiah from Bhootan, Thibet and Sikkim, the Lepcha and the Mechi. The Lepcha have no religious or race distinctions, but they speak of themselves as belonging to the following clans, viz.:—

Burphoong phooho.	Sundyang.	Lucksom.
Udding phooho.	Sugoot.	Therim.
Thurjokh ,,	Tungyeld.	Songme.

Captain J. D. Herbert observes that at his first interview with the Lepcha, he saw that they were the same people whom he had met with at Niālang, at Jahnabhi, at Shipchi on the Sutlej, in Hangrang, and at Lari in Ladak. They are, in fact, the people who have been erroneously called Chinese Tartars and are in reality of the same race as the Thibetans, being a family of the great division of Eleuth Tartars or Kalmuck.

The people of Nepal arrange themselves into many sections, viz.:—

Goorroong	...rear sheep.	Moormis	Principally cultivators
Gallia	......rear buffaloes.	Yakha.	
Kami...	... Blacksmith.	Mungar	
Sarki...	. Tanners.	Brahmin.	
Newad	... Shopkeepers.	Khumbhu	
Domai	......Tailors	Nimbhoo.	

In the plains of the Darjeling district, the Rajbanai and Bengali are in equal numbers. The Rajbansi are Koch or Cooch of the same descent as the raja of Cooch Behar. Hence they call themselves Raj Bansi.

The Mechi inhabit that portion of the Terai which lies under the hills. They are migratory, live by cultivating the virgin soil; they have no caste.

The various tribes inhabiting the Indian desert and the valley of the Indus would alone form an ample subject of investigation. In the earlier ages there were two chief Rajput races, in Hindustan, viz., the Soorya and the Chandra, to which were added the four Agnicula; in all six. The other races were subdivisions of the Soorya and Chandra, or the Sacha of Indo-Scythic origin, who before the mahomedan era found no difficulty in obtaining a place, though a low one amongst the thirty-six regal races of Rajasthan.

The Ganges valley seems to have been peopled by several races, long before the Aryan hindus arrived there, and all the conquerors who have entered India from the north-west have striven to occupy the fertile valley of this great river. Hindu poets have celebrated its praises in a multitude of songs; th river is fabled in their mythology to be th goddess Ganga; they long to see it, to b in its waters and be purified from their s and at last to die on its banks, or to have th bones conveyed to it from the most sout parts of India. No hindu raises such a question as in 2nd Kings v. 12, for the Gang is recognized as the most efficacious of all th hindu sacred rivers. On its banks have dw the chief of the religious reformers, wh India has seen. Its valley was the cradle buddhism; which, from its rise in the si century before Christ, gradually spread o the whole of India, was extended by As to Kashmir and Kabul shortly after Alexander's invasion, and now prevails amongst 2 millions of men. Numerous dynasties ha ruled there. The Andra race was in power the Gangetic province of India, about th beginning of the christian era, but the most enduring was the great Chetrya family that long ruled at Indrapreatha, and terminated with Prithi-raj in A. D. 1200. Near the Indus, the Soda, the Cat'hi and the Mallani, afford, in history, position, and nominal remembrance, grounds for inferring that they are the descendants of the Sogdi, Cat'hi, and Malli, who opposed the Macedonian in his passage down the Indus; swarms of Gete or Yuti, have assumed the general title of Baloch, or retain the ancient specific name of Noomri; while others, in that of Zj'but, preserve almost the primitive appellation. There are remains of the Johya and Dahya, as well as of the Gete or Jit, and Hun, who hold places amongst the thirty-six royal races of ancient India. though these, with the Baraha and the Lohana, tribes who swarmed a few centuries ago in the Punjab, are now only to be discerned in small numbers in the Marust'hali or "the region of death," which has even preserved the illustrious name of Kaorwa, Krishna's foe in the Maha-Bharata. The Sehrâi, or great robber of the western desert, the enemy of all society is also there, and the hindu Bhatti, Rahtor, Joda, Chohan, Mallâni, Kaorwâ, Johya, Sooltano, Lohana, Arorah, Khoomra, Sindil, Maisuri, Vishnúvi, Jakhur, Shíag or Ashíag, and Pooniah.

Of the mahomedan tribes there are two, Kulora and Sehrái, concerning whose origin doubt exists, and the Zjut; Rajur; Oomra; Soomra; Mair or Mér; Mór, or Mohor; Baloch; Loomrea or Looka; Sumaicha; Mangulia; Baggréah; Dahya; Johya; Kairooé; Jangurea; Sondur; Berowee; Bawurí; Tawurí; Chrendea; Khosa; Sudani and Lobana are nyád, or proselytes chiefly from Rajpoot or other hindu tribes.

The Jat does not occupy lower Sind and they are not found in Guzerat. The Jat is, however, the prevailing population in all upper Sind and their tongue is the language of the country. They were once the aristocracy of the land, but latterly have been dominated over by other races, and thus have lost somewhat of their position as the higher classes of the society. In the south and west of the Punjab, too, they have long been subject to mahomedan rulers. But latterly, as the Sikh, they became rulers of the whole Punjab and of the country beyond as far as the upper Jumna, in all which territories they are still in every way the dominant population.

The earliest political change to which we can go back in the history of the Peninsula is the expedition of Rama into the forests of Dandakaranya, an event coeval with the hero worship of the Pandava, and the myths of the Mahabaráta and Rámáyana. The braminical crusade of which Rama was the leader, scattered the aboriginal races styled Rakshasa or demons driving some into the mountain and forest retreats, where we still find them living in barbarous freedom, and reducing others to the state of agrarian slavery in which we now see the Pariah, Puller, Cherumar, and other helot races existing in the plains. Each province has its peculiar race of helots. Each range of mountains and every tract of forests its own tribes of wild savages either wholly independent, or partially subject to their more civilized neighbours in the open country. From the Pahari (undoubtedly a remnant of the great Tamulian or Southern family) of the Rajmahal Hills on the banks of the Ganges, through the extensive regions of Gondwana, embracing the Khond, Sourah and Chencher of the Eastern Ghats, the Yanadi, Irular, Curumbar, (at one period apparently the most numerous and powerful race of all,) in the midland provinces,—to the Bedar, Maravar, Kallar and other tribes, comprised under the general term of Malayali, or mountaineers in the south, we find an infinite succession of races professing customs and speaking languages differing, and, in many instances, distinct, from those of the modern hindus. The same peculiarities may be observed in several of the nomade castes roving over the plains in the more civilized portions of the country, such as the Korchewar, Woddewar, Yerkelwar and Pardi, &c. A careful and systematic investigation of these remains of the former population, of their customs and religious observances, &c., with the preparation of copious vocabularies of the peculiar dialects or jargons in use amongst them, are among the most important objects to which attention should be directed, because, the study of these outcast tribes, of their language, manners and customs, form nearly the only available source from which we can glean a knowledge of the earlier inhabitants of India.

Races need to be considered in their tribal, professional and religious denominations, subdivisions or zat. Mr. Hodgson's view of studying the ethnic relations of these races alike by means of their languages and of their physical structure is shared by Mr. Logan, who mentions Singapore as affording unequalled opportunities for the study. And doubtless, Singapore possesses such advantages; but, on the pier of Rangoon, as the Mail Steamers arrive, is also to be seen a wonderful assemblage of races, from every part of the world, the items being characteristic specimens, for they are all bold enterprising energetic men who have found their way to that remote locality.

The brothers Schlagentweit, in their scientific journeys in Central Asia, directed much attention to the physical characters of the people, and more extended inquiries in that direction would be invaluable, but at present several of the nationalities in British India seem distinct, each of them assimilating in their physical appearance, to the types of the races, of which they are off-shoots. —*Tod's Rajasthan, Vol. II. p.* 317. *Capt. Herbert at p.* 939 *of the Gleanings of Science. Heber's Journal, Vol. I. p.* 195. *Mrs. Hervey, Adventures of a lady in Tartary, &c., Vol. II. p.* 5. *Gentleman's Magazine.* See India.

RACHI CHETTU, or Ravi chettu, Tel. Ficus religiosa.

RACHA JILLEDU or Jilledu. Tel. Calotropis gigantea, *R. Br.*

RACHA MAMIDI or Mamidi. Tel. Mangifera Indica, *L. var.*

RACHCHA MANU. Tel. Xanthoxylon rhetsa, *D. C.*

RACHA NEREDU or Jambu Neredu. Tel. Eugenia jambolana, *Lam. var.*

RACHA USIRIKE. Tel. Cicca disticha, *L.* With fruit of the size of a pigeon's egg. *R.* ii. 485.

RACINE DE CALUMBO, Fr. ? Columbo root.

RACINE ELEMENTAIRE, Fr. Arum esculentum.

RACK. Ger. Arrack.

RACKA NASTA. Can. ? Stunted teak: a forest term.

RACKAY. Malay. A weight used for the precious metals in Sumatra, about 1½ grain troy.—*Simmond's Dict.*

RACLITIA. See Hydridæ.

RACONDA RUSSELLIANA, *Gray.* A fish of the Indian seas, from 4 to 6 inches in length. At Penang, numerous at all seasons, although less so than they are at the Sandheads and the mouths of the Ganges. The Bengal fishermen denominate the species "Potassah, Fessah or Phasah." "Fessah" or "Phasah," as Buchanan Hamilton observes, is in Bengal a generic term, particularly applied to Engraulis phasah, *Buchan.* and E. telarah, *Buch.* It is a heavy swimmer, and like the rest of Clupeoidæ, expires immediately on leaving its element. It is chiefly consumed in a dried state.

RACTA or Rakta, Sansc. Blood red.

RACTA BAN-POOR. Beng. Basella rubra.

RACTA SHRAVA. Sans. Garcinia cambogia.

RACTA VINDA CHADA. Sans. Euphorbia thymifolia.

RACTA CHANDA. Singh. Pterocarpus santalinus.

RACTO-KANCHAN. Beng. Bauhinia variegata.—*Linn.*

RAD. Hind. Panicum miliaceum.

RADAM. Hind. Taraxacum officinale.

RADAMI. Tam. Barringtonia acutangula.

RADAWAR. Guz. Hind. Bloodstone.

RADE. Hind. Ribes rubrum.

RADEEN, Jav., a title in Dutch India.

RADEMACHIA INCISA, *Thunb.*, var. a. syn. of Artocarpus incisa.—*Willde.*

RADEMACHIA INTEGRA. *Thunb.* Syn. of Artocarpus integrifolia.—*Linn.*

RADHA. The celebrated mistress of Krishna, she was the wife of a cowherd of Gokul, with whom she lived within a forest near the Jumna, she was one of Krishna's favourite mistresses, the chief of the Gopi or nymphs of Vrij. She has been deified by the hindoos and her image is set up in the temples, and worshipped at the festivals with that of Krishna. Radha, is a Sanscrit word from radh, to accomplish.—*Cole. Myth. Hind., p.* 45. *Tod's Rajasthan, Vol. I. p.* 530. See Charan Dasi; Hindoo; Inscriptions; Krishna; Vallabhi; Sakhi Bhava.

RADHA, wife of Daryo-dhana's charioteer, and nurse of Kerna, whom she reared as her son, after he was exposed on the banks of the Yamuna by his own mother.—*Hind. Vol. I. p.* 34.

RADHA-KOOND, four miles from Goverd'hun, the hoary and holy mount connected with the richest associations, of the hindus and beheld by them with an absorbing interest. The Greeks had their Olympus and the Hebrews their Sinai; the Jain sect have their Parisnath, the Saiva hindoo their Kailasa, and the Vaishnava hindoo their Goverd'hun. The Christian pilgrim to Judea, sees Bethlehem and Jerusalem, and then goes to Sinai. The Vaishnava pilgrim in Vrij sees Muttra and Brindabun, and then goes to Goverd'hun. Goverd'hun is the Parnassus of the hindoos. Indeed, taking Krishna for Apollo, the Gopini for the Muses and the Mans-gunga—a large beautifully in faced tank—for the fount of Castalie, it out and out justifies the comparison. The especial holiness of Goverd'hun is owing to its being the first scene of Krishna's apotheosis. It was upon this mount that the first image was raised to his worship under the name of Goverd'hun-nath. The great annual mela or religious fair of Anna-coot at Goverd'hun, first instituted by Vallabha, generally takes place in the month of Karteeka, and not less than a hundred thousand people assemble. It celebrates a pastoral incident in the life of Krishna, and throughout all Vrij the horns of the cattle are painted red with vermilion and those of a cow are occasionally seen covered with silver leaf. Radha-Vallabhi, is the name of a sect of Vaishnava hindus, literally the lord and lover of Radha whose worship is paid to Krishna, on account of his favorite mistress Radha. Radha is the object of adoration to all the sects who worship that deity, and not unfrequently obtains a degree of preference that almost throws Krishna into the shade. This sect was founded at Vrindavan, in the 16th century, by Hari Vans. Radha Vallabhi are two Sanscrit words from rad'h to accomplish and vâllăbhă, beloved. —*Tr. of Hind. Vol. II, p.* 111.

RADHIA or Razziah, assumed the Government of India but was deposed by her brother Bahram-Shah.

RADHIYA. See Buddha.

RADHUNEE. Beng. Bengal parsley, Pimpinella involucrata.

RADICE DI COLUMBO. It. Colombo root.

RAD-I-KUFR, part of the mahomedan creed. See Kalamah

RADISH.

Mulli	Duk. Hind.	Lobak	Malay.
Mara	Guz.	Mulaka	Sans.
Raphanus sativus ; var *a.* radicula, var *b.* niger.		Mulinghi	Tam.

This vegetable may be sown at the commencement of the rains, either in beds broadcast, or on ridges of beds where other vegetables have been planted, in the rainy season, they grow better on the ridges. The seed would be trodden in, or beaten down, and then a good watering given to them. When about three inches high, carefully thin, leaving at least a space of five fingers' breadth between each plant. They take from three to five weeks to come to perfection, and require a good share of watering. The turnip radishes are of various colours—white, red, spanish black, round, purple : also long white, red, and purple. The red, white, pink and purple turnip varieties succeed best on the plains, the black Spanish R. niger is of little value, the seed pods when young make excellent pickles. The horse radish is Cochlearia armoracea.—*Linn. Riddell. Jaffrey.*

RADISH SEED OIL. Oils of Raphanus oleifera and R. sativa.

RAE. The hindu titular designations are the prince, Rajah, Maha Rajah, and Rae-rayan. Prince of princes.

RAE. Beng. Small seeded mustard, Sinapis ramosa, any species of mustard ; also mustard seed.

RAEPUR and Belaspoor, towns in Central India, a number of Gond are scattered about.

RAES. Ar. A ruler, a shipmaster, often written Reiss. Riasat, means rule, dominion.

RAE-SUNA. See Berthelotia lanceolata.

RAEU. In the Panjab, a race who follow Mahomedanism. They are politically insignificant, but are to be found in the vicinity of all great cities. Unrivalled as market-gardeners, they carry on an elaborate and perfect cultivation.

RAFFIA-UD-DOWLA succeeded his brother Raffia-ud-Darjat, but died a natural death a few days after his accession.

RAFFLESIA. A genus of plants of the natural order Rafflesiaceæ, one species of the Archipelago, has a blossom three feet in diameter which weighs 14 lbs. They are stemless, parasitical, plants, and grow in Sumatra and Java, the species known are R. Arnoldi, R. Patma, R. Cumingi, R. Horsfieldii, R. Rochussenii, deemed to have astringent and styptic properties.

RAFFLES, Sir Thomas Stamford, Governor of Java, author of the history of Java, Lond. 1817, 2 vols. 4to. and other valuable works on the Malay peninsula. He was one of the most remarkable of the many distinguished men who have risen from the ranks of the East India Company's civil service, the founder of that now invaluable *entrepot* of commerce, Singapore, one of the best and most astute of the Governors of our smaller Eastern dependencies, and the founder and first president of the Zoological Society. He was born at sea, near Jamaica, on the 5th of July 1781. From his infancy he was accustomed to an adventurous life. His father, Benjamin Raffles, was one of the oldest captains, in the trade of those seas, out of the port of London. Placed at an early age at a school in Hammersmith, he quickly developed the characteristics of thoughtfulness and close application which were among his distinctions ; and though his education was not complete or fine, he acquired much knowledge during the brief opportunity he enjoyed. At fourteen he was placed as an extra clerk in the East India House. Thus drawn from the form and scholar's desk, he did not abandon learning. His leisure hours were never idle. Principles of a strong elevated character, directed his conduct. He was conscious of the talents which graced him. He appreciated himself with an honest candour, but still with modesty. His abilities were speedily acknowledged by the Indian government, and when, in 1805, the Court of Directors resolved on consolidating the establishment at Penang, Raffles was named assistant secretary and towards the close of that year, he arrived in the Indian Archipelago.

Lady Raffles, his widow, wrote a "Memoir of Sir Thomas Stamford Raffles," a work very creditable to her literary talent, and excellent in feeling. Lady Raffles was the second wife of Sir Stamford, to whom she was married in 1817. Her maiden name was Sophia Hull ; she survived her husband 32 years, and died on the 12th of December 1858, aged 72, at Highwood, near Hendon, Middlesex, an estate purchased by Sir Stamford shortly after his return to England in 1824.—*John's Indian Archipelago, Vol. II., p.* 44.

RAFZI. Heretic, the sheeah mahomedan so called by the soonee.

RAG. Hind. Abies Smithiana, Picea Webbiana, Himalayan spruce.

RAG. Hind. A vein ; a flaw in a jewel.

RAGA. Malay. A basket, a grain measure of the Sooloo and Sunda isles, in weight 53¼ lbs.

RAGA. Sans. Passion, from runj. to colour. Viragi, void of passion.

RAGEE. Can. Duck. Hind. a species of millet, Eleusine coracana.—*Gært. Roxb.*

RAGEU. A very remarkable animal, half goat and half deer ; the flesh is good and tender, dark coloured, and lean. It is called "Ragoah," according to Hodgson, but it is not the Procapra picticaudáta of Tibet.—Dr. Hooker's dogs caught a "Rageu" at Choongtam.—*Hooker's Him. Jour. Vol. II. p.* 98.

RAGGI. Tel. Copper.

RAGHA. In Northern Media, the eleventh settlement of the Arians (xii. verse 16.) "Ragha with the three races is doubtless the Rhagæ of Strabo and Ptolemy, the greatest city in Media," south of Teheran. This north-eastern portion of Media includes the passes of the Caspian. The possession of these passes was a protection to the other Arians, and at the same time the key to the whole of Media, and therefore Persia. The district is called also Choana (Qwan.) Ahriman established here unbelief in the spiritual supremacy of Zarathustra—another schism, or at all events another portion of ancient Arian history. See Arians.

RAGHA. Picea Webbiana ; Picea pindrow, the silver fir.

RAGHI CHETTU. or Ravi chettu, Tel. Ficus religiosa.—*Linn.*

RAGHUVANSA. A Sanscrit work by Kalidasa.

RAGI. Duk. Can. Hind. Eleusine coracana. E. stricta, *Roxb.* Natchenny.

RAGI. Tel. Copper.

RAGOJI BHOONSLAH invaded the Carnatic, and took Trichinopoly. See Bhonsla Rajas of Nagpur ; Mahratta Governments in India.

RAGONATHPUR. A town in Manbhoom.

RAGOOGURH. The Rajpoots of Ragoogurh are known by the name of Kychee and are one of the oldest families in Malwa. In 1780, Madhojee Sindia stripped the family of their possessions and imprisoned the rajah Bulwunt Sing and his son Jey Singh. Jey Sing maintained the war with Sindia till 1818 when he died leaving his title to be disputed by two claimants Dhokul Sing and Ajeet Sing. The matter was complicated by disputes in the family, and at last, in 1843, with the consent of the British Government, arrangements were made and Chuttersaul got 32 villages yielding rupees 9,000. Ajeet Sing received 120 of the 204 villages originally granted to his family.

RAGS.

Lompen…… … …	Dut.	Chendi……… …	Hind.
Vodden……………	,,	Strasci, Strazze….	It.
Drilles…… .. ……	Fr.	Tampal. parcha.	Malay.
Chiffes, Drapeaux.	,,	Farrepos, Trapos	Port.
Chiffons.. … … …	,,	Trepje, Trebje ….	Rus.
Lumpen… … ……	Ger.	Tropos, Andrajos	
Chendi…… ………	Guz.	Haropos… … …	Sp.

Rags are used in the manufacture of paper.—*McCulloch's Com. Dic. p.* 968.

RAGU. See Rama.

RAGUAHILE, ——— ? Camelus dromedarius.

RAGULU. Tel. Eleusine coracana ; plural of Ragi.

RAH. Pers. A road ; Rah-dari, a guide ; Rahzan, a highway robber.

RAHACHARTA. See Chaldes.

RAHAL. Ar. A camel-load, about 5 cwts.

RAHALA. Beng. Hind. Cicer arietinum.

RAHAN. Burm. A perfected buddhist saint.

RAHAR. Hind.? A kind of pulse called Tur.

RAHAT. See Abhignyawa. Buddha.

RAHIM. Ar. Merciful, an attribute of the deity..

RAHMAT. See Naksh-i-Rustoom.

RAHTOR. A dynasty of Kanouj, afterwards continued in Marwar or Jodhpur; They commence authentic history in A. D. 800? By Yavanasva, prince of Parlipur? supposed of Indo-Scythic origin. In A. D. 1381, Chonda assaulted Mandor and made it his capital. In 1680, was murdered, Ajit Singh, in whose reign occurred the Rahtor conflict at Delhi, 4th July 1679 (7th Sravan. S. 1716) and the thirty years' war against the empire ; he was murdered by his son. The *Charan* are the sacred order of the Rahtor country ; the warlike tribes esteem the heroic lays of the bard more than the homily of the brahmin. The Charan are throughout reverenced by the Rahtor, and hold lands, literally, on the tenure of 'an old song.' In Colonel Tod's time, the genealogical roll of the Rahtor was about fifty feet in length, commencing as usual with a theogony, followed by the production of the first Raht from the spine (raht) of Indra, the nomin father being "Yavanaswa, prince of Parlipoor. Of the topography of Parlipoor, the Ra had no other notion than that it was in t north ; the genealogies trace their pedigr to Cush, the second son of Rama ; consequent they would be Suryavansa. But by the bar of this race they are denied this honour ; although Cushite, they are held to be the d cendants of Kasyapa of the Solar race, by t daughter of a Dyte (Titan). The progeny Hirna Kasyapa is accordingly stigmatised being of demoniac origin. They, however, ceeded to the Lunar race of Cushnaba, descen ants of Ujamida, the founders of Canouj. I deed, some genealogists maintain the Rahtor to be of Kusika race. The first locality of the Rahtor was Gadhipoora, or Kanouj, where they are found enthroned in the fifth century; and though, beyond that period, they connect their line with the princes of Kosula or Ayodia the facts rest on assertion only. In the period approaching the Tartar conquest of India, we find them contesting with the last Tuar and Chohan kings of Delhi, and the Balica-rae of Anhulwarra, the right to paramount importance amidst the princes of India. The combats for supremacy, destroyed them all. Weakened by internal strife, the Chohan of Delhi fell, and his death exposed the northwest frontier. Canouj followed ; and while its last prince, Jyechund found a grave in the Ganges, his son Seoji sought an asylum in Maroost'hulli, the regions of death. Seoji was the founder of the Rahtor dynasty in Marwar on the ruins of the Purihara of Mundor. Here they brought their ancient martial spirit, and a more valiant being exists not than can be found amongst the sons of eoji. The Mogul emperors were indebted r half their conquests to the Lakh Turwar htoran, the 100,000 swords of the Rahtor. e Rahtor has twenty-four sac'ha. The htor of Bikaneer are unchanged in their rtial qualifications, bearing as high a repution as any other class in India. The Rahtor the desert have fewer prejudices than their e eastern brethren ; they will eat food, hout inquiring by whom it was dressed, and drink either wine or water, without asking whom the cup belonged. They would make best soldiers in the world if they would mit to discipline, as they are brave, hardy, y satisfied, and very patient ; but in the dinate use of opium, and smoking intoxig herbs, are said to exceed all the Chatees ula, the thirty-six royal tribes of India. piala, or 'cup' is a favorite with every oot who can afford it, and is, as well as m, a panacea for ennui, arising from the ace of all mental stimulus, in which they more deficient, from the nature of the counthan most of their warlike countrymen.—*'s Rajasthan*, *Vol.* ii. *p.* 115, 196, 232. *mas' Prinsep*, *p.* 258.

AHU, in hindoo astronomy, the moon's nding node, is derived from a verb literally ning to abandon, void, hence also black, kness, shadow, &c., and is represented in oo mythology as having no body, the umbra e astronomers. The umbra may be said vour, as it were, the luminaries. In a ical sense the hindus consider it as one of obscure planets, which occasion eclipses ; according to mythology, Rahu is the head monster, of which Ketu the descending node, is the trunk. It is supposed by some commentators to be the Typhæus of Hesiod. Ráhu is fabled to have been translated to the stellar sphere, and became the author of eclipses by occasionally swallowing the sun and moon. The origin of the hostility of Ráhu to the sun and moon is this. When the gods were drinking the amrita produced at the churning of the ocean, Ráhu, a demon, assumed the form of a god, and began to drink, also, when the sun and moon, in friendship to the gods, revealed the deceit. His head was then cut off by Vishnu, but being immortal by having tasted the amrit, the head and tail retained their separate existence, and were transferred to the sky. The head became the cause of eclipses by its animosity to the sun and moon, and the tail became ketu or the descending node. "And now thou fall'st a prey to death, like the full moon to Ráhu's jaws consigned."—*William's Story of Nala*, *p.* 209, 210. *Wilson*, *Malathi Madhava*, *p.* 115. See Graha ; Ketu.

RAH-ZANI. Pers., literally to strike on the road, a highway robber.

RAI also **Ra** Hind., and Pind-Rai, Abies Smithiana, Himalayan spruce, often 100 feet high, and 5 feet in diameter.

RAI, the lowest of all the titular honors bestowed on hindus, as Rai Futteh Chand, Rai Ruttun Chand. See Rae.

RAI. Beng. Duk. Guz. Hind. Species of Sinapis, or mustard, viz., S. alba, racemosa, ramosa, trilocularis, chinensis, erysimoides.

RAI, or Sarshaf, Hind. Brassica campestris, also B. juncea. Rai Banarsi. Brassica campestris.

RAI of Kullu and Kangra, Abies Smithiana. *Hooker.*

RAI or **RAIAN**, a fair, good-looking, class of men dwelling throughout the plains of the Punjab in villages of their own or holding divisions of villages on equal terms with the Jat and others, and under a similar constitution. They are not martial, but apply the finer cultivation to the best lands, for which they pay a high revenue and are much appreciated by native Governments. They are the best cultivators in the province.

RAIANG. Hind. Abies Smithiana.

RAIAN-I-ROOMI. Pers. Aniseed.

RAICHORE, a town and a Doab or Mesopotamia in the centre of the Peninsula of India, in the dominions of the nabob of Hyderabad. It has an area of 6,600 sq. miles and a population of 500,000.

RAI DAS, founder of a hindoo sect called Rai dasi.

RAI DASI, a sect of vaishnava hindus, founded by Rai Das, a disciple of Ramanand,

and himself originally a chamar or worker in leather and hides.

RAI DROOG. See Kali.

RAIEN. A mahomedan tribe on either side of the Indus, south of Kalabagh and around Multan.

RAIGAR, in Mherwara, workers in skins.

RAIGURH. An old chiefship now attached to the Sambalpur district of Central India. It lies between 83° and 83° 35′ of east longitude, and between 21° 45′ and 22° 35′ of north latitude, and is bounded on the north by the native states of Sirguja and Gangpur under Chota Nagpur, on the south by the river Mahanadi and the Sambalpur khalsa, on the east by the zamindari of Jaipur or Kolabira, on the south-west by the zamindari of Chandrapur, and on the north-west by the feudatory state of Sakti under Bilaspur. The principal castes are agricultural, Kolta, Agharia, Kanwar, Saonra, Gond and Bhumia; others Brahmans, Rajputs, Mahanti, with a fair proportion of artisans. A chief of Raigurh, as a reward for his fidelity and services, was declared to be under the special protection of the British Government.

RAIHAN. HIND. Ocymum pilosum.

RAIHANI. HIND. A kind of emerald.

RAIIDÆ or Raiinæ, a sub-order, or family, of Plagiostomous Cartilaginous Fishes, of which the common ray is the type. See Fishes.

RAI JAMUN. HIND. Eugenia jambolana. —*Lam.*

RAI KA-TEL. GUZ. HIND. Oil of Sinapis alba, &c. Mustard seed oil.

RAIKH-MAHI. A fish (sort of eel) found in the sand of rivers, imported dried via Delhi: considered aphrodisiac.—*Irvine, p.* 150.

RAIL. HIND. Picea Webbiana.

RAILUM, a river near Palsorah in Oodeypoor.

RAILWAYS were first attempted to be introduced into India, in 1845, by two companies, termed the East India and the Great Indian Peninsula Railway Company, but the projectors found it necessary to apply to Government for aid, and Government guaranteed five per cent. for a term of 99 years, giving the land. In 1864-5, the length of rail in course of construction by eight Railway Companies was 4,944 miles. The estimated necessary capital being £81,000,000.

The most important engineering works connected with Indian railways were on the Thull ghaut, by an incline of nine miles and a quarter, in the course of which the northern branch of the G. I. P. Railway attains an elevation of 972 feet. The southern branch is taken through the mountains of the Bhor ghaut, by an incline nearly 16 miles long with a total elevation of 1,831 feet by a series of cuttings, tunnels, viaducts and embankments, which are only rivalled by those on the Thull ghaut. Sir Macdonald Stephenson, a civil engineer, native of Great Britain, was the first who, in 1843, suggested railways for India during the administration of Lord Ellenborough, but Mr. Bird, his successor, took up the subject. It was not encouraged either by the Court of Directors or the London mercantile community. Subsequently, during Lord Hardinge's administration and on his recommendation, the Court of Directors granted the land for a line from Calcutta to Delhi with a guarantee of four per cent. of interest on five millions sterling, and this was the first of the guarantees which have since been extended to canals, irrigation channels and other railroads. The first to progress was the East Indian and Great Indian Peninsular Railways, when contracts were signed in August 1849, with a free grant of land for 99 years with five per cent. interest guaranteed. During Lord Dalhousie's administration, the railway schemes made progress, and on the 18th November 1852, Bombay saw the first passenger train run. On the 20th April 1853, Lord Dalhousie, in a minute, urged their extension for strategic purposes, and on political and commercial grounds, and he mapped out certain trunk lines. Up to 1868, there were 8 lines of Railway guaranteed, for a distance of 5,607 miles with a guaranteed capital of £84,386,000 sterling. In one year, the passengers were 13,746,000, of whom 95 per cent. were of the third class. The average cost per mile has been about £16,000, and in some instances £20,000, but with due economy about £10,000 the mile is the amount estimated. During the year 1866, the length of line open for traffic increased from 3,331 to 3,638 miles and the extent now sanctioned (including the Indian Branch Railway) is 5,641 instead 4,924 miles.

At the commencement of the year 1870, length of 4,283 miles of railway was open. 1871, 5,051 miles were open, 557 miles having been added during 1870 and 211 during 1871. The most important section completed in 1870 was from Sohagpore to Jubbulpore on the G. I. P. line, by means of which railway communication between Bombay and Calcutta was established. Next in importance was the completion of the Sutlej bridge, which Lahore and Delhi were joined. The year 1871 has seen Bombay joined to Madras by the linking together of the Madras and the G. I. P. railways at Raichore. Thus the system of trunk lines originally laid down Lord Dalhousie may be regarded as completed. Commencing at Negapatam the most southern terminus of the present Madras system, proceeding by Bombay, Jubbulpore, Allahabad and Lahore, to Mooltan, on the Indus, a continuous length of about 2,800 miles of railway has been formed. Very little has been done on State Railways, which delay appears to be due to the much vexed question of gauge. This question has been happily, or unhappily settled. The Punjaub Northern Railway (between Lahore and Peshawur) 270 miles in length was to have £300,000 expended on it during 1871. The total cost of the line was estimated at about £3,000,000.

The Indus Valley Railway starts from a point six miles west of Mooltan on the Punjaub Railway, and runs through Shoojabad and Bhawulpore to Sukkur and thence to Kotree. The chief difficulty about this line is to determine on which side of the river it is to run. But it should be on the left to be protected by the river from any invading force from the north-west. For Rajpootana, lines have been surveyed from Agra to Ajmeer, via Jeypore and Sambhur, 236 miles, and from Delhi via Rewaree and Tellour, 125 miles, to join the above, with a branch of eight miles to the Salt Works. Operations were commenced on the line between Delhi and Rewaree, on an outlay of 50,000*l.* during 1871. The line to Ajmeer will probably be taken, ultimately, on to Indore, from which place to Khundwa, on the Great Indian Peninsula Railway, a line, 84 miles in length, has been laid out. A treaty was made in 1871 between the British Government and the maharajah of Jeypore for the lease of the Sambhur salt lake, allowing the British Government the exclusive right to manufacture and sell salt there. The line from Carwar to Hooblee, south of Bombay, is still under consideration. The difficulties of this scheme, and the expensive nature of the works over the ghats, made it necessary to survey the ground afresh. More favorable gradients and easier works than were originally contemplated have now been found practicable. The railway from Goolburga, on the Great Indian Peninsula, to Hyderabad, is to be constructed by the Nizam. It will be about 116 miles in length, will go by Secunderabad to Trimulgherry and is to be constructed on the broad gauge. Colonel Strachey, Colonel Dickens and Mr. Rendel, Consulting Engineer to the East Indian Railway Company, recommended 2 feet 9 inches of gauge and Mr. Fowler, 3 feet 6 inches. The former were of opinion that "to obtain the greatest economy in construction, and consequently the greatest possible extension of railways in India the gauge selected should be the narrowest which would combine convenience of transport for various kinds of goods and passengers with reasonable speed, and with economy and safety in working," and these conditions they thought would be fulfilled by a 2 feet 9 inch gauge. Mr. Fowler was of opinion that a width of 3 feet 6 inches should be adopted "on the ground that it was not greater in first cost of works and rolling stock than a gauge of 2 feet 9 inches, and was greatly superior in carrying capacity, convenience and economical working. This opinion was overruled by the other members of the committee, who considered that the cost of a railway was in proportion to its guage, though a glance at the section of a railway bank or cutting would prove the contrary. Mr. Hawkshaw, Consulting Engineer to the Madras and Eastern Bengal Railways, and Mr. Bidder, Consulting Engineer to the Sind, Punjab and Delhi Railway were both opposed to the adoption of any other than the existing gauge (5 feet 6 inches) for future lines as they might be required as branches to or extensions of existing lines of railway. They attached great importance to the inconveniences arising from a break of gauge, and contended that the very small saving which might be secured by the adoption of a narrow gauge would be more than counterbalanced by these disadvantages. These opinions were transmitted to the Government of India in October 1870, and that Government has since decided that 3 feet 3⅜ inches shall be the future narrow gauge for Indian Railways. This dimension, the French metre, is a puzzling quantity to deal with, and nothing has been made known as to the cause of its being adopted.

In 1870, the average number of persons employed on all the opened lines in India was 13·9 per mile, the proportion of Europeans and East Indians to natives being nearly as 1 to 13. The number per mile employed on the East Indian is 16·4; the number on the G. I. P. is 18; on the Bombay, Baroda and Central India it is 15, and on the Madras 10. In 1870 the G. I. P. was the dearest and the Madras the cheapest worked railways in India. The number of passengers killed and injured by accidents during 1870 was 13 and 63 respectively, as against 48 and 92 in 1869: and the number who died from heat apoplexy, exhaustion and cholera in the trains and stations was 114. The accidents in the way of running over cattle were 314; 53 by the Madras Railway, 128 by the East Indian, 52 by the Great Indian Peninsula, and 46 by the Bombay, Baroda and Central India. Sixty-nine collisions were reported in 1870, against 78 in 1869 and 64 in 1868. There were 258 cases of running off the proper line in 1870 against 149 in 1869. Of these 258 accidents, 182 occurred on the Great Indian Peninsula; 40 on the Sind, Punjab and Delhi and only 10 on the East Indian Railway. The following gives the number of miles open, the cost per mile, and the total cost of the principal Indian railways up to the 31st March 1871.

	Miles.	Per mile.	Total cost.
E. I. R.…	1503	£30,227	£30,401,276
G. I. P.…	1872	17,628	22,417,464
M. R.……	832	11,716	9,741,135
B.B. & C.I.	812	23,883	7,436,158
S. P. & D. .	675	14,972	10,106,700
G. S. I.….	168	8,658	1,454,666
E. B.… …	159	17,988	2,860,667

The revenue derived from railways during the year 1870 was £2,864,600 being about £340,000 in excess of the previous year. The gross receipts were £6,213,865 and the expenses £3,367,261. The Nerbudda coal fields are likely to be available for railways in Central India and hopes are also entertained of the Chanda coal fields. In the Punjab and Sind a system has been organized, similar to that of the Madras Railway, for growing trees for fuel. The right of purchasing the different guaranteed lines from their companies can first be exercised by the Government as under ;

East Indian Railway main line.	15	February	1879
„ Jubbulpore line.….	21	April	1883
Great Indian Peninsula… … …	17	August	1899
Madras.. …… …… … …	1	April	1907
Bombay, Baroda, Central India.	1	May	1905
Sind, Punjaub and Delhi………	1	January	1885
Eastern Bengal……… ……	30	July	1883
Great Southern of India………	1	January	1889
Oude and Rohilkund……………	2	August	1887
Carnatic……………… …… ……	1	March	1890

The Bombay Railway was opened 16th April 1853.

Railway employees in India, in 1867, numbered ten thousand christians, who by regulations then introduced became more of State servants. The Bombay and Baroda railway crosses the Tapti, Nerbudda and Mahi rivers over great bridges and viaducts. One railway, 850 miles long, down the Euphrates valley has been planned, to terminate at Bussorah in the Persian gulf and at Seleucia in the Levant.

RAIMANDRUG, L. 13° 21′ 3″, L. 77° 59′ 5″ N. E. of Davanhalli, is a hill station 4,226 feet above the sea. See Ramandroog.

RAIN. HIND. An industrious class of cultivators in the Punjab : great vegetable growers. See Raien ; Raian.

RAIN.

Mo…… …… … BURM. | Bursat…… HIND.

The occasional showers which fall throughout the year in Britain, are unknown in most Asiatic countries, and the first particular to attend to in examining their climates is the season and the quantity of the periodical rains. It is this which regulates husbandry, and on which in many countries the temperature and succession of the seasons in a great measure depend. The globe is wrapped in a layer of air about forty miles high. This air is chiefly a mechanical mixture of oxygen and nitrogen, but is also the recipient of all the volatile matters which rise from the surface of the globe, and amongst others of watery vapour in proportionally large quantity. And the manifold climates of the world are caused by the mutual relations of this layer of air, and sea and land ; and the changes of weather, heat and cold, drought and rain, cloud and sunshine, calm and tempest, all depend upon the movements into which it may be thrown. When its temperature is lowered the moisture in the air falls in rain, hail, or snow. In the tropics the sun's rays fall more vertically on the air than elsewhere, and its rarefied particles constantly rising form a column ever moving towards the poles. To fill the vacuum thus caused the denser air from the frozen poles rush down over the surface of the globe towards the equator, and hence result the great polar and equatorial air currents, the direct courses of which between the poles and the equator are bent by the revolution of the earth on its axis, in the northern hemisphere into the north-east, and in the southern into the south-east trade winds or vents alises. "The wind goeth towards the south, and turneth about unto the north, it whirleth about continually and returneth again according to its circuits." The land becomes hotter and hotter more quickly under the sun, than the sea does, and the consequence is that when the sun becomes vertical over any portion of the land it draws the surrounding air to a focus there; and in this way in every latitude the great primary world winds and rains are broken into secondary or local winds and rains ; producing the differences in nature and time of the climates which prevail over the globe. Owing to the excess of land in the northern hemisphere the constant belt of rain, where it exists between the trades, instead of corresponding with the equator lies a little to its north, and the moisture gathered by the south-east trades only falls in rain when it reaches the tropic of Cancer, thus compensating the northern hemisphere for its want of evaporating surface. Similar modifications and compensations on a smaller scale, occur in regard to each of the trades separately, as the sun successively traverses the north and southern ecliptic. India stretches out into the belt of the north-east trades, and were these undeviating winds, the only rain which the Deccan would receive would be that gathered by them in the Bay of Bengal from October to April and poured down on Madras during its N. E. monsoon. But at the vernal equinox (March 21st) the sun passes from the southern hemi sphere to the northern, is first vertical over Bombay about May 15th, reaches the highest point of his upward journey June 21st, the summer solstice, descending, is again vertical over Bombay about July 27th, and finally on September 21st, the autumnal equinox, having traversed the whole tropic of Cancer, re-enters Capricorn. Between May and July the sun shines down furiously on the great grassy plains of Central Asia from which so vast a current of rarefied air ascends up into heaven, that the resulting vacuum has the power not only to completely reverse the direction of the north-east trade, but even to draw and deflect the S. E. trade towards India. Thus is the south-west monsoon brought about. This rushing mighty wind, laden with moisture gathered from the Indian ocean, strikes Malabar and the Concans at nearly right angles, and there, chilled by the cool green forest barrier of the ghats, pours it down on Western India for four months in violent rains, which are ushered in and depart amidst the most terrific thunder storms. And thus it is that the temperature also is lowered during months that otherwise would be so hot as to make the Western Coast of India scarcely habitable. The ghats however, which cause the rain to pour down on Bombay shut it off from Madras. The Deccan, sloping eastward, the superfluous rain which falls on the ghats and which does not flow into the Concans, drains off to the Bay of Bengal as the great continental rivers, Godavery, Palaur, Cauvery, Pennar, and Kistna. The Ghats cease about Surat; and there the Sautpoora, Vindhya and Aravalli mountains condense the clouds borne by the south-west wind, and flood Surat and Baroach with the Taptee and Nerbudda—the only Deccan rivers flowing westward—and Guzerat and a large portion of Rajpootana with the countless affluents of the Sabermutty. The influence of the south-west wind reaches to the Himalaya—but not sufficiently to irrigate the wide plains of Hindoostan, the Punjab, and Sindh. At the very time that the sun is drawing all the vapours of the Indian Ocean to the coasts of India, his rays are melting the snows of the Himalaya and Hindoo Kush, which flow down to the Bay of Bengal and the Arabian Sea as the sacred Ganges and primæval Indus. Thus is India watered, and that transport provided for its world-famous products, but for which they never would have become of so great economic value. It is a wonderful scheme of forces and phenomena all harmoniously, unerringly, and inflexibly working together for good, by the infinite intelligence, goodness and power of God.

Each inch of rain-fall represents a ton of water per acre. Out of the 1,000 miles of Ghat along the western coast of India, taking the single top of Mahableshwur, and estimating its surface at 6,000 acres, and the rain-fall on it at 300 inches a year, it results that 180,000,000 of tons of water fall on it yearly. More than half of the rain which falls on the Ghats pours down into the sea.

The most remarkable rainy season in India, is that called the south-west monsoon. It extends from Africa to the Malay peninsula, and deluges all the intermediate countries within certain lines of latitude, for four months in the year. In the south of India this monsoon commences about the beginning of June, but it gets later as we advance towards the north. Its approach is announced by vast masses of clouds that rise from the Indian Ocean, and advance towards the north-east, gathering and thickening as they approach the land. After some threatening days, the sky assumes a troubled appearance in the evenings, and the monsoon in general sets in during the night. It is attended with such a thunder-storm as can scarcely be imagined by those who have only seen that phenomenon in a temperate climate. It generally begins with violent blasts of wind, which are succeeded by floods of rain. For some hours lightning is seen almost without intermission, sometimes it only illuminates the sky, and shows the clouds, near the horizon; at others it discovers the distant hills, and again leaves all in darkness, when in an instant it re-appears in vivid and successive flashes, and exhibits the nearest object in all the brightness of day. During all this time the distant thunder never ceases to roll, and is only silenced by some nearer peal, which bursts on the ear with such a sudden and tremendous crash as can scarcely fail to strike the most insensible heart with awe. At length, the thunder ceases, and nothing is heard but the continued pouring of the rain, and the rushing of the rising streams. The next day presents a gloomy spectacle: the rain still descends in torrents, and scarcely allows a view of the blackened fields: the rivers are swollen and discoloured, and sweep down along with them the hedges, the huts, and the remains of the cultivation which was carried on, during the dry season, in their beds. To persons who have long resided in India, these storms lose much of their grandeur, yet they sometimes rise to such a pitch, as to make an impression on those most habituated to them. It was mentioned to Mr. Elphinstone by a gentleman who had been for some time in Malabar, the province most distinguished for the violence of the monsoon, that he there heard a clap of thunder which produced a silence of a minute in a large party of officers, and made a great part of the company turn pale. This lasts for some days, after which the sky clears, and discovers the face of nature changed as if by enchantment. Before the storm, the fields were parched up and, except in the bends of the rivers, scarce a blade of vegetation was to be seen : the clearness of the sky was not interrupted by a single cloud, but the atmosphere was loaded with dust, which was sufficient to render distant objects dim as in a mist and to make the sun appear dull and discoloured, till he attained a considerable elevation: a parching wind blew like a blast from a furnace, and heated wood, iron and every other solid material, even in the shade ; and immediately before the monsoon, this wind had been succeeded by still more sultry calms. But when the first violence of the storm is over, the whole earth is covered with a sudden but luxuriant verdure ; the rivers are full and tranquil ; the air is pure and delicious ; and the sky is varied and embellished with clouds. The effect of the change is visible on all the animal creation, and can only be imagined in Europe by supposing the depth of the dreary winter to start at once into all the freshness and brilliancy of spring From this time the rain falls at intervals for about a month, when it comes on again with great violence, and in July the rains are at their height ; during the third month, they rather diminish, but are still heavy : and in September they gradually abate, and are often entirely suspended, till near the end of the month, when they depart amidst thunders and tempests as they came. Such is the monsoon in the greater part of India. It is not, however, without some diversity, the principal feature of which is the delay in its commencement, and the diminution in the quantity of rain, as it recedes from the sea. So that no trace of it can be perceived at Candahar. A remarkable exception to this rule, is, however, to be observed in the north-east of Afghanistan, which although much further from the sea than Candahar, is subject to the monsoon, and what is equally extraordinary, receives it from the east.

These anomalies may perhaps be accounted for by the following considerations. It is to be observed that the clouds are formed by the vapour of the Indian ocean, and are driven over the land by a wind from the south-west. Most part of the tract in which the kingdom of Caubul lies, is to leeward of Africa and Arabia, and receives only the vapours of the narrow sea between its southern shores and the latter country, which are but of small extent, and are exhausted in the immediate neighbourhood of the coast. India, lying further east, and beyond the shelter of Africa, the monsoon spreads over it without any obstruction. It is naturally most severe near the sea from which it draws its supplies, and is exhausted after it has passed over a great extent of land. For this reason, the rains are more or less plentiful in each country, according to its distance from the sea, except in those near high mountains, which arrest the clouds, and procure a larger supply of rain for the neighbouring tracts, than would have fallen to their share, if the passage of the clouds had been unobstructed.

The obstacle presented to the clouds and winds by the mountains has another effect of no small importance. The south-west monsoon blows over the ocean in its natural direction ; and, though it may experience some diversities after it reaches the land, its general course over India may still be said to be towards the north-east, till it is exhausted on the western and central parts of the peninsula. The provinces in the north-east receive the monsoon in a different manner : the wind which brings the rains to that part of the continent, originally blows from the south-west, over the Bay of Bengal, till the mountains of Himalaya, and those which join them from the south, stop its progress, and compel it to follow their course towards the north-west. The prevailing wind, therefore, in the region south-west of Himalaya is from the south-east, and it is from that quarter that the provinces in Bengal receive their rains. But when the wind has reached so far to the north-west as to meet with the Hindoo Coosh, it is again opposed by that mountain, and turned off along its face towards the west till it meets the projection of Hindoo Coosh and the Soliman range which prevent its further progress in that direction, or at least compel it to part with the clouds with which it was loaded. The effect of the mountains in stopping the clouds borne by this wind, is different in different places. Near the sea, where the clouds are still in a deep mass, part is discharged on the hills and the country beneath them, and part passes up to the north-west ; but part makes its way over the first hills, and produces the rains in Tibet. In the latitude of Kashmeer, where the hills are considerably exhausted, this last division is little perceived : the southern face of the hills and the country still farther south is watered ; and a part of the clouds continue their progress to Afghanistan ; but few make their way over the mountains, or reach the valley of Kashmeer. The clouds which pass on to Afghanistan are exhausted as they go, the rains become weaker and weaker, and at last are merely sufficient to water the mountains, without much affecting the plains at their base, and some parts of the Paujab are almost rainless.

The above observations will connect the following facts :

The south-west monsoon sweeping along from the Indian ocean and Arabian Sea, commences on the Malabar coast in May, and is there very violent, it is later and more moderate in Mysore ; and the Coromandel Coast, covered by the mountainous countries on its west, is entirely exempt from it or only felt in the form of occasional showers. Further north, the S. W. monsoon begins early in June, and loses a good deal of its violence, except in the places influenced by the neighbourhood of the mountains or the sea, where the fall of water is very considerable. About Delhi it does not begin till the end of June, and the fall of rain is greatly inferior to what is felt at Calcutta or Bombay. In the north of the Punjaub, near the hills, it exceeds that of Delhi; but, in the south of the Punjab, distant both from the sea and the hills very little rain falls.

The countries under the hills of Kashmeer, and those under the Hindoo Koosh, (Pukhlee, Boonere, and Swat) have all their share of the rains; but they diminish as we go west, and at Swat are reduced to a month of clouds, with occasional showers. In the same month (the end of July and beginning of August) the monsoon appears in some clouds and showers at Peshawur, and in the Bungush and Khuttuk countries. It is still less felt in the valley of the Cabul river, where it does not extend beyond Lughmann; but in Bajour and Punjcora, under the southern projection, in the part of the Kafir country, which is situated on the top of the same projection, and in Teera, situated in the angle formed by Takht-i-Soliman and its eastern branches, the south-west monsoon is heavy, and forms the principal rains of the year. There is rain in this season in the country of the Jaujee and Toree, which probably is brought from the north by the eddy in the winds, but it is uncertain whether that which falls in Bunnoo and the neighbouring countries is to be ascribed to this cause or to the regular monsoon from the south-west.

Direct observation will probably at some future period fix the point in the outer Himalaya, at which the quantity of rain—always greater, cæteris paribus, among mountains than in level countries is a maximum. Dr. Thomson believes that in the Western Himalaya the greatest quantity of rain will be found to fall on mountains elevated from seven to nine thousand feet. Ranges of mountains which attain an elevation of from ten to eleven thousand feet have already, in the Western Himalaya, a very sensible effect in diminishing the quantity of moisture, as indicated by the vegetation; and when the mountain chains become sufficiently elevated to be capped by perpetual snow, they condense a very great proportion of the moisture of the air-currents which pass over them.

A recent writer in the "Calcutta Review" concludes that the number of trees does not affect the rain-fall, but he recognizes that trees cause an increased deposit of dew, prevent evaporation of moisture from the earth whether derived from rain or dew, and that an increased number of trees is calculated to modify an arid climate very materially for the better. But the general belief is that the presence of trees prevents aridity and barrenness, preserves springs and rivulets; lowers temperature, prevents torrents and conserves soil.

The quantity falling at Neuera-elia has perceptibly diminished of late years probably owing to the extensive clearing of the surrounding forests for coffee planting.

In several parts of the Delhi district, the average rain-fall is about 17 inches; at Umballa 30; Loodiana 20; Hushiarpur 30; Jullundur 25; Umritsar 28; Lahore 15; Montgomery in the Baree Doab 6 inches and Multan $\frac{6}{10}$ths of an inch.

The rain belt or calm belt between the trade winds travels up and down the earth. It has a mean breadth of about 6° of latitude, but in summer is between 8° and 14° N., and in spring between 5° S. and 4° N. Monsoons are for the most part formed of trade winds. When a trade wind is turned back or diverted by overheated districts from its regular course at stated periods of the year, it is regarded as a monsoon. The N. E. and S. W. monsoons of the Indian Ocean, are the N. E. trade winds turned back by the heated plains of the interior of Asia and the desert of Cobi. The S. W. monsoon prevails from May to September and N. E from November to March. Doldrums is the rain belt or calm belt of the tropics.

The fall of rain from Cape Comorin to Cutch on the western side, averages 180 inches, some of which, at least 160 inches, are again carried off to sea. The fall on the Concan averages 70, of which 30 flow to the ocean. The mean depth of the ocean is about 4 miles, the greatest depth the sounding line has ever reached is $5\frac{1}{4}$ miles; mean elevation of the land is about 1,000 feet.

Rain sometimes falls to the extent of 12 to 15 inches in India. In the hot season, Madras is often visited with refreshing non-monsoon rains which much reduce the heat of that period, and produce forage for cattle. In 1854, Major Worster published a table of monthly and yearly results of the observations of the rain gauge, at the Madras Observatory, from 1813 to 1854, showing an average annual fall of $49\frac{1}{2}$ inches of rain during the forty-two years. Of this amount $29\frac{1}{4}$ inches fell during the monsoon months of October, November and December, the other 20 inches falling during the other non-monsoon months of the year. A striking connexion between the amount falling in the non-monsoon months with the fall in October, November and December following; and these falls seem to augur a copious monsoon for the monsoon year. In the 42 years of the table, there were 20 years, in which the fall in the non-monsoon months was above, and 22 years in which it was under the average, In the 20 years when the rains of the non-monsoon months had been at or above the average of 20 inches, the rains of the following monsoon months had likewise, in 16 years, been at or above the average of 29½ inches: and in the 22 years when the rains of the non-monsoon months had been below their average, in 15 instances, the next monsoon has been deficient.

Meteorological Table showing the monthly mean temperature, rainfal and direction of the wind.

Station.		Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Total	Year.
Bellary.	Mean. Temperature.	74	79	85	88	86	83	80	79	79	78	74	73	80	9
	Rain fall.	0·2	...	1·0	1·0	2·1	1·8	1·7	8·0	3·8	5·6	1·1	0·4	21·7	19
	Wind.														
Bangalore.	Temperature.	70	73	79	79	80	76	75	74	75	73	72	70	76	(?)
	Rain.	...	...	...	1·3	3·8	1·6	5·6	5·4	3·2	1·1	2·9	0·1	25·0	1
	Wind.														
Neilgherry. (Dodabetta)	Temperature.	52	52	55	56	57	53	53	53	53	53	52	51	54	3
	Rain.	0·1	7·4	3·6	19·8	4·9	4·6	7·4	9·3	7·5	12·5	11·9	12·3	101·3	2
	Wind.														

Register of the Pluviometer at Bombay from 1817 *to* 1847.

	June.	July.	Aug.	Sept.	Oct.	
YEARS.	Total fall in the month	Total fall in the month.	Total fall in the month.	Total fall in the month.	Total fall in the month.	Total fall in June, July, August, September & October in each year.
	Inches	Inches	Inches	Inches	Inches	Inches.
1817	45·72	23·67	9·34	24 87	0·00	103·60
1818	22·54	17·69	28·45	10·39	2·00	81·14
1819	15·95	31·66	20·24	10·11	0 00	77·96
1820	18·82	28·37	19·49	10·66	0·00	77·34
1821	15·18	20·60	28·52	18·29	0·00	82·59
1822	29·64	26·59	33 83	22·16	0·00	112·23
1823	21·76	15·96	19·70	4·28	0·00	61·70
1824	3·39	8·07	17·86	1·78	2·37	33·97
1825	24·45	25·17	12·94	9·68	0·00	72·24
1826	17·75	26 97	8·40	23·50	1·87	78·49
1827	49·15	10·29	10·51	10·16	0·92	81·03
1828	23·53	52·75	17·22	22 08	6·40	121·98
1829	27·86	19·78	12·40	4·95	0·66	65·65
1830	20·96	32·46	10·66	7·78	0·00	71·86
1831	22·16	27·31	27 64	22·34	2·08	101·83
1832	18·68	48·05	4·65	7 11	0·65	74·09
1833	12·50	21·80	13·35	23·54	0·20	71·39
1834	14·16	21·83	18·05	12·55	3·88	70·47
1835	9·99	4·27	35·76	12·17	0 42	62·61
1836	21·36	24·05	37·41	4·69	0·00	87·91
1837	12·61	24·39	22·43	5·15	0·00	64·58
1838	29·70	8·70	7·34	5·04	0 00	50·78
1839	18·28	32·19	18·45	4·70	0 00	68·62
1840	25·04	24·24	4·20	7·55	2·12	63·15
1841	25·27	21·21	20·53	1·27	3·21	71·49
1842	16·84	26.45	37.10	10 41	4·36	95·16
1843	9 33	22·49	18·20	9·00	0·25	59·27
1844	14·17	35·52	6·55	9·16	0·00	65·40
1845	19·70	20·44	6·56	8.03	0·00	54·73
1846	31·71	40·56	5·60	8·45	1·16	87·45
1847	35·47	16·80	8·92	5·80	0·32	67·31

Average annual fall in the last 31 years...75·42

When the sun has returned to the northern hemisphere and heated the great arid plains of central Asia, of Tartary, Thibet and Mongolia, these rarify the air of the N. E. trade winds, and cause it to re-ascend thereby creating an in-draught from the air of the Indian ocean. The south-east trade winds therefore rush over into the northern hemisphere, and are thus converted in certain parts of the Indian ocean during the summer and early autumn, into the S. W. monsoon. This wind, from the Indian ocean and sea of Arabia strikes perpendicularly on the western ghats and precipitates its moisture on the narrow strip of land between the ghats and the sea, and it is then that Bombay shares in the fall. Almost all the rain falling in Bombay is brought to it by the south-west monsoon, during the five months of June to October; the Peruvian Andes have a dry and a wet side of the mountains; but Bombay, thirty miles to the west of the Western Ghats, has a dry and a wet season.

Half Monthly Rainfall at Madras. The average of Sixty Years from 1803 to 1866 inclusive.

		January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Annual.
1803	All unreliable.	...	...	...	...	...	...	...	...	...	...	1·73	0·16	0·24	1·46	0·21	0·62	3·74	3·95	1·04	10·55	7·63	22·79	0·37	11·60	66·09
4		...	...	1·06	...	...	0·08	...	...	...	...	0·65	0·34	0·87	0·38	0·85	2·32	0·91	0·61	3·59	8·82	4·52	1·41	5·26	...	31·11
5		2·35	0·03	...	...	...	...	...	...	0·34	...	0·55	0·85	1·91	0·75	1·09	2·31	1·28	2·14	4·15	2·31	4·84	1·32	2·19	2·80	31·21
6		...	0·43	...	...	...	...	...	...	...	...	...	...	2·70	0·65	14·10	0·18	1·55	...	23·70	7·20	...	7·30	2·70	1·00	61·51
7		...	...	...	...	...	...	0·07	...	..	1·70	...	...	0·12	1·38	...	1·05	...	2·28	3·02	1·48	...	...	14·25	0·20	25·65
11		...	...	...	0·05	4·68	...	0·15	..	16·38	...	0·56	..	...	0·31	1·03	...	0·51	0·73	1·62	2·10	10·30	0·42	0·58	0·25	39·67
13		...	...	...	...	0·13	...	...	...	0·12	0·18	2·10	0·60	0·08	1·20	0·35	0·48	2·32	...	3·10	2·03	16·60	14·00	3·36	0·62	47·27
14		...	0·08	...	...	...	..	...	..	...	...	...	...	...	1·59	3·76	1·16	2·42	6·07	3·05	4·05	0·97	5·75	1·64	2·07	32·60
15		...	1·61	...	...	...	...	...	...	..	...	...	...	5·17	1·30	0·27	0·53	0·90	2·03	0·24	6·02	9·30	23·88	..	4·80	56·05
16		0·10	...	0·73	...	...	...	...	...	0·20	..	...	0·45	1·57	3·50	3·38	1·83	3·70	5·35	1·15	5·43	9·60	2·72	1·45	...	41·16
17		0·35	...	...	...	...	...	...	...	...	0·20	0·11	0·05	1·45	0·15	0·55	2·92	1·60	6·07	2·18	17·34	12·25	12·08	2·40	3·85	63·55
18		...	...	...	...	...	...	0·60	...	...	...	...	0·74	1·95	9·80	0·98	5·17	2·52	2·87	6·24	11·64	11·56	14·06	6·50	1·27	75·90
19		...	...	...	...	..	...	...	2·55	...	..	0·13	...	3·28	...	0·71	0·39	13·19	1·70	1·10	1·90	10·42	0·25	0·71	...	36·33
20		...	...	...	...	...	6·75	0·50	...	17·17	..	0·55	0·30	0·74	2·68	1·87	1·07	0·60	1·10	...	11·84	0·67	3·52	5·42	7·00	61·75
21		3·56	0·05	...	...	0.32	...	...	1·70	..	..	...	1·10	0·18	1·02	2·33	0·85	6·72	0·58	0·68	7·85	10·40	0·95	0·75	3·60	42·63
22		2·30	...	...	...	...	...	0·62	...	...	...	0·40	1·37	0·25	0·30	2·10	4·60	2·35	0·08	10·20	10·37	10·15	10·95	2·50	0·77	59·61
23		1·45	...	...	...	0·92	...	..	...	0·27	...	...	2·05	0·80	2·67	0·15	3·00	3·87	0·58	2·75	7·65	0·80	0·10	...	0·20	26·61
24		0·17	1·10	...	...	..	...	...	...	...	0·05	0·30	0·15	0·03	0·22	1·95	0·70	0·32	0·15	8·10	6·25	4·60	5·67	0·13	3·82	33·71
25		0·17	...	...	...	...	...	...	...	...	4·25	1·02	0·16	0·60	2·47	1·20	6·47	1·07	2·43	1·95	15·53	11·08	0·03	4·92	2·43	56·09
26		...	...	...	...	...	...	...	...	...	1·05	4·07	8·70	0·95	1·15	0·90	6·72	2·07	0·25	0·20	0·62	17·29	5·75	5·23	5·82	58·77
27		8·58	0·03	...	0·07	...	...	...	...	23·30	...	0·72	2·20	1·65	3·25	0·88	1·90	3·50	0·94	1·12	13·50	7·74	14·38	5·76	0·22	88·42
28		0·82	0·80	...	...	...	4·36	0·70	0·02	...	0·40	0·05	0·08	1·85	1·52	5·59	1·71	4·72	1·00	8·32	0·88	1·79	0·82	0·29	2·17	37·89
29		...	0·27	3·06	0·10	...	0·89	0·05	..	...	1·42	0·01	2·74	1·29	0·48	1·10	1·84	1·06	1·93	5·75	0·40	4·28	4·71	5·37	0·12	36·87
30		...	..	...	...	0·14	0·06	...	0·31	0·05	0·24	0·28	2·61	4·15	3·05	0·55	2·18	2·70	1·57	1·24	4·98	0·17	3·70	1·45	3·00	32·43
31		...	0·04	...	..	0·17	...	...	...	0·94	...	2·28	1·62	1·28	1·85	1·60	7·90	4·89	2·31	3·12	6·23	0·21	7·69	0·68	1·51	44·35
32		...	..	...	0·10	...	..	...	...	0·63	...	...	0·51	0·66	0·89	1·57	0·69	2·23	5·48	1·27	4·01	0·07	0·34	...	...	18·45
33		0·18	...	...	...	...	...	...	...	...	0·33	0·89	0·57	0·40	0·77	0·17	6·94	2·42	1·52	2·88	6·81	8·31	1·66	0·21	3·06	37·12
34		0·06	...	...	...	...	...	3·65	...	..	0·30	0·62	1·81	4·05	3·03	0·28	3·82	4·70	0·17	5·34	1·70	1·31	6·65	1·31	0·30	39·00
35		...	0·06	...	...	...	...	3·37	0·23	...	1·75	0·39	0·47	2·43	2·86	0·75	2·26	2·17	1·09	6·56	3·12	6·58	4·38	1·33	0·24	40·06
36		...	...	0·32	...	...	0·15	...	...	...	...	0·12	0·38	2·11	2·49	5·46	3·54	0·29	0·65	...	8·51	1·05	17·59	0·81	1·18	44·68
37		...	...	...	...	...	...	1·53	0·70	...	2·56	...	0·18	0·58	2·07	1·28	0·41	1·55	2·25	0·37	15·42	14·03	3·15	2·82	0·37	49·26
38		...	...	1·33	...	0·59	...	...	0·77	...	0·54	0·17	0·71	1·58	0·79	2·94	1·75	...	8·78	1·06	3·21	21·54	0·35	4·22	...	50·33
39		0·09	3·25	...	...	...	...	0·58	1·04	...	0·69	2·45	0·13	1·95	2·66	3·08	3·75	10.10	1·01	...	0·99	21·11	0·16	...	...	53·07
1840		...	...	...	...	...	...	...	0·03	...	...	0·23	0·25	0·50	3·93	1·05	6·79	5·87	2·49	0·69	9·47	26·72	0·53	...	0·12	58·65

Half Monthly Rainfall at Madras. The average of Sixty Years from 1803 to 1866 inclusive.

	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Annual.
1841	1·99	...	...	...	...	...	...	0·47	0·27	4·30	1·57	2·40	1·05	0·39	1 93	6·73	2·68	1·33	12·34	12·39	5·08	1·20	0·17	1·06	58·35
42	1·74	...	...	...	...	0 28	...	...	0·31	...	0·43	0·98	1·25	1·94	0·99	2·13	1·67	3·93	0·34	7·57	11·41	1·19	0·03	0·16	36·48
43	1·82	4·68	0·02	...	0·74	...	0·04	...	0·05	14·06	1·84	0·06	0·07	1·30	0·81	1·42	0·75	3·45	4·15	2·16	5·27	...	7·10	0·49	50·28
44	0·21	0·55	0·52	..	...	...	...	...	1 00	1·66	0·01	2·72	0·81	2·56	1·23	1·49	3·86	8·65	10·75	3·11	2 38	1·01	6·33	16 48	65·36
45	1·64	...	...	...	0·02	...	...	0·04	0·47	1·04	1·31	0·92	0·99	1·91	1·69	0·26	2·15	1·90	3·01	0·29	1·12	3 79	5·69	9·11	37·65
46	2·94	...	...	0·23	...	...	...	...	...	1·64	0·54	1·54	7·34	1·78	4·47	0·21	0·86	0·06	2·51	28·08	1·04	18·35	3·60	3·30	78·19
47	...	..	0·22	...	...	...	...	0·45	...	0·73	1·14	2·65	0·97	2·12	6·12	3·59	0·17	5·10	5·48	10·84	13·42	5·24	20·51	1 04	80·99
48	...	...	...	...	...	..	1·16	5·22	..	0·10	1·09	0·77	1·34	2·63	3·42	1·71	0·56	2·53	4·16	9·77	7·14	10·15	3·11	...	54·76
49	2·60	...	...	...	...	...	...	1·12	...	0·04	3·00	0·90	1·05	2·53	2·85	2·04	1·48	0·17	9·18	0·01	1·44	4·70	0·09	6 71	39·81
50	...	0·04	4·27	...	...	...	0 98	...	...	2 94	1·08	1·81	0·24	1·29	1·36	1·70	2·89	0·15	1·95	9 37	4·31	3·81	5·47	0·19	36 88
51	...	...	...	...	...	...	...	...	18·45	0·15	0·13	1 13	3·67	2·83	2·90	1·44	0·33	1·36	5·06	0·57	19·57	5·98	1·39	0·06	64·32
52	...	...	...	...	...	2·62	...	...	2·21	0·01	0·44	1·45	2·04	5·96	0·86	1·40	6·49	0·29	9·40	11·20	10·59	8·81	5·78	2·14	72·69
53	0·15	2·10	...	...	..	3·37	0·77	..	...	...	0·05	0·57	3·64	0·50	1·27	0·11	1·57	0·66	0 35	8·72	11·88	0·11	...	...	35·82
54	0·42	..	0·30	...	...	0·09	...	...	...	...	0·43	0·72	2·46	1·81	6·16	0·89	4·80	1·57	0·32	9·90	3·96	6·00	1·88	2·19	43·20
55	0·74	0·20	...	0·68	0·26	...	...	0·07	...	...	0·39	0·83	0·40	2·39	0·55	1·10	2·36	1·39	6·60	4·01	0·92	0·55	7 10	1·98	32·32
56	...	...	...	0·03	...	..	...	0·01	1·52	3 92	0·10	0·72	1·20	2·12	0·50	5·18	0·51	0·55	2·39	1·49	2·92	14·05	9·70	0·01	46·99
57	0·32	...	...	..	...	0·10	...	0·12	...	0·07	2·31	0·62	0·81	1·58	0·55	0·37	0·29	1·26	10·20	27·53	4·61	1·21	0·56	0·44	52·95
58	...	...	...	0·02	...	...	...	0·83	1 99	1·04	0·32	1·31	2·08	1·00	1·64	0 47	2·82	0·79	10·12	0·95	13·89	8·23	...	...	48·50
59	0·62	..	...	...	...	...	0·28	4·64	0·11	0·74	1·73	0·78	6·85	1·19	1·03	1·43	3·32	5·21	2·11	5·61	4·25	15·21	...	...	55 14
60	...	...	...	...	...	...	...	...	...	...	0·63	1·12	0·34	1·73	0·53	1·94	1·79	3·18	2·71	11·36	0·86	1·22	0·03	0·20	27·64
61	...	...	...	...	0·16	0·28	...	...	..	1·28	0·14	0·52	2·19	6·29	4·33	3·55	2·51	6·74	0·02	1·51	12·82	...	0·04	...	37·18
62	0·38	0·11	...	...	...	0·01	...	...	...	0·60	0·42	3·26	4·23	0·30	3·82	0·74	0·84	2·76	1·43	6·77	1·59	3·93	4·69	2·31	38·18
63	...	1·95	..	...	...	0·67	...	5·05	...	0·12	0·46	0·61	6·30	0·77	1·75	1·39	1·33	1·21	5·31	11·78	...	2·03	13·34	0·04	54·61
64	...	...	..	...	...	...	...	0·23	0·03	...	1·78	0·17	1·16	1·04	3·93	3·39	0·46	0·37	0·97	19·79	2·37	16·11	1·59	0·84	47·23
65	0·20	...	...	..	...	...	...	0·02	0 09	0·29	0·33	1·29	1·42	0·60	3·65	3·54	0·27	1·01	0·64	5·12	3·01	14·75	5·57	...	41·86
1866	...	...	0·21	...	...	...	...	..	0 08	...	0·06	0·51	0·95	1·22	0·69	3·28	1·48	0·99	6·19	2·51	3 33	6·60	20·54	1·26	51·29
Mean	0·60	0·22	[illegible]	0·07	0·14	0·24	[illegible]	0·48	1 45	[illegible]	0·70	0·96	[illegible]	1·78	2 05	2·38	2·46	2·14	3·89	7·01	6·94	5·96	3·48	1·94	47·82

TABLE.

	Calcutta. Mean Max.	Calcutta. Mean Min.	Bombay. Mean Max.	Bombay. Mean Min.	Madras. Mean Max.	Madras. Mean Min.	Neilgheries. Monthly Mean.		Average of rain for 2 years.	London. Mean Max.	London. Mean Min.	Average of rain for 3 years.
	3 p.m.	6 a.m.	4 p.m.	11 a.m.			6 a.m.	3 p.m.	Inches.			Inches.
Jan.	75·1	63·	78·	76·	82·2	74·1	45¼	57¼	1·17	39·6	32·6	1·483
Feb.	80·	67·	78·	76·	84·5	73·8	45¾	59¼	0	42·4	33·7	·746
Mar.	88·1	68·	81·	80·	87·6	78·7	58	63	2·47	50·1	33·7	1·440
April	95·1	79·1	84·	83·	93·	84·1	58	63¾	3 10	57·7	42·2	1·786
May	97·1	80·1	85·	85·	94·3	85·1	57	63¼	5·21	62·9	45·1	1·853
June	88·	78·	86·	85·	90·5	84·2	57½	60	5·35	69·4	48·1	1 830
July	86·1	78·1	81·	81·	93·6	85·3	62¾	61¾	10·37	69·2	52·2	2·516
Aug.	86·2	79·3	84·	84·	89·9	83·1	57	60¼	11 77	70·1	52·9	1·453
Sept.	86·	78·	80·	79·	89·7	83·3	54½	60¾	2·40	65·6	50·1	2·198
Oct.	89·2	76·1	85·	84·	87·6	82·4	50¼	62	7·41	56·7	42·1	2·078
Nov.	78·	65·2	85·	84·	84·3	80·1	50¼	61¼	10·86	47·5	38·3	2·400
Dec.	75·	59·	81·	60·	80·2	76·	46¼	60	3·87	42·2	35·4	2·426
Annual Mean.	85·3	73·4	82·4	81·5	87·9	80·8	52¾	61	63·88	56·1	42·5	

The rainfall at Bombay, in the five months, e to October, during the 41 years 1826 to 66 inclusive, ranged from 35·10 in 1855 118·38 inches in 1849. At the undermen- ed places the falls are :—

	In.	Weight. Tons.
Mahabaleshwur......	254	25,400
Panchgunee...	50	5,000
Poorandhur........ ...	72	7,200
Murree......	35	3,500
Dhurmsa a...	152	15,200
Kupowlee......... ...	70	7,000
Dugshai.......	30	3,000
Simla	70	7,000
Nynee Tal...........	100	10,000
Darjeling......	150	15,000
Cherraponjee... ...	400	40,000
Sylhet	209	20,900

According to the tables kept by Dr. Mor- n from the commencement of the year 41 to the end of 1846, the average annual of rain in Tavoy during that time was 6½ inches. Dr. Walter mentioned, in 1857, t the average of the preceding five years d been 194·28 inches, and the greatest orded fall in one day, was on the 27th of y 1857, when 12·75 inches were registered. James E. Tennant mentions that on the tern side of the Dekhan, the mean of rain is 80 inches, and, on the eastern, 52·8 inches fall on the average.

In Ceylon, the average rainfall rarely exceeds 80 inches.

At Mahabaleshwur it is 254 inches.

At Uttray Mullay, in Malabar, 263 inches. At Sylhet 209, and 610·8 at Cherraponji. These data will suffice to show the partial character of the rainfall, in tropical India, at different years. These are regulated by the monsoons, and in June and July, when the fall reaches upwards of 35 inches, its greatest, in the Malabar Coast, little falls on that of Coromandel. A similar fact is noticed by Admiral Fitzroy who mentions that on opposite sides of the Galapagos Islands, while one aspect exposed to the south is covered with verdure, all others are barren and parched. Similarly, the west part of Socotra during the N. E. monsoon is destitute of rain and verdure, whilst the eastern side is enriched by streams and covered by luxuriant pasturage.

In several parts of the world there is no rain at all. In the old world there are two districts of this kind : one, the desert, or Sahara, in Africa, and, in Asia, parts of Arabia, Syria, and Persia ; another district lies between north latitude 30° and 50°, and between 75° and 118° of east longitude, including Thibet, Gobior Shama, and Mongolia. In the new world the rainless districts are of much less magnitude, occupying two narrow strips on the shores of Peru and Bolivia, and on the coast of Mexico and Guatemala, with a small district between Trinidad and Panama on the coast of Venezuela. The climate of the Khasia mountains, which lie north-east from Calcutta, and are separated by the valley of the Brahmaputra river from the Himalaya range, is on the other hand remarkable for the inordinate fall of rain—the greatest, it is said, which has ever been recorded. Captain Yule, established that in the single month of August 1841, there fell 264 inches of rain, or 22 feet, and that during five successive days, thirty inches fell in every twenty-four hours. Drs. Thomson and Hooker recorded thirty inches in one day and night, and during the seven months of Dr. Hooker's stay, upwards of 500 inches fell, so that the total annual fall perhaps greatly exceeded 600 inches, or fifty feet a quantity which has been registered in succeeding years ! From April 1849, to April 1850, 502 inches (forty-two feet) fell. This unparallelled amount is attributable to the abruptness of the mountains which face the Bay of Bengal from which they are separated by 200 miles of Jheels and Sunderbunds. The district of the excessive rain is extremely limited ; and but a few degrees farther west, rain is said to be almost unknown, and the winter falls of snow seldom to exceed two inches.

Monthly and yearly Rain fall at the Madras Observatory from 1813 to 1860.

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total of the Monsoon months.	Total of each year.
	Ins.	Ins.	Ins	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
1813	„	„	0·425	„	0·275	2·700	1·275	0·825	2·325	5·100	28·750	3·975	37·825	45·65
14	„	„	„	„	„	„	1·600	4·825	8·450	7·100	6·600	3·700	17·400	32.375
15	1·650	„	„	„	„	„	6·475	„	2·850	6·250	33·175	4·800	44·225	[illegible]
16	0·100	0·725	„	„	0·200	0·460	4·625	3·675	9·500	6·825	12·325	1·450	20·600	40·075
17	0·350	„	„	„	0·175	0·175	1·775	3 475	7·700	19·500	24·325	6·250	50 075	[illegible]
18	„	„	„	0·600	„	0·750	12·650	6·400	5·400	17·900	25·600	7·780	51·280	[illegible]
19	„	„	„	2·600	„	0·125	3·300	1·300	5·900	3·000	10·600	0·700	14·500	[illegible]
20	„	„	6·750	0 500	17·170	0·850	3·520	3·170	1·700	12·220	4·500	19·700	36·490	70·140
21	3·600	„	0·320	1·700	„	1·100	1·210	3·170	7·300	13·020	11·350	4·320	28·720	47·110
22	1·870	„	„	0·620	„	1·710	6·550	6·700	2·370	20·570	21·370	3·270	45·210	[illegible]
23	1·450	„	0·920	„	0·270	2·050	2·870	4·190	4·400	16·400	0·900	0·200	11·500	36·610
24	1·270	„	„	„	0·050	0·450	0·250	2·650	0·470	14 250	10·270	3·950	28·470	33·410
25	0·170	„	„	„	4·250	1·500	3·070	7·670	3 500	15·700	9 900	7·350	33·010	53·170
26	„	„	„	„	1·060	8·520	2·100	9·870	2·100	0·820	26·040	11·050	37·910	61·250
27	8·600	0·070	„	„	23·300	3·020	4 900	2·520	4·410	13·710	22·120	5·980	41·810	68·160
28	1·620	„	4·310	0·720	0·400	0·180	3·870	7·300	5·720	9·200	2·610	2·460	14·270	[illegible]
29	0·570	3·160	0·890	0·050	1·420	2·750	1·520	2·940	2·990	6·150	8·990	6·490	20·630	[illegible]
30	„	„	0·200	0·310	1·390	2·890	7·200	2·730	4·270	6·220	3·870	4·450	14·540	[illegible]
31	0·040	„	0·170	„	0 940	3·900	3·130	9·500	7·200	9·350	7·930	2·490	19·470	[illegible]
32	„	0·100	„	„	0·630	0·510	1·550	2·260	7·710	5·280	0·410	„	5·690	[illegible]
33	0·180	„	„	„	0·330	1·460	1·070	7·110	3·930	9·690	9·970	3·270	22·930	[illegible]
34	0·060	„	„	3·650	0·200	2·430	7·080	4·100	4·870	8·010	7·320	1·290	16·630	[illegible]
35	0·060	„	„	3·370	1·750	0·730	5·310	3·010	3·260	11·170	10·960	1·570	23·700	[illegible]
36	„	0·320	0·150	„	„	0·500	6·680	9·000	1·140	8·510	18·640	2·620	29·170	[illegible]
37	„	„	„	2·230	2·660	0 110	2·650	1·690	3·800	13·790	17·170	3·190	34·150	[illegible]
38	„	1·330	0·590	0·770	0·540	0·880	2·370	4·690	8·780	6·270	21·890	4·220	32·380	[illegible]
39	3·340	„	„	1·620	0·990	2·460	4·610	6·830	11·140	0·990	21·270	„	22·260	[illegible]
40	„	„	„	0·030	„	0·480	4·360	7·820	8·360	10·160	37·250	0·120	37·530	[illegible]
41	1·990	„	„	0·470	4·640	5·030	1·330	8·530	4·310	27·380	6·130	1·310	34·830	[illegible]
42	1·780	„	0·040	„	0·310	1·310	3·170	3·180	5·650	7·820	12·870	0·160	20·850	[illegible]
43	6·610	„	0·690	„	14·160	1·880	1·350	2·260	4·250	6·370	5·260	7·930	19·560	[illegible]
44	0·674	0·495	„	„	2·703	2·661	3·217	2·657	12·420	13·503	3·669	23·229	40·401	[illegible]
45	1·512	„	0·020	0·043	1·512	2·359	2·941	2·014	4·095	3·363	5·119	15·325	22·867	[illegible]
46	2·938	0·228	„	„	1·344	3·706	9·121	5·343	0·922	30·586	19·391	6·896	56·673	[illegible]
47	0·002	0·217	„	0·454	0·725	3·792	3·092	9·712	5·869	16·314	18·662	22·155	57·131	[illegible]
48	„	„	„	6·377	0.100	1·857	3·569	5·126	3·092	13·933	17·285	3·112	34·330	[illegible]
49	2·504	„	„	1 123	0·035	3·901	3·580	4·886	1·648	9·191	6·141	6·606	22·138	[illegible]
50	0·043	4·270	„	0·980	2·939	[illegible]	1·027	3·058	3·011	4·320	8·121	5·662	18·103	[illegible]
51	„	„	„	„	18·603	1·261	6·496	4.338	1·700	5·629	24·846	1·446	31·221	[illegible]
52	„	„	2·633	„	2·224	1 866	7·995	2·263	6·778	20·601	19·402	8·920	48·923	[illegible]
53	2·248	„	3·367	0·772	„	0·622	4·136	1·377	2·229	9·071	11·993	„	21·064	[illegible]
54	0·425	0·295	0·089	„	„	1·147	4 295	7·054	6·366	10·221	9·286	4·621	23·528	[illegible]
55	0·939	0·676	0·260	0·071	„	1·116	2·684	1·646	3·753	10·619	1·472	9·088	21·179	[illegible]
56	„	0·028	„	0·006	6·508	0·818	3·321	5·677	1·039	3·884	16·974	9·713	30·571	[illegible]
57	0·333	„	0·099	0·123	0·067	2·931	2·392	0·224	1·550	37·726	5·820	0·995	44 541	[illegible]
58	„	0·020	„	0·832	3·031	1·633	3·083	2·109	3·607	12·071	22·119	„	34·190	[illegible]
59	0·618	„	„	4·919	0·853	2·514	8· 44	2 457	8·559	7·715	19·465	„	27·180	[illegible]
60	„	„	„	„	„	1·742	2·071	2·469	4·971	14 066	2·080	0·228	16·374	[illegible]
Sum......	17·236	11·934	21·913	34·840	115·447	87.778	178·733	205·460	227·444	535·598	642·490	241·771	1419·459	[illegible]
Average.	0·984	0·249	0·457	0·786	2·405	1·829	3·724	4·280	4·738	11·158	13·385	5·037	29·586	[illegible]

Tennant's Ceylon, Vol. I. p. 66. *Hooker's Him. Journ., Vol. II. p.* 282. *Curiosities of Science, p.* 154. *Dr Thomson's Travels in Western Himalaya and Thibet, p.* 469. *Elphinstone's Kingdom of Cabul, p.* 126. *Times of India. Bombay Times. Maury's Physical Geography. Calcutta Review, Feb.* 1868. *Capt. Worster. Madras Observatory Records. Winter's Burmah, p.* 99.

RAINA. DUK. Sinapis Chinensis.

RAIN BOW. Thek tap. BURM.

RAINY SEASON, mo kala-oodoo. BURM.

RAIPUR. A district in Central India, between L. 80° 28' and 82° 38' and L. 19° 48' and 21° 45' comprising the larger part of the tract known by the name of Chhattisgarh, together with a large area formerly attached to Sambalpur. It is about 150 miles in breadth from east to west, and 135 miles in length from north to south. Like the rest of Central India, Chhattisgarh seems to have been inhabited in the earliest times by Bhunjiya and other Kolarian races from the east The population of Raipur has been recruited from all quarters ; but the most important immigrants, and the earliest after the first great Gond invasion, came from the north. A few wild wanderers in the jungles came from the east, while from the south and west there has been a considerable influx of population. Of the immigrant tribes, the Kurmi, Teli, Lodhi, Chamar, Abri or Gaira, Ganda and Kanwar seem to have come from the north, though a large section of Teli and some few Kurmi have come from Nagpur. The greater number of immigrants from the south and west are the Halba from Bastar and Chanda, and the Maratha race. The principal cultivating castes are Kurmi, Teli, Chamar and Halba, though, of these, only the Kurmi and Teli are large landholders. The Chamar lay claim to a very high antiquity among the inhabitants of the district. They have all joined the Raidasi sect formed by Rai Das, a chamar or shoe maker, a reformer, and disciple of Ramanand, who is said to have lived about the fifteenth century in the country lying to the south of Oudh and in Rewa. The creed he preached seems to have been that adopted by Ghasi Das, the celebrated Satnami teacher, who started the great movement among the Chamar race about the beginning of the nineteenth century and who seems rather to have revived the teaching of Rai Das than preached a new religion. The term of Satnami or pure name was that assumed by the followers of Rai Das. As Satnami they are scrupulous about their eating, but slovenly and untidy in their habits, and the houses of even the wealthiest of them are generally miserable hovels. They are generally industrious though careless cultivators, and frugal in the extreme, indulging in no extravagance in dress or jewelry. The dress of the men is usually a single cloth, one end of which encircles their loins and another their head, and the women wear little or no jewelry; yet they rarely make money and seem to want the talent of getting on in the world. Their villages are seldom prosperous, though there are some few malguzar who form conspicuous exceptions to the rule. Though this apparent inability to improve their position is partly due to hindu opposition, yet one great cause of the phenomenon seems to be their individual fickleness and want of perseverance. A very slight cause will send a Chamar cultivator away from his village and though they generally return after a short interval, yet these migrations must necessarily hinder the accumulation of property.

The Gánda or Panka are Kabirpanthi or followers of Kabir, who is said to have appeared in the weaver caste, in the same country and at the same time, as Rai Das, both being disciples of Ramanand, and their doctrines being similar in many respects. Though they cultivate the land, they are not generally esteemed as cultivators, while the few villages they hold as landholders are miserable in the extreme.

The Kanwar are usually looked upon as aborigines, and though their appearance and their preference for the jungles to the cultivated tracts, as well as their abstinence from hindu observances, would seem to point to this opinion, there is also some ground for supposing them to be Rajputs, who settled in early times among the hills of the Vindhyan range, and so failed in becoming hinduised like other warlike immigrants. They have always made a claim, though in a half-hearted way to be considered as Rajputs connected with the Tuar tribe of the north-west, and their claim has certainly been recognized in one instance, as the first Kanwar chief of Narra received his estate as a dowry with the daughter of the Rajput chief of Khariar. The warlike traditions of the race are preserved in their worship of Jhágra Khand or Jhagra Khanda, under the form of a sword, a form of worship not uncommon among Rajput tribes, and recalling to mind the sword which was the national deity of the Hun under Attila, the Kanwar of the present day are most peaceable and quiet, and when once fairly settled in a cultivated country, are industrious and good cultivators and landlords. In the jungles they have conformed generally to the customs of their neighbours, and worship Dula Deo and Burha Deo, as the Gond race also do; and they always seem to be ready to take up with the belief of those about them though all of them, except the richer classes, who wish to be considered good hindus, avoid brahmans. They bury their dead; and marriages are performed before the elders of the village.

The Halba are immigrants from the south, and their principal colony is in the south-west where they hold thirty-seven flourishing villages. They gain their living chiefly by distilling spirits; and worship deified distillers, at the head of whom is Bahadur Kalal. They are, next to the Teli, the best cultivators; except in the jungles, they have generally become hinduised. All that is necessary for a good Halba is that he should sacrifice once in his life three goats and a pig, one to each of the national deities, called Narayan Gosain, Burha Deo, Sati and Ratna.

In the jungles also the old religion of the Gond tribe is disappearing, and while all the Gond worship Burha Deo and Dula Deo the latter being the household god, they know little of Pauritola or Karitola, Barangasura, and Gumartola, who with Burha Deo, form the distinctive gods of the Dhur Gond, to which tribe most of the Chhattisgarh Gond belong. They are all intensely superstitious and worship local deities assiduously; though, except in the jungles, the Baiga or village priest, whose business it is to propitiate the evil spirits of the neighbourhood, is as often as not a Kewat, Teli, or Ahir, as a Gond.

The other aboriginal tribes are the Binjwar, Bhunjiya, Saonra, Nahar, and Kamar; of these the Binjwar are allied to the Baiga, who are found in the Mandla district. They chiefly live in the north-east of Raipur, and occasionally cultivate. The Bhunjiya are comparatively numerous all through the east of the district, and are particularly so in the Khariar and Bindra Nawagarh zamindaries, where they hold a good many fairly cultivated villages. The Saonra use only game. All these jungle tribes seem to have come from Orissa, and their dialects are all akin to Uriya. Except the

Saonra they all gain their livelihood more by collecting jungle produce than by cultivation.

The Beldar of Uriya are tank diggers by profession, and are all under the command of a chief called a jemadar, who holds three villages in the district. Under the jemadar are a number of naik, each of whom has the command of a gang. These gangs have no settled home, but go wandering about the district wherever they can get work.—*Central Provinces Gazetteer*.

RAIN-STONE. This is used by the Turk and Tartar tribes to conjure rain. It is also known among the Kalmak. This stone was called by the Turks Jadah (PERS. Yadah). perhaps the origin of the jade-stone? and may be connected with the Hindi word Jadu, conjuring, in common use in India?—*Quatremere on Rashid-ud-din, p.*428 *et seq.*; *Hammer's Golden Horde, pp.* 42 *and* 436, *quoted in Yule Cathay, I. p. clxxxvii. Winter's Burmah, p.* 99. *Sir J. E. Tennant, vol. i. p.* 66. *Hooker. Him. Jour. Vol. II., page* 282. *Curiosities of Science, p.* 154.

RAI RAIAN, the hindoo title next higher to that of Rai. The third titular honour given to a hindu as Rai Raian, Rajah Eswara Doss, Dyawunt Bahadur.

RAISALLA. HIND. Picea Webbiana, Picea pindrow, the silver fir.

RAISANA. HIND. Bertholetia lanceolata.

RAISANI, the most respectable of the Saharawani tribes (from "rais" Arab, a ruler,) are able to raise 500 fighting men. See Kelat.

RAIS CHINA. SP. China root.—*Roxb.*

RAIS D'ORO,——— ? Cephaelis ipecachuana.

RAIS SULAMAN, commanded a Turkish expedition which in A.D. 1538 conquered Aden.

RAISIN BERBERRY. Berberis lycium.

RAISINS. HIND.

Raisins secs...	FR.	Bedana...	HIND.
Raisins passée... ...	,,	Uve Passe......... ..	IT.
Rosinen...	GER.	Zabib	MALAY.
Darakh, Mowage ...	GUZ.	Passa	PORT.
Monukka	HIND.	Uta-ka'h...........	PUSHT.
Kismis sabz : Kismis surkh...	HIND.	Issum	RUS.
		Pasas......	SP.

Raisins are dried grapes allowed to ripen and dry upon the vine. The sweet fleshy grapes which grow upon the sunny sheltered slopes of hills are preferred. When the fruit is ripe, the grapes are thinned and the vine is stripped of its leaves. The sun then completes the saccharification and drives off the superfluous water. When the bunches are plucked they are cleaned, dipped for a few seconds in a boiling lye of wood-ashes and quicklime; the wrinkled fruit is then drained and dried by exposure to the sun upon hurdles for 14 or 15 days. The finest sun raisins are the plumpest bunches left fully to ripen upon the vine, after their stalks have been cut half through. An inferior kind of raisins is prepared by drying the grapes in an oven. During the 5 years 1847 to 1851, from 10½ to 13¾ tons raisins were imported into the United Kingdom. The import duty is 15*s*. per cwt. from foreign countries, and 7*s*. 6*d*. per cwt. from British possessions. They are distinguished by the places where produced or exported, as Malaga, Valencia, Persian, Smyrna, &c.; or from the variety of grape or mode of preparation, as, muscatels, blooms, sultanas, &c. Kishmish sabz, or green raisins are dried in the shade, and preserve a pale green color; 4 seers 8 lbs. are sold per rupee. Kismis sabz and kismis surkh are both varieties of the small raisin, called in England the sultana, or seedless raisin. The "Munakka," of N. W. India are pudding raisins, large ordinary grapes, dried carefully in the sun and sold at 3 seers per rupee. The Dagh, are bloom raisins prepared by dipping the finest bunches into a hot solution of lime and potash, and then drying in the shade.—*Waterston, Powell, p.* 270. *Poole Statistics of Commerce. O'Shaughnessy. Beng. Phar. p.* 222.

RAISINS DE CORINTHE. FR. Currants.

RAITUM. A small river near Neemuch.

RAIULI. A river in Sagar.

RAIVATA. See Menu.

RAIVATIKA. A mountain.

RAIYANG. HIND. of Kanawar. Abies Smithiana, Himalayan spruce.

RAIZ-CHINA also Cocolmeca, SP. China root.

RAIZ DE CALUMBA, PORT. also Raiz de Colombo, SP. Colombo Root.

RAJ. HIND. A government, a kingdom, a principality, a rule, a dynasty.

RAJA. SANS. Light.

RAJA. A king, a prince.

RAJA AKASHA. See Tripati.

RAJA ARIDAMA. Raja of Asoka, Tusha, Raja Aswapati, Raja Arjuna. See Inscriptions; Junaguih.

RAJABANSI, in Rangpur a low caste race engaged in agricultural pursuits.

RAJACA. SANS. Sinapis chinensis.

RAJA CHAMARAJA VADYAR. See Mysore.

RAJA CHANDRA GUPTA. See Inscriptions.

RAJA CHARITRA. See Orissa.

RAJA DHARMA SASTRA. See Inscriptions.

RAJA DASALATH. See Inscriptions.

RAJA DASARATH KUMARA. See Inscriptions.

RAJA DEVA. See Inscriptions.

RAJA GHOLAB SINGH. See Skardo.

RAJAGRIHA. A town of Behar, near which are celebrated buddhist caves. The milk maids' cave and brahmin girls' cave have inscriptions in the Lat character. The caves are above B. C. 200, and are the most ancient in India. The Nagarjuni cave and Haft Khaneh or Satghar group, are in the southern arm of the hill at some little distance from the Brahman girls and milkmaids' caves. Another neighbouring group is the Karna Chapara and Lomas Rishi caves. Twenty years after the death of Sakya, Ajata Satra re-collected the fragments of his remains and erected over them a great St'hupa or tope at this place. See Ajata Satra ; Behar; Budd'ha ; Karli ; Tope.

RAJAH DAKHINA RANJAN MOOKERJEE, one of the pioneers of female education in Bengal. “ The first Hindu Female School in India, for giving a liberal education after the European model, called the Victoria School, was established in Calcutta, in April 1848, by the late Honorable J. E. D. Bethune" in rajah Mookerjee's house in Sukea's Street. Within a few weeks from the day of its commencement, there were enrolled among its pupils 70 daughters of the most respectable families in Calcutta, and among them was a cousin of his own. (a grand-daughter of the late Baboo Dwarka Nath Tagore)a daughter of the late Honorable Shumboo Nath Pundit, a grand-daughter of Raja Kali Krishna Bahadoor, and other notabilities of Calcutta. The school was subsequently removed to Cornwallis' Square, Calcutta.

RAJAH-RAM, Bag'hel, protected the wife of Hamayun, the emperor Akbar's mother.

RAJAH'S CHOULTRY, Immediately west of Madras, has extensive beds of clay-slate in which the brothers Schlagentweit discovered tertiary fossils. Underlying the sands and clays of Madras and all along the sea coast, is a bed of dark blue tenacious clay, containing numerous fossils of existing species.

RAJAH SEHWA. See Kelat.

RAJAH VIJAYABHADRA. See Inscriptions.

RAJAIN. Hind. Alnus *sp.* also Ulmus integrifolia.

RAJA JEMBU. Sans. Eugenia jambos.

RAJA KARIVARMA DEVA. See Inscriptions.

RAJA KHARAVELA SANDA. See Inscriptions.

RAJAL. Hind. Arundo, *sp.* ; also Vilburnum cotinifolium.

RAJALI. Tam. Nisaetus bonelli. *Temm.*

RAJAMASHA, Sans. Dolichos Tranquebaricus.

RAJA MUCUTA. See Sacti.

RAJA MAHA KSHATRAPA. See Inscriptions ; Junagurh.

RAJAMUNDRY, in L. 17° 10′ 5" ; L. 81° 48′ 6", a large station, west of Coringa. The Dak bungalow is 81 feet above the level of the sea Godaveri 30 feet. The district of the Madras Presidency, with the chief towns of Rajahmundry, Samulcottah and Coringa, was formerly a Madras Collectorate between Vizagapatam and Masulipatam, with a district population of 1,012,000. It lies between the eastern hills and the sea, and the Godavery enters it through a gap in the chain, and passes through the district to the sea. At the village of Dowlaishwaram, in the Delta of the Godavery is a large anicut, 7 miles long. Chicacole and Rajahmundry were the capitals of Andhra, and of a race of sovereigns anterior to the Christian era.

RAJANG or **REJANG**, See India.

RAJAN KOOLOOR. See Cairn ; Hindoo.

RAJA PRASANGA. See Inscriptions.

RAJAPUR. Lat. 18° 16′ N. long. 73° 0.′

RAJA PUTNI MULL of Benares, built a bridge over the Caramnassa, the waters of which are deemed by hindoos injurious to their soul's safety. The same re-built a temple at Muttra which cost 70,000 Rupees, made a stone tank there at a cost of three lacs, a well at Jwala-Mukhi, which cost 90,000 Rupees, he spent 90,000 on a ghaut at Hurdwar, 60,000 Rupees on a Serai at Brindabun, on these and other public works he spent eight lacs of Rupees for which Lord W. Bentinck made him a rajah. He has recorded in four languages on this bridge, the fact of his erecting it: the foundation had been previously laid by the prime minister of Poona who spent three lacs on it. The bridge was designed by James Prinsep.—*Calcutta Review, No. XLI. Tr. of Hind. Vol. I. p.* 285.

RAJA-POOTA. Sans., from rajan, a king, and putra, a son.

RAJA RAJ. Sans. King of kings.

RAJA RAJESHWARI. Sans., from rajaraj, king of kings, and ishwari, a goddess.

RAJARSHI. Sans., from rajan, a king and rishi, a sage.

RAJA RAM-MOHUN RAI. A hindu reformer of the early part of the nineteenth century. See Ram Mohun Roy.

RAJA RAJASA MAHATASA AYASA. See Kabul.

RAJA SAMANTA DATTA. See Inscriptions.

RAJASAYA, amongst ancient hindu sovereigns, a sacrifice performed to indicate that the sovereign is supreme over other kings: is an emperor : a royal sacrifice performed at an assertion of sovereign supremacy, at a national banquet, combined with a religious significance as a sacrifice to the gods.

RAJSHAY. A district in Bengal, its station town Rampur. It is bounded on the N. E. by grals.

RAJA SUYA, Sans., from rajan, a king and su, birth.

RAJAST'HAN or Rajpootana, is the collective and classical denomination of that portion of India which is 'the abode of races who designate themselves Rajpoot or princes.' In the familiar dialect of these countries it is termed Rajwarra, but by the more refined Raét'hána, corrupted to Rajpootana, the common designation amongst the British to denote the Rajpoot principalities. The chief divisions of this region are—

Méwar, or Oodipoor.
Marwar, or Jodpoor.
Bikaner and Kishengurh.
Kotah, }
Boondi, } or Harouti.
Ambér or Jeypoor, with its branches, dependent and independent.
Jesyelmér.
The Indian desert to the valley of the Indus.

—*Tod's Rajast'han, Vol. I. p.* 2 *and* 5. See Rajputanah.

RAJA SURAVIRANA. See Inscriptions.

RAJA SWAMI CHASTANA. See Inscriptions.

RAJA PRAVARA SENA. See Inscriptions.

RAJATA, ALSO RUPIA. SANS. Silver.

RAJA TARINGINI, a history of the rulers of Kashmir which commences with an account of the desiccation of the valley by Kasyapa muni, supposed to be Noah. It is in Sanscrit and is the only Indian history of any antiquity. It contains the history of the princes of Kashmir for a period of 4,000 years. A copy of it up to A. D. 1477 was presented to Akbar who ordered it to be completed. The two words are sanscrit, from rajan, a king, and tărăngini, a river.

RAJA UDYOTAKA KESARI DEVA. See Inscriptions.

RAJA VICHITRAVIRA. See Inscriptions.

RAJA MOHANA DUMPA. TEL. Dioscorea, *Sp.*

RAJAURI, a district in the western Himalaya lying between Kashmir on the north and Jamu on the south between Lat. 33 and 34 N. and Lat. 74 and 75 E.

RAJAWAR, a widely spread aboriginal tribe in Palamow, Singruli and Rewah, westward in parts of Sirgujah and Jushpore, and numerous to the N. E. in the parts of the plains adjoining the hills. They are the chief labouring class in the Gya district, near the hills. They live in villages as a kind of serfs and bearers of burdens, carry palanquins, and when out of employ are apt to be thieves and robbers.—*Mr. Campbell, p.* 37-8.

RAJAZ. ARAB. A battle song or war song.

RAJ-BANSI is a name used by the people of Cooch Bahar to designate themselves. They have adopted many hindu customs.

RAJ-BHAR, the Bhar of northern India, called Bharat, Raj-bhar and Bharpatwa, an aboriginal race following the meanest of avocations, especially that of swine herds. In the hills east of Mirzapur, there are some Bhar rajas. Tradition ascribes to them the whole country from Gorakpur to Bundelkund and many old stone forts. Prof. Wilson supposes it possible that the name comes from Bharata, an ancient name of India.—*Wilson's Glossary.*

RAJ-DWARA. SANSC. Literally, 'the royal gate;' an allusion to the female apartments, or Raj-loca.

RAJEEB. BENG. Water lily, Nelumbium speciosum.

RAJGIR. Doubts may exist regarding the identification of Kurkihar and Giryek, but there are none respecting Rajgir, as the representative of the ancient Rajagriha. The name is still preserved in the modern Rajgir, repeated in numerous inscriptions in the temples on the Baibhar and Vipula mountains. The old city of Rajagriha is called Kusagarapura, or the city of the Kusa-grass by Hwen Thsang, who further describes it as the "town surrounded by mountains."—*B. A. S. J. No.* 34, 1864. See Rajagriha.

RAJ-GURU, or Raj-gur, is the priest, tutor, or preceptor, of a rajah; but the term is applied in Kattywar, to the domestic brahmin of any family. The Katt'hi and even every individual of a hindu caste has a Raj-gur. In the peninsula, of Guzerat and Kutch, the Raj-gur form a distinct tribe."—*Cormack's Female Infanticide, p.* 25.

RAJHATH, also called Jeypore, a town in the Burdwan district of Bengal.

RAJIKA, also, Tajettipullu. SANS. Eleusine coracana. *Gært.* Natchenny.

RAJIKA. BENG. Sinapis ramosa.

RAJIVANARU, also Rajiavaru. TEL. Sudra hindoos; armed peons in Mysore, also a class of people in Kamaon speaking Telugu.

RAJIN. A convert from the Bhatti, cultivators, shepherds, thieves and evil livers.

RAJ JOGI, is the chief of the ascetic warriors of Mewar; the mahunts are commanders.

RAJKOT, L. 22° 13'; L. 71° 7', in Gujerat, 150 miles W. of Baroda.

RAJKUMAR, a numerous and wealthy agricultural race in the N. W. Provinces, long notorious for the murder of their infant daughters. They claim descent from Prithi-raj in whom ended, about the early part of the eleventh century the Chauhan dynasty of the princes of Delhi, and from whose stock the present race of the Raj-Kumar (who then also assumed this new family denomination) is believed to be sprung. Their number, it is said, does not exceed forty thousand, most of whom inhabit the N. W. Provinces in nearly one society. They are originally Raja-Putra, offspring of the royal race: and even exceed the whole of the rajput races in the wildness of their notions and peculiarity of their manners.—*Cormack. Hindu Infanticide, pp.* 1 *and* 2. *Wils. Gloss.*

RAJMAHAL HILLS rise about 20 miles S. of the Ganges, stretch S. and S. W. to the Vindhya range and the high lands of the Deccan. They terminate at the pass of Sikrigali. They traverse the district of Behar. They are of moderate elevation. There is a cluster of hills on the W. of the Phulgu, one on the E. of that river, a third near Shukpoora 100 feet, but the hills towards the south are probably twice that elevation. The railway sweeps round the eastern extremity of the range. The Rajmahal hills form a kind of knot at the extreme eastern point of the hill country of Central India dividing Bengal from Behar. Dr. Oldham has shown that the group of rocks of the Rajmahal hills constitute a formation quite distinct from that of the coal-bearing beds of Burdwan and some other localities; to which latter group he applies the name of the Damuda beds. He shows that the fossil vegetation of the two formations is entirely different both specifically and in general aspect; that not one species is common to the two; that the Rajmahal beds are characterized by a remarkable abundance and variety of cycadeæ, by a comparative paucity of ferns, and by the absence, in particular, of the genus Glossopteris, as well as of Phyllatheca and Vertebraria; while the Burdwan or Damoodah beds are characterized especially by Glossopteris, Phyllatheca, and Vertebraria, with scarcely a trace of Cycads. The Nagpur fossil flora agrees altogether in this respect with that of the Damudah, and not with that of the Rajmahal formation. Dr. Oldham is of opinion that the Rajmahal beds are mesozoic, and probably jurassic, the Damoodah beds palæozoic, and that the facies of this Nagpur and Burdwan flora is rather mesozoic. But Mr. Hislop thinks the palæo-botanical evidence is far from unequivocal, and, such as it is, might be outweighed by the discovery of a single well-marked and thoroughly characteristic fish, shell, or coral.

The Rajmahal people are known as Male, They are to the east of the Oraon, but are entirely different from their neighbours the Sonthal. They are better looking than the Sonthal. The skin is dark, face broad, eye small, and lips thicker than those of the men of the plains. Their language abounds in terms common to the Tamul and Telugu, and contains so many Dravidian roots of primary importance, though it also contains a large admixture of roots and forms belonging to the Kol dialects, that Dr. Caldwell considers it had originally belonged to the Dravidian family of languages. A brie vocabulary of the words of the tribe inhabiting the Rajmahal hills in Central India, is contained in Vol. V. of the Asiatic Researches, and Mr. Hodgson's more complete collections prove the idiom of this tribe to be in the main Dravidian. Test words show an identity of language among the Rajmahali on the east and the Maria Gond in the remote jungles down to the Godavery, and the Gond who live along the Satpura as far west as Nimar and Malwa. It is akin to that of the Oraon. Latham says Bedo is one of their gods, and is the same as the Batho of the Bodo, the Potlang of the Kuki and Buddha, and their priesthood, like that of the Bodo, consists of devian and devasi. It was the Male race, amongst whom Mr. Cleveland so successfully laboured to impart to them settled habits. They have been successfully reclaimed, are quiet cultivators, and formed the bulk of the corps known as the Bhagulpore hill ranges. Ghatwall estates are particularly numerous in the Bhagulpur and Bherbhum districts adjoining the Rajmahal hills on either side. Such estates pay no revenue, but are held on the condition of guarding the passes against hill robbers, murderers and cattle-lifters.—*Latham. Quarterly Journal of Geological Society, Vol. XVII.*, August 1861, *p.* 345. See Dravidian; India.

RAJ-MALA or Chronicles of Tripura. A Bengali poem.

RAJPIPLA is a range of hills near Cambay, in which occur agate, onyx, cornelian, and bloodstone, but called Cambay stones from the place where they are mostly cut, and from which they are almost wholly brought to Bombay. The cornelian is found in a bed of blue clay—the detritus, probably, of the adjoining rocks. Shafts are pierced in this to the depth of from thirty to thirty-five feet, and horizontal galleries run in any direction that suits the fancy of the miner: the pebbles are distributed promiscuously, and do not appear to lie in veins or lodes. The galleries seldom exceed a hundred yards in length,—they often run into those of other mines: they are generally five feet in height, and four across. To each mine there are thirteen men attached, who work by turns. Each man must send up so many basketsful of earth and stones before he is relieved. The stones are collected in baskets and drawn up by a rope run over a roller or pulley. A group of people await them at the mouth of the shaft, and examine them one after another by chipping each on a piece of stone: the compact and fine-grained are the best, and the blacker the hue is at first, the redder it becomes after being burnt. There were, in 1852, about one thousand miners employed; and each man carried home with him a basket of stones every evening. They were spread out on the ground and for a whole year turned over every four or five days to the sun; the longer they are so exposed the richer become their tints. In the month of May they are burnt. This operation is effected by placing the stones in black earthen pots or chatties. The pots are placed mouth under, a hole being pierced in the bottom of each; over this is put a piece of broken pot. The pots are arranged in single rows; sheeps' dung is the only fuel found to answer; the fire is always lighted at sunset and allowed to burn till sunrise. If any white spot appear on the surface of the pot, the burning is reckoned incomplete, and the fire continued some time longer. On being removed, the stones that have flaws are thrown aside as useless; those not sufficiently burnt are kept for next year's burning, and the remainder are sold for exportation. Nearly the whole of the stones are cut at Cambay—the greater part of them are made into beads. In the process, the stones are first broken up into pieces of suitable size for the end they are desired to serve. An iron spike is stuck into the ground, point upwards: the stone is placed on this and chipped with a hammer till nearly rounded: it is then passed on to the polisher, who seizes it in a pair of wooden clams and rubs it against a piece of sandstone placed in an inclined plane before him, turning it round from time to time till it assumes a globular form. It is then passed on to the borer and polisher: a hole is drilled. Cambay enjoys celebrity for its agates, mocha-stones, cornelians, and all the chalcedonic and onyx family, all of them brought from Rajpipla, but worked up at Cambay into every variety of ornament,—cups, boxes, necklaces, handles of daggers of knives and forks, seals, &c. "Cambay stones," the akeek of the natives of Bombay, and by Europeans called agates, include all kinds of quartz minerals. They are also obtained from the amygdaloid trap rocks drained by the Nerbudda and Taptee. They pass in Europe and America for Scotch, Irish, Chamounix, Niagara, and Isle of Wight "pebbles," according to the place in which they are sold. The principle varieties sold in Bombay are crystal, milk quartz, prase, a great variety of moss stones, mocha stone, fortification agate, chalcedony, cornelian, chrysophrase, heliotrope, onyx, obsidian, and very rarely amethyst. These stones however abound in all trap countries, the Brazils importing them as largely as India into Europe, where the terms Brazilian and Indian agates are used indifferently by the trade.

RAJPUTANAH stretches from L. 23° 15′ to 30° N., and from L. 69° 30′ to 78° 15′ E., and containing an area of 123,000 square miles, with a population estimated at ten millions miles, and includes eighteen principalities, viz.:—

Rajpoot.

Mewar or Oodeypur.
Jeypore.
Marwar or Jodhpur.
Boondee.
Bikaneer.
Kotah.
Kerowlee.
Kishnghur.
Jeysulmeer.
Ulwar.
Sirohi.
Doongurpoor.
Banswarah.
Pertabghur.
Jhallawar.

Jat.

Bhurtpore. | Dholepore.

Mahomedan.

Tonk.

Excluded from these are two purely British districts, Ajmir and Mhairwara. The Sind river marks the eastern boundary, as does the Indus that to the west. East of the minor Sind river, the hindu princes are excluded from Rajasthan or Rajwara. The productions of that vast tract are very varied, for while many provinces are remarkably rich and fertile, as on the black loam of the eastern districts, others like the sandy wastes of Bikanir and Jeysulmeer scarcely produce sufficient to support a scant and frugal population. Its desert wastes, over which the Rajput people spread themselves, have long been apportioned amongst the sovereigns of Jodhpore, Jeysulmeer, and Bikaneer, who dwell in walled cities of some size but inconsiderable strength. The desert of India is known on its borders as Marust'hali, the region of death, from mri, Sans., to die, and st'hali, arid or dry land, but is also known as the desert of Rajputanah. Marust'hali is bounded on the north by the flat skirting the Garah; on the south by that grand salt-marsh, the Rin, and Kolíwarra; on the east by the Aravalli; and on the west by the valley of Sind'h. It covers an area of 70,000 square miles. But for the Aravalli, which run N. E. and S. W., dividing Rajputanah into two equal parts, Central India would be submerged in sand; nay, lofty and continuous as is this chain, extending almost from the sea to Dehli, wherever there are passages or depressions, these floating sand-clouds are wafted through or over, and form a little *t'hul* even in the bosom of fertility. Whoever has crossed the Bunas near Tonk, where the sand for some miles resembles waves of the sea, will comprehend this remark. Its western boundary is alike defined, and will recall to the English traveller, who may be destined to journey up the valley of Sind, the words of Napoleon on the Lybian desert: "Nothing so much resembles the sea as the desert: or a coast, as the valley of the Nile." This desert has small scattered spots of fertility with great arid portions called t'hul, denoting tracts particularly sterile, and therefore the converse of the oasis of the Greeks, and each with a distinct name as the t'hul of Kawur, the t'hul of Goga and others. A tradition exists, to the effect that in remote ages, it was ruled by Powar or Pramara rajput princes, from nine fortresses, viz., Poogul, Mundore, Maroo, Aboo, Kheraloo, Parkur, Chotun, Oomarkot, Arore and Lodorva. From Bhalotra on the Looni, throughout the whole of Dhat and Oomrai-Soomra, the western portion of Jeysulmeer, and a broad strip between the southern limits of Daodpotra and Bikaneer, there is real solitude and desolation. But from the Sutlej to the Rin, a space of five hundred miles of longitudinal distance, and varying in breadth from fifty to one hundred miles, numerous oases are found, where the shepherds from the valley of the Indus, and the t'hul pasture their flocks. The springs of water in these places have various appellations, ter, par, rar, dur, all expressive of the element, round which assemble the Rajur, Soda, Mangulia and Sehrai, inhabiting the desert. A traveller proceeding from the "Khuchee" or flats of Sind to the east, sees the line of the desert distinctly marked, with its elevated teeba, or sand ridges, under which is the bed of the Sankra, which is generally dry except at periodical inundations. These sand-hills are of considerable elevation, and may be considered the limit of the inundation of the 'Sweet-river,' the Meeta Muran, a Scythic or Tartar name for river, and by which alone the Indus is known from the Punjnud to the ocean. The whole of Bikaneer and that part of Shékhavat, north of the Aravalli, are comprehended in the desert. Jeysulmeer is nearly in the centre of what may be termed entire desert, is, in fact, an *oasis*, but the largest oasis of the desert, everywhere insulated by immense masses of *t'hul*, some of which are forty miles in breadth. The rock on which the castle is built has three peaks, or tri-cuta. Westward from this, from 400 or 500 miles, with one or two hundred miles in breadth, are little scattered oases, on which the shepherds of the desert have their huts. Water is at an immense distance from the surface throughout the Indian or Rajputanah desert, which, in this respect, as well as many others, differs very materially from that portion of the great African desert in the same latitudes. Water at twenty feet, as found at Mourzook by Capt. Lyon, is a circumstance, in the Indian desert, unheard of. At Daismok'h, near the capital, the wells are more than two hundred cubits, or three hundred feet, in depth; and it is rare that water fit for man is found at a less distance from the surface than sixty feet, in the tracts decidedly termed t'hul or 'desert,' though some of the flats, or *oases*, such as that of Mohilla, are exceptions, and abundance of brackish water fit for cattle, is found throughout at half this depth, or about thirty feet. All the wells are lined with basket-work made of *p'hok* twigs, and the water is generally drawn up by hand-lines. Water is sold, in all the large towns, by the malli or gardener race, who have the monopoly of this article. Most families have large cisterns or reservoirs, called *tanka*, which are filled in the rainy season. They are of masonry, with a small trap-door at the top, made to exclude the external air, and having a lock and key affixed. Some large *tanka* are established for the community, and this water keeps sweet for eight and twelve months' consumption.

The Bikaneer region is but little known to Europeans, by whom it has hitherto been supposed to be a perfect desert, unworthy of examination. And its deterioration, within three centuries since the Rajput supplanted the Jit, almost warrants our belief of the assertion that these deserts were once fertile and populous. The princes of Bikaneer used to take the field at the head of ten thousand of their kindred retainers; and to other causes than positive sterility must be attributed the wretched condition of this state. The commercial towns of Chooru, Rajgurh, and Rinne, as entrepôts, supplied the country with the productions of Sind and of the provinces to the westward, or those of Gangetic India; the same cause affected Jeysulmeer, Bikaneer, and the more eastern principalities; the Maldote of Jeysulmeer and the Larkhani of Jeypoor were as notorious as the Beedawut of Bikaneer; and to these may be added the Sahra, Khosa and Rajur, in the more western desert, who, in their habits and principles, Tod describes as demoralized as the bedouins of Arabia.

The line of greatest breadth of Bikaneer extends from Poogul to Rajgurh, and measures about 180 miles, while the length from north to south, between Bhutnair and Mahajin, is about 160 miles: the area may not exceed twenty-two thousand miles. Formerly they reckoned two thousand seven hundred towns, villages and hamlets scattered over this space, one-half of which are no longer in existence. The tract to the north-west of Jaelpoor in Colonel Tod's time was perfectly desolate, and nearly so from that point to Bhutnair: to the north-east, the population was but scanty, which observation also applies to the parts from the meridian of Bikaneer to the Jeysulmeer frontier; while, internally, from these points, it is more uniform and equals the northern parts of Marwar. A census of the twelve principal towns may furnish a tolerably accurate approximation on this point:—

Chief Towns.	*Houses.*	*Chief Towns.*	*Houses.*
Bikaneer.....	12,000	Mahajin......	800
Nohur... ...	2,500	Jaelpoor.. ...	1,000
Bahaderan...	2,500	Beedasir......	500
Rinne........	1,500	Ruttungurh..	1,000
Rajgurh.. ...	3,000	Daismookh...	1,000
Chooru... ...	3,000	Senthal......	50

It was estimated that there were 1,200 villages and 107,856 houses, with a total of 539,250 souls, giving an average of twenty-five to the square mile. Three-fourths of the people are Jit ; the rest are their conquerors, descendants of Beeka, including the Sarsote brahmins, charuns, bards, and a few of the debased classes, whose numbers are not one-tenth of the Rajputs.

In the valley of the Ganges, the body of the Rajput population lies next to the Jat race to the east, in the Middle Doab, Rohilcund and Oudh, and still further east the country is shared with a brahman population. In lower Rohilcund, where they are called Thakur, rajput communities are strong and numerous, also numerous in Western Oudh, but they have never largely entered the British Sepoy Army. In the Central Doab, in the districts of Mynpuri, Futtehgur and Etawah, rajputs are numerous, and many served in the British Native Army ; but Eastern Oudh, especially most of the broad tracts between the Gogra and the Ganges, is the home of the great rajput population which supplied so large a portion of the Bengal Native Army. At home, these rajputs are a purely agricultural populations. Baiswara, the country of the Bais rajputs, lies almost parallel to the brahman country of the Lower Doab, and furnished many sepoys.

To the east of Oudh, rajputs are pretty numerous in Azimghur and Ghazipur.

In the Gangetic valley, the Rajputs spread over a broad region into a large population, and are essentially the cultivators of that valley. Physically, the rajput and brahman of that region are not different. The modern rajput is quite as strict as a hindu, and more prejudiced than many brahmans, and, upon the whole, was the worst class in the revolt and rebellion of 1857-8. The Rajput, in general, are illiterate, and confine themselves to arms and agriculture, they also keep cattle. They everywhere speak dialects of the ordinary Hindi. They are not supposed by Mr. Campbell to be the old Kshatrya race, noticed in the early brahmanical books, as existing many hundred years before the Christian era, though they have taken the place assigned to the Kshatrya. Also, the term Rajput, son of a raja, is not a term used by all Rajputs. In some parts of their country, they call themselves thakur, which means chief or noble. They are, however, frequently distinguished by the name of their tribe as Chouhon, Rahtor. Their practice is not to marry into their own but into another tribe, and this has assimilated the tribes to each other. The Baghel, also Waghel, is a Rajput tribe, Europeans have become acquainted with the rajputs as soldiers, but in their own villages, on the plains of the Ganges, they are simple agriculturists, of a constitution very like that of the Jat race, only less pure and complete. Rajputs are, however, falling in the world. The armies they have furnished have exhausted the material ; infanticide has diminished their numbers : and their wives, shut up like those of mahomedans, give no aid in agriculture. Over great tracts, the Rajputs are a feeble minority. In some parts, however, the agricultural Rajput villages are strong and numerous ; every Rajput is free and equal, the land is divided amongst them, and the commune is administered on democratic principles : wherever this is the case, their institutions resemble those of the Jat race. The Rajputs do not greatly revere brahmins, but the Rajput, unlike the Jat, has adopted fully all the ceremonies and superstitions of hindu caste, are very particular about caste marks, and cook once a day with great fuss and every man for himself. Their daughters are married to men of the best tribes, and their widows are not permitted to re-marry, and it is the point of honour as to their daughters' marriages, that led to the practice of infanticide.

The north-eastern Punjab and Cis-Sutlej districts seem to have first been a brahman, then a rajput country, and subsequently advanced upon by the Jat. It is not clear whether the Bhatti of Bhattiana were originally Rajputs or really are Yuti or Jat. But from Bhattiana northwards, Rajput villages are scattered about in considerable numbers amongst the Jat, and there are traces of more extensive Rajput possessions. The Rajputs seem to be here undergoing gradual submersion. But, in the extreme north of the Baree and adjoining Doabs of the Punjab, there is still a strip immediately under the hills which may be classed with the adjoining hill country as still mainly Rajput. Even in Rajputanah proper, though it has Rajputs for the dominant race, the population is much more Jat than Rajput, the Jat extending continuously from the Indus to the Ganges. The great seat of Rajput population and ancient power and glory was on the Ganges. Since vanquished there by the mahomedans, the principal Rajput families have retired into the comparatively unfruitful country to which they give their name, but where, nevertheless, the Jat form the most numerous part of the population. Before the Rajputs were driven back from Ayodea and the Ganges, northern Rajputanah was partitioned into small Jat republics. The more open parts of Rajputanah are shared amongst the Meena, the remains of the brahman population, the Jat and the dominant Rajput, but the Jat possess the largest share in the cultivation. The southern and more hilly parts of Rajputanah is much occupied by the Meena, the Mhair and Bhil, and the province of Malwa is occupied by Rajput, Kunbi and Jat. Rajputs and Jats occupy the plains south of the Salt Range, and seem later immigrants than the brahmans.

There are spaces of fifty miles without a drop of water, and, without great precaution, impassable. The sand hills rise into little mountains, and the wells are so deep, that with a large kafilah or caravan many might die before the thirst of all could be slaked. The enumeration of a few of these will put the reader in possession of one of the difficulties of a journey through Maroo; they range from eleven to seventy-five *poorsh*, or seventy to five hundred feet in depth. One at Jeysing desir, fifty *poorsh*; Dhote-ca-bustee, sixty; Giraup, sixty; Hamirdeora, seventy; Jinjinialli, seventy-five; Chailak, seventy-five to eighty.

Europeans in India have adopted the habit of designating the principalities of Rajputanah by the names of their respective capitals, instead of those of the countries. Thus Marwar and Mewar are recognized under the titles of their chief cities, Jodpoor and Oodipoor. Kotah and Boondi are denominations indiscriminately applied to Haravati, the general term of the region, which is rarely mentioned; and Dhoondar is hardly known by that denomination to Europeans, who refer to the state only by the names of its capitals, Amber or Jeipoor, the last of which is now universally used to designate the region inhabited by the Cuchwaha rajput race: the maps define the existing boundaries of this principality, to which are indiscriminately applied the terms (as is the practice of the natives) of Dhoondar, Amber, and Jeipoor.

Like all the other Rajpoot States, the country of the Cuchwaha is an assemblage of communities, the territories of which have been wrested from the aboriginal tribes, or from independent chieftains, at various periods; and therefore the term Dhoondar, which was only one of their earliest acquisitions, had scarcely a title to impose its name upon the aggregate. The etymology of Dhoondar is from a once celebrated sacrificial mount (d'hoond) on the western frontier, near Kalik Jobnair. The Cuchwaha or Cuchwa race claim descent from Cush, the second son of Rama, king of Koshula, whose capital was Ayodia, the modern Oudh. Cush, or some of his immediate offspring, is said to have migrated from the parental abode, and erected the celebrated castle of Rhotas, or Rohitas, on the Soane. Excluding Ajmir, a small British territory, situated almost in the centre of Rajputanah, the whole of the 122,519 square miles of Rajputanah, contains no less than nineteen independent States. The larger of these are :—

	Sq. m.	Inhabitants.
Marwar………	35,672	1,783,600
Jeypore………	17,000	1,891,124
Meywar………	11,614	1,161,400
Bikaneer… …	12,252	539,250
Jeysulmeer. …	12,252	74,000

Bikaneer and Jeysulmeer form the barrier between the deserts to the west and the more fertile lands to the east, and contain vast and sandy steppes, where the water is brackish frequently two thousand feet from the surface, and where, consequently, human beings with difficulty exist. Of the smaller and more fertile States, there are viz. :—

	Sq. m.	Population.
Kotah……… ……	4,339	438,900
Bhurtpoor. ……… …	1,978	600,000
Ulwar… …… ……	3,578	280,000
Kerowlee.. ……… …	1,878	187,800
Dholpoor. …… ……	1,626	550,000
Kishenghur… ………	724	70,952
Banswarrah……… …	1,440	144,000
Doonghulpore.… ……	1,000	100,000
Pertabghur.… …… Dowleah……… …	1,457	145,700
Jallawar…… ………	2,200	220,000
Tonk……… ………	1,864	182,672
Sirohee…… …… …	3,024	151,200

The population of the British territory of Ajmir amounts to 345,415 or 2660 sq. miles, and with the exception of Dholpoor and Bhurtpoor, the Ajmir district contains a larger number of inhabitants to the square mile than any of the Independent States. In these, the average is 74 to the square mile, but in Marwar the number is only 50, in Bikanir 35, while there are so few as 6 to the mile in Jeysulmeer. In the British provinces lying to the south there are in Jubbulpore 102, and in Nagpore and Wurdah 150.

The absence of any organized system of police permits the passage of marauding bands throughout the whole country. The rajahs oppress the thakoors or nobles, and these again oppress the people.

The chief States, at present, are those of Udipur, Amber or Jaipur, and Marwar; and the minor kingdoms, are Ulwar, Bikaneer, Dangarpur, Sirohi, Pertabghur, &c., which were at one time the fiefs or dependencies of the first three though subsequently acquiring independence. Udipur was founded in A. D. 144 by rajah Kannksen, a Chohan rajput, an offshoot of the royal house of Ayodhya of the Solar race. Amber or Jaipur, by Sura rajah, a Cuchwaha rajput, in A. D. 966, and Marwar in 1459 by rajah Jodh, a Rathor rajput of the Kanouj dynasty.

British political relations with these States commenced fairly in the year 1803, during the Mahratta war. In 1817-18, on the outbreak of the Pindaree war, the British Government offered its protection, and treaties were contracted separately with all the states. The object of these engagements was not to acquire the power of exercising any interference in the internal administration of these States, but simply to subject their political measures and external relations to the British control. The feudatory chiefs of Rajputanah are consequently independent rulers, so far as their civil and criminal jurisdiction is concerned, and the British have no authority over them in these respects, beyond the indirect authority of moral influence. The laws by which they govern are unwritten, customary, and based upon the hindu shastra, and are administered by persons whose tenure of office depends solely upon the pleasure of the chief. The thakoors, or landed aristocracy, have certain powers delegated to them by their chiefs, and are held responsible for the security of life and property within the limits of their estates. They hold their lands on condition of paying an annual rent or tribute, and maintaining soldiers for the service of the State. The relations between them and their liege lords are consequently somewhat similar to those of the feudal system. Some of them are almost as unfettered by control in the internal administration of their estates as the chiefs themselves. The character of the Government is mild, and the tendency is towards excessive leniency rather than severity. Capital punishment is rarely awarded, fine and imprisonment being the usual penalties. Still, there are occasional cases of cruelty, chiefly affecting offences against caste or religion, and the British Political Agents never allow these to pass unnoticed and do their best to prevent. The great bulk of the population is both well contented and prosperous. Although the administration of British provinces is incomparably superior in every respect to the administration of these principalities, it may be fairly questioned whether, as a body, the people are better satisfied. Whilst material wealth and progress are far greater and more rapid in British India than in Rajputanah, less actual poverty and destitution are found in the latter. Highway robbery, and border affrays, dacoity and cattle robbery seem to be the staple crimes of the Rajputs. The main income of all the Rajput States is derived from the land revenue. Salt is the next important source, and a considerable amount is realized from transit duties. The land revenue is raised under different systems, according to the custom of each particular State. In most it is taken in kind. The Government often leases out villages to contractors for short terms of years. Education has not made much progress in Rajputanah. There are schools in all the capitals, but the aristocracy do not set an example to the rest of the population in availing themselves of the opportunity afforded them of educating their children. The Thakoors, as a body, are illiterate and opposed to progress of any sort. The road communications of Rajputanah are generally defective. The military establishments of the States show a grand total of 72,050 men, but the equipment and discipline of the force are very inferior. The capabilities of parts of the country for cotton are excellent, and it grows wild and to a good height even in the western sandy tracts. In some parts of Meywar and others of the smaller States the luxuriant growth of the poppy recalls to recollection the opium fields of Central India. Most of the cereals can be successfully cultivated. Hopes are entertained of its mineral resources proving valuable, while even in the most arid districts salt and saltpetre are obtained in abundance. The great Sambhur lake near the northern frontier of Marwar contains an inexhaustible supply of salt, though it has never been rendered available by the Rajputs, and the British have recently, by treaty, obtained possession of it.

Dhar, Dewass, Doongurpoor, Banswarra, Pertaubghur, Rutlam, Sillanah, Seeta Mhow, &c., are petty Rajput principalities.

Salt is a main article of export. There is also considerable traffic in sugar, cotton, country cloth, and wood. The sugar of Rohilcund and the North-Western provinces is the staple of the import trade. It is estimated that the total external trade of the various frontiers amounts to £2,213,700 worth of exports, and £1,761,500 worth of imports. British political relations are maintained through the channel of a Governor-General's Agent with a staff of four Assistants and five Political Agents, accredited respectively to the courts of Mewar, Jeypore, Marwar, Bhurtpore, and Haraotee. The Governor-General's Agent superintends the principalities of Bikaneer, Jeyeulmeer, Kishenghur, Kerrowlie, Ulwur, Tonk and Dholepore. The Political Agent of Mewar has jurisdiction over Mewar, Pertabghur, Doongarpore, and Banswarra. Jeypore has a political agent to itself. The political agent of Marwar has also Jodhpore and Mullanee under his control.

The jurisdiction of the agent in Bhurtpore is confined to that State, but lately he has been entrusted with all the more important matters connected with Dholepore. The agent in Haraotee is accredited to the courts of Boondee, Kotah, and Jallawar. The first Assistant to the Governor-General's Agent is political superintendent of Sirohi and magistrate of Aboo. The second assistant is the agent for the suppression of thuggee and dacoity in Rajputanah. Besides the staff above enumerated, there is a separate civil commission for the administration of the British districts of Ajmir and Mairwarra, under the Government of the North-Western provinces. It consists of a deputy commissioner, first and second assistant commissioners, a Cantonment Magistrate at Nusserabad, a Revenue Settlement Officer, a District Superintendent of Police and his Assistant, with the Governor-General's Agent as ex-officio Commissioner.

Bikaneer, which is a large State, with an area of 17,680 square miles, is under the Governor-General's agency. The population is sparse, and the country, together with that of the contiguous State of Jeysulmeer, is known as the "Indian Desert." Its general character is a succession of sand hills, covered with small trees and bushes. Barren as it appears to the traveller in the scorching heat of the summer months, it produces plentiful harvests of bajree and mot'h, water melons and oil plants. The administration is not considered to be satisfactory. Bikaneer, the capital town, has a population of about 60,000, and contains the homes and houses of many opulent merchants and bankers, who live in other parts of India, and return periodically to their native place. Of late years, however, the number of those who came back has sensibly diminished.

Jeysulmeer is governed by a maha rawul. The revenue of this desert state is insignificant, and the water below the surface lies at an enormous depth, varying from two to five hundred feet. The city of Jeysulmer was, like Bikaneer, the resort of many rich natives, who stored their wealth there, to escape the exactions from time to time of the Mogul, the Mahratta and the Pindari; situated in the heart of the most arid desert in India, it was a city of refuge that escaped the notice of depredators, or seemed inaccessible to them.

Kishenghur is a small State on the eastern frontier of Ajmere, administered by a maharajah. Observing the benefits derived in Ajmere by the system of tank irrigation, introduced by the late Colonel Dixon, its chief had a number of tanks excavated in his state and the revenues considerably increased. The salt that is exported from the Sambhur lake to Central India has to pass through his province, and pays a duty of about 3 annas per maund. The products of Kishenghur consist mainly of excellent crops of cereals, and wheat, barley, Indian corn, and joware are raised.

The State of Kerrolee is under the chieftainship of a maharajah.

Though the territory known as Rajasthana and Rajputanah spreads through the Indus deserts, to Sind westward, and southwards to Cutch and Guzerat, and takes its name from the Rajput races ruling in it, there are innumerable sub-divisions of the rajput race in Malwa, and extending from Bahar and Benares through the N. W. Provinces of India up to the Punjab. The Rajputs claim to have sprung from the ancient solar and lunar dynasties, and form themselves into the Suryavansa or solar and the Indra or Chandravansa or lunar tribes, and there is a tribe styled Agni Kula from having sprung from a sacred fire (igni) which Agastya kindled on Mount Aboo. The three solar races are the Gehlot, Rahtor and Kachwaha. The four Agni Kula are the Pramara with 35 Sakha; the Parihara with 12 sub-divisions; the Chalukya and Chauhan, with 24 branches. Of the Pramara, the Mori are best known, and of the Chauhan, the Hara, who give their name to Haraoti, and have the two rajahs of Kota and Bundi. The single lunar race, or that of the Yadu or Jadu, sprung through Krishna, has eight branches, of whom the Jhareja with their raja of Cutch and the Bhatti with their rajah of Jeysulmeer are best known.

The Dogra of the Jummoo Hills also claim to be rajput, and there are likewise rajputs in the Kangra and Simla hills.

Rajputs rule in Rajputanah, where they are a numerous and dominant aristocracy, organized on the feudal principles necessary to domination, though the greater part of Rajputanah is ethnologically more Jat than Rajput. Rajputanah lies in the centre of a circuit all round the edge of the more compact mass of the Jat people,—from the Salt Range, through the northern Punjab and adjoining hills, to Rohilcund, Oudh and the Centre Doab, thence by Bundlecund through Sindiah's territory, Malwa, Mewar, Guzerat and Kattywar into Lower Sind. They are not found in any number to the north of the Salt Range, nor are they in any of the hill country west of the Jhelum. A large proportion of the Rajputs scattered about the Eastern Punjab, Cis Sutlej territory, and Delhi districts are now mahomedans, as are occasional Rajput villages all over Hindustan and a good many Rajput rajas, their conversion having been influenced by the moghul emperors. But east of Delhi, conversion is quite the exception. A small Rajput tribe, called Jan-jua, now mahomedans, is however found about the Salt range.

In the N. E. Punjab near the hills, the Rajput population is more numerous, and hindu Rajputs are the dominant race in the Jummoo and Kangra districts of the Himalaya. The Kangra and Jummoo rajahs and their clans claim to be of very pure blood, and they are fine handsome men, the Kangra Rajputs in particular: they wear many jewels and are very fair. The women of the hills are in deserved repute and much sought after in the plains. The Jummoo men, called Dogra Rajputs, are less handsome than those of Kangra, but more robust and brave, quiet, staunch, steady and reliable, without disagreeable hindustani airs. The Rajput population of these hills must be very considerable. East of the Sutlej, in the Simla hills many of the rajahs and their followers are rajputs. The Dogar tribe, in the N. W. of India, are predatory and pastoral, following mahomedanism but claiming to be Chauhon rajputs. The other converted Chauhon, however, believe them to have been Jat and Gujar. The rajah of Kashmir is a Dogar or Dogra. In the 18th century they occupied a considerable tract on the banks of the Sutlej and made themselves formidable to the mahomedan government of Delhi. The Rajputs of the Punjab and adjoining hills are supposed to be not so high on the scale of rajput orthodoxy as the solar and lunar races of Ayodiah. In the lower Doab, the Rajputs take the hindu royal designations of Raja, Rao, Rana and Rawat; many Rajputs object to hold the plough. Rajput dominions run south of the Gogra and thence across the Ganges into the Arrah District (Bojpur).

The Jat, Rajput and their congeners are undoubtedly branches of one great stock. Brahmans of Kashmir and the frontier hills are hindus in an earlier stage of brahminical devolopment. The Jat country is just such as would be occupied by a large stream of people issuing through the Bolan Pass, in Lat. 28 or 30° north, and the Rajputs are ranged in a semi-circular form around the eastern and northern and south edge of the Jat area, the mass of them occupying the richer valley of the Ganges. Mr. Campbell's conjecture is that the Rajput are an earlier wave from the same source as the Jat who came in by the same route, have farther advanced and been completely hinduised, while the Jat have come in behind them. Punjabi is the language spoken by the Jat, but which in upper Sind is called Jati-Gul, or the Jat tongue, and Mr. Masson calls that of Beluchistan and Sind Jetki. It is an Indo Germanic tongue allied to the Sanscrit. In its main grammatical and essential features it is not widely different from the Hindi of the Rajput and other Hindustani people. It is one of the most pracrit of Indian vernaculars. There is no available data beyond the fourth century for any of the great Rajput families, all of whom are brought from the north. This was the period of one of the grand irruptions of the Getic races from Central Asia, who established kingdoms in the Punjab and on the Indus. Bal or Pali, the universal adjunct to every proper name, indicates the pastoral race of these invaders.

The Rajput race for about 1,800 years have been striving to get and hold India, but they have never advanced in strength beyond the north-west of India, and they now occupy from the north and west of the Punjab, south-east to Behar and Benares, and southwards along the left bank of the Indus to Malwa, Guzerat and Cutch, giving their name Rajasthana or Rajputana to the country they occupy. They are no doubt of Aryan origin, and are part of a later movement than the branch who came down by the Saraswati, and up to the latest dates have shown themselves a brave people, delighting in war and in bloodshed. During the period down to Yoodishtra and Krishna, and thence to Vicramaditya, various races invaded India, who are now ranked amongst the thirty-six royal races of Rajasthan. These are the Hya or Aswa; the Takshac; and the Jit or Gitæ, the similitude of whose theogony, the names in the early genealogies and many other points, with the Chinese, Tartar, Moghul, Hindu and Scythic races, would appear to warrant the assertion of one common origin. Since they have been in India the great seat of Rajput ancient power and glory was on the Ganges; but, when vanquished there by mahomedans, the chief Rajput houses retired into the comparatively unfruitful countries now known as Rajputanah, where, however, the Jat is the most numerous part of the people; and though they share the lands with the Meena, the Mhair, the Bhil, the remains of the brahmin population and the dominant Rajput, the Jat have the largest share of the cultivation. The northern part of Rajputanah was partitioned into small Jat republics before the Rajputs were driven back from Ayodiah and the Ganges. The southern and more hilly parts of Rajputanah are not Jat, but are occupied by the Mhair, Meena and Bhil; but in Malwa, again, the Jat are numerous, and seem to share that province with the Rajput and Kunbi. The Jat of Beluchistan are described by the people of Candahar as fine athletic men, with handsome features but rather dark. Those in upper Sind, up the course of the Indus, and in the south-western Punjab, are for the most part of the mahomedan religion. They have been long subject to foreign rule, and seem to be somewhat inferior to their unconverted brethren. In all the east Beluchistan, the Baluch are but a later wave and upper stratum. There, about the lines of communication between India and Western Asia, in the provinces of Sewestan and Kuch Gandava, the Jat form probably the largest portion of the agricultural population, and claim to be the original owners of the soil. In the west, advancing through Rajputanah, we meet the Jat of Bhurtpore and Dholpore; Gwalior was a Jat fortress belonging, it is supposed by Mr. Campbell, to the Dholpore chief. They do not go much further south in this direction. From this point, they may be said to occupy the banks of the Jumna, all the way to the hills. The Delhi territory is principally a Jat country, and from Agra upwards, the flood of that race has passed the river in considerable numbers and forms a large part of the population of the Upper Doab, in the districts of Alighur, Meerut and Muzafarnagar. They are just known over the Ganges in the Moradabad district, but they cannot be said to have crossed that river in any numbers.

Briefly, the Rajput race now occupy from the north and west of the Punjab, south-easterly to Behar and Benares, and southwards along the left bank of the Indus to Malwa, Guzerat and Cutch, and give to their south-westerly holdings the name of Rajasthana or Rajputanah. They are no doubt of Aryan origin, and are part of a later movement than the branch who came down by the Saraswati.

Rajputs claim to have three origins: (1) the descendants of the Suryavansa, the ancient dynasty of the Sun; (2) the descendants of the Chandravansa, the ancient dynasty of the Moon: and (3) the Agnikula, the family of fire, a sacred fire said to have been kindled on Mount Aboo by the saint Agastya. From these three, thirty-six primary royal races are said to have sprung, of whom the following may be enumerated :—

Name.	No. of branches.	Chief Representatives.
A. 36 Solar or Suryavansa dynasties.		
1. Grahilot or Gehlot.	24	The Sisodhia is the most distinguished. The Rana of Udayapur is a Grahilote.
2. Rahtor, descended from Rama by Kusa, his second son... ...	24	The rajah of Jodpur or Marwar belongs to this tribe.
3. Kachwaha, also sprung from Kusa	12	The raja of Jeypur is of this tribe.
B. Yadu or Chandravansa or Jadu or Lunar dynasty sprung from the moon.		
1. Yadu or Jadu, descendants of Krishna.	8	The Jharija and Bhatta in Cutch and Jeysulmeer are the most powerful.
2. Tuar	...	Vikramaditya was a Tuar.
C. Agnikula, or Fire race, have four tribes and 87 branches, viz. :—		
1 Pramara, west of Malwa and the desert of the Indus	35	The Mori, Soda, Sankla, Khair, Umra; Sumra (now mahomedans) Vehil Mairawat; Balhar Kaba; Omata, Rebar, Dhundia, Sortla, Harir little known.
2. Parihara......	12	
3. Chalukia of great power in the 11th 12th and 13th centuries.......	16	The Bhagel branch.
4. Chouhon or Chahumana	24	The Hara of Harawti, the rajas of Kota, Bundi, the Khichi of Ragughur, the Deora of Sirohi, the Sona garba of Jhalore and Pawaicha of Pawaghur.

Besides these, there are many tribes claiming to be Rajputs, of whose origin little or nothing is known, viz. :—

Choura or Choubara.
Tak or Takshak.
Jit or Jat.
Jhala-makwahana.
Sarwaya or Saríaspa.
Sikharwal.
Birgujar.
Hun.
Katti.
Bhatta.
Gohil.
Jetwa.
Kamara.
Bais.
Dabi.
Gor.
Doba.
Gerhwal.
Chandela.
Bundela.
Rajpat.
Sengar.
Dahia.
Johya.
Mohil.
Nikumba.
Dahiria.
Dahuna.

The four Agnikula tribes of Rajputs are the Chohan, Chalukya or Solunkee, Pouar or Prumar, and the Purihar. The unnamed progenitors of these races seem to have been invaders who sided with the brahmins in their warfares, partly with the old Khutree, partly with increasing schismatics, and partly with invading Græco-Bactrians, and whose warlike merit, as well as timely aid and subsequent conformity, got them enrolled as "fireborn," in contra-distinction to the solar and lunar families. The Agnikula are now mainly found in the tract of country extending from Oojein to Rewah near Benares, and Mount Aboo is asserted to be the place of their miraculous birth or appearance. Vikramaditya, the champion of brahminism, was, according to common accounts, a Pouar Rajput.

Several tribes of Rajputs and Kathi are found in the peninsula of Guzerat, commonly known under the name Kattiwar Rajput, amongst whom there are several tribes, standing in power and wealth thus: 1. Jharejah; 2, Jhallah; 3, Goil, and 4, Jetwah.

The Jharejah are the most powerful and numerous of the Rajput tribes of Guzerat and possess all the western part of that peninsula. They are a branch of the family of the rao of Kutch, who, in consequence of intestine feuds, left their country about A D. 800; and having crossed the Runn, at the head of the gulf of Kutch, established themselves upon the ruins of the Jetwah Rajputs and a few petty mahomedan authorities which at that time existed in Halar. The lands appear to have been divided in common among the whole tribe; the teelat, or eldest branch of the family, reserving to itself the largest portion; whilst the bh'yand or brotherhood held their respective villages by a pure feudal tenure The outlaws amongst them, the Bharwuttia, acted with great violence. If a Bharwuttia failed in getting flocks, he seized the persons of such villagers as he could find and carried them off. These were styled bhan, or captives, for whose release sums of money were demanded. In short, the life of a Bharwuttia was one of blood and rapine, until he was killed, or by the fury of his feud he compelled his chief to grant him redress; and the security of Charan (religious persons) and bhat (Bards) having been given on both sides, the outlaw and his family returned to their homes and occupations in perfect security. The Jharejah are said to trace their origin from Jhara, a chief of the mahomedan tribe of the Summa of Sindh.

The Rajputs in the south and west of Malwa and in Mewar are called Rangari, the derivation of the term is obscure.

Rajputs of the N. Western hills are ethnologically a much purer and finer race than those on the plains, but even they assert that their ancestors came from Ayodia or Oudh.

The chief Rajput districts are Bikanir, Jeysulmeer, Marwar, Mewar, Ajmir, Jeypur, Bundi, Kotah and Malwa.

The Bhatti are of the Yadu Bhansa race and rule in Jeysulmeer, and give their name to the Bhatti country between Hissar and Garhi.

In the Rajput states of Jeysulmeer between Lat. 25° to 28° N. and Long. 69° to 72° E.; of Jodhpur or Marwar, Lat. 24 to 28° N. and Long. 70° and 75° E. of Ajmir or Rajast'han; and also on the N. and E. in Lahore, Mooltan, Delhi, Agra, Malwah, Mewar, Marwar, Bikanir, Guzerat, Oudh, Allahabad and Bahar, indeed in the entire tracts lying between the Vindhya on the south, the Himalaya on the north, the Indus on the west, and Bengal and Assam on the east, are spoken the dialects which are called Hindi, some of which contain Sanscrit words, to the extent of nine-tenths of their entire vocables. All Rajputs speak Hindi. The Sindi, Panjabi and Kashmiri are likewise described as Hindi dialects. But the people speaking these tongues are of different races. Amongst the races in this tract are the Mhair of Ajmir, the Rajput, the hindu of the eastern countries, called Purbhiah, and the descendants of the Arian conquerors who have been residing there nigh two thousand years. They are of large physical frame, proud, vain, self-reliant and abstemious.

The maharana or rulers of Mewar, the capitals of which are Chitor and Udayapur, are of the race who ruled in Saurashtra. After the destruction of the Balhara monarchy of Saurashtra and two centuries' sojourn of the family in the Bhander desert, Baph or Bappa conquered Chitor and founded a new dynasty, in A. D. 727. The hereditary title was changed from Gehlote to Aditya. In 1828, Jewan (Javan) Singh, the only survivor of the race of Bappa, was on the throne.

The Mewar Agency is now entrusted with the political superintendence of (1st) Mewar or Oodeypur, (2nd) Pertabghur, (3rd) Doongurpur, and 4th, Banswarra. The city of Oodeypur is picturesquely situated on the eastern bank of a large lake, which is studded with rocky islets, and girt with wooded hills. The soil of Mewar is rich, and the surface of the country is not disfigured by any of those patches of sand which are to be met with in other parts of Rajputanah. Lying to the south-east of the Aravalli, it is a hilly tract, and the ascent to it is steep. Zinc ore is found near Oodeypur. There are said to be unworked mines, from which, in olden times, large quantities of silver were extracted. There is a magnificent lake at Rajnuggur, the area of which is about 12 square miles, and the depth considerable. The masonry of the bund of this lake is a splendid specimen of work. The wall is 40 feet in height in some places, and faced with marble, and the length of the embankment is not under two miles. He has a difficult population to manage. His nobles are factious, and assume almost independent powers, and in the hilly districts dwell wild and lawless tribes of Bhil, who, until taught otherwise, knew not what commerce means, except that it is an institution to be preyed upon. They are divided into 16 clans, with a population of about 150,000, and a fighting force of 30,000. On the approach of danger, signals were made from 'pal' to 'pal,' and the fighting men turn out at a moment's notice to repel the intruder. The income of Mewar amounted in 1865-66 to Rs. 26,61,273, and the expenditure to Rs. 26,85,729, showing a deficit of Rs. 24,456. The state of Mewar is governed by a maharana.

The small state of Doongurpur is administered by a maha rawul, and is not unlike the hilly tracts of Mewar. The revenue amounts to Rs. 1,26,818, and the expenditure to Rs. 1,71,364. The tribute that is paid to the British Government, viz., Rs. 35,000, seems to be disproportionally heavy. Pertabghur belongs to the Alpine division of Rajputanah, like Doongurpur? and, although generally hilly, possesses valleys and small plains of a rich loam soil, yielding abundant crops.

The Rajputs in the south and west of Malwa and in Mewar are called Rangari, a name, the derivation of which is obscure. The hills of Mewar and the neighbourhood are however still held by aboriginal tribes. The princes of Khundaila are a branch of the Shekhawut, the most powerful of whom are the Sadhani.

The Sadhani are descended from Bhojraj, the third son of Raesil, and in the division of fiefs amongst his seven sons, obtained Oodeypur and its dependencies. Bhojraj had a numerous issue, styled Bhojani, who arrogated their full share of importance in the fancy of the confederacy. Khundaila is said to have derived its name from the Khokur Rajput. The Khokur is often mentioned in the Bhatti annals, and Colonel Tod supposed them to be the Ghuker, who were certainly Indo-Scythic. Khundaila in the early part of the 19th century had four thousand houses and eighty villages dependent on it.

The ancient name of Oodeypur is said to be Kâes; it contains three thousand houses and has forty-five villages attached to it, divided into four portions

The *Chahil or Chahira* Rajput tribe is now, for the greater part, converted to mahomedanism. There are a few in the Hissar district and on the borders of Bikaneer. Though mahomedans, they nevertheless retain charge of the tomb of Goga Chauhan, a hindu prince, now esteemed a saint.

Ajmir is a Rajput country among rugged mountains and close valleys, which long preserved independence, and in a great measure, down to the present time is, in respect of Hindoostan, what the country of Switzerland, is to Europe, but much more extensive and populous. From Mahmud to Aurungzeb, the Indian conquerors were contented with the nominal subjection of the hardy Rajput tribes of Rajputanah among whom military enthusiasm, grafted on religious principles, is added to strength and agility of body ; and this race is disseminated over a tract equal to half the extent of France.

The rajas of Malwa, the capitals of which are Ujjayana and Maudor, are known from the writings of Abul Fazl, whose information is supposed to have been furnished from Jain authorities. It would appear that, in early ages, Mahahmah founded a fire temple, which was destroyed by buddhists, but restored in B. C. 840 by Dhanji (Dhananjaya) a name of Arjun, about 785, before Vikyramaditya. From A. D. 866, and A. D. 1390, the country repeatedly changed hands, from hindu to mahomedan sovereigns, from the time that in A. D. 866, Maldeva was conquered by Sheihk Shah, father of Ala ud din, to A. D. 1390, when Dilawar Khan Ghori, viceroy of Malwa, assumed sovereignty in A. D. 1390.

The Chahuman or Chohan has been the most valiant of the Agnikula, and not of them only, but of the whole Rajput race. Its branches (sak'ha) have maintained all the vigour of the original stem ; and the Hara, the Kheechee, the Deora, the Sonigurra, and others of the twenty-four, have their names immortalized in the song of the bard, The derivation of Chohan is coeval with his fabulous birth from the four-handed warrior Chatoor-booja, Chatoor-baha Vira. The Chohan trace their descent from Prithi raj. They are found all over the N. W. Provinces, also in Malwa and Rajasthan, in Central India, in Rajor, Fratapnir, Chakarnagar, and Manchana, of which last the raja of Mainpuri is the head, and is one of the highest of the Chohan clan. The Chohan rajput of the desert has on the N. and E. parts of Marwar, to the south there is Koliwarah and the Runn, to the west the desert of Dhat. The sterile ridge which passes through Chotun to Jeysulmeer passes west of Bankasir on to Nuggur Parkur. The wells are 65 to 130 feet deep. The Sehrai, Khossa, Koli and Bhil inhabitants are predatory races. The Chohan Rajput does not wear the zonar and does not much respect the brahmans. The Pit'hil and Bania are farmers and traders. The Chouhan Rajputs are to this day one of the highest and most powerful of the military tribes of Malwa.

The Purihara or Pritihara is scattered over Rajasthan, but do not seem to have any independent chieftainship there. At the confluence of the Cohari, the Sind, and the Chumbul, there is a colony of this race, which has given its name to a commune of twenty-four villages, besides hamlets, situated amidst the ravines of these streams. The *Purihara* is the least of the Agnikula. They never acted a conspicuous part in the history of Rajasthan. Mundawur (classically Mundodri) was the capital of the Purihara, and was the chief city of Marwar which owned the sway of this tribe prior to the invasion and settlement of the Rahtor clan.

The Bach is an inferior tribe of Chohan Rajputs in the district of Jonpur.

The Bais or *Beis* Rajputs are one of the 36 royal races, and intermarry with the Chohan, Kachwaha, and others. They claim to have come from Manji Paithan in the Dekhan, and to be descendants of its king Salivahana, of A. D. 78. They give their name to the Bycewara district in the Doab.

The Langa are a sub-division of the Solanki or Chalook race, one of the four Agnikula ; in their gotra-acharya, or 'genealogical creed,' they claim Lokote in the Punjab as their early location, in all probability prior to their regeneration on Mount Aboo, when they adopted brahminical principles. From the year S. 787 (A. D. 731), when the castle of Tunnote was erected by the leader of the Bhatti colony, down to S. 1530 (A. D. 1474), a period of seven hundred and forty-three years, perpetual border-strife appears to have occurred between the Bhatti and Langa, which terminated in a singular combat, or duel, of tribe against tribe, during the reign of rawul Chachik, in the last-mentioned period.

The Cuchhwaha tribe are the ruling race in Ambar of Jeypur; its raja is a Cuchhwaha. The greatest breadth of Ambar lies between Sambhur, touching the Marwar frontier on the west, and the town of Surout, on theJát frontier, east. This line is 120 miles, whilst its greatest breadth from north to south, including Shekhawati, is 180 miles, with about 150 souls to the square mile. Dhoondhar, the parent country, is calculated to contain four thousand townships, exclusive of the *poorwá*, or hamlets, and Shekhavati about half that number. Rajputs bear but a small ratio to the rest, whilst they may equal in number any individual class, except the aboriginal Meena, who are still the most numerous. They are, according to their relative numbers, Meena, Rajput, Brahmin, Bania, Ját, Dhakur or Kirár (qu. Kiráta ?) and Goojur. The Meena are subdivided into 32 distinct clans; the original induction of the exiled prince of Nurwar to the sovereignty of Amber, was commemorated on every installation by a Meena of Kalikh marking with his blood the *teeka* of sovereignty on the forehead of the prince. The blood was obtained by incision of the great toe: like many other antiquated usages, this has fallen into desuetude here, as has the same mode of inauguration of the rana of Mewar by the Ondeva Bhil race.

Haravati, or *Harouti*, the country of the Hara, comprehends two principalities, viz., Kotah and Boondi. The Chumbul intersects the territory of the Hara race, and now serves as their boundary, although only three centuries have elapsed since the younger branch separated from and became independent of Boondi. The *Hara* is the most important of the twenty-four Chohan *sác'há*, being descended from Anuraj, the son of Manik Rae, king of Ajmer, who in S. 741 (A. D. 685) sustained the first shock of the mahomedan arms.

Of the four *Agnikula* races, the *Chohan* were the first who obtained extensive dominion. The almost universal power of the *Pramara* is proverbial; but the wide sway possessed by the Chohan can only be discovered with difficulty. Their glory was on the wane when that of the Pramara was in the zenith; and if we may credit the last great bard of the Rajputs, the Chohan held *in capite* of the Pramara of Telingana, in the eighth century of Vicrama, though the name of Prithiraj threw a parting ray of splendour upon the whole line of his ancestry, even to the fire-fountain on the summit of classic Aboo.

The Sammah were certainly Rajputs, and the present Jarejah of Cutch still derive their origin from them.

The Sodho clan is numerous about Omerkot and the Tharr, where they are the hereditary sardars of the country. Under the ameers, their headman lived at Tannacheri and was never interfered with in his prerogatives. Although hindus, they intermarry with mahomedans, and do not refuse to eat with them.

The Rajputs of Guzerat, were chiefs on the frontiers, who in the early part of the 19th century regularly levied tora-grass, or black mail, but before its middle had become pensioners.

The Baghel are a branch of the Sisodhya Rajputs of Guzerat, who migrated to the east, and gave their name to Baghelkund or Rewah, but others of the tribe have spread through Bundelkhand, Allahabad, Benares, Cawnpore, Gorakpur and Furrukhabad.

The Bandela is a rajput tribe descended from the Garhwar of Kantit and Khairagarh, who settled in Bundelkhand in the 13th or 14th century and gave their name to that province.

The Chundel tribe of Rajputs are scattered in various parts of the North-West Provinces, and for the most part derive their origin from Muhoba, in Bundlecund. Before the mahomedan conquest, Muhoba appears to have been the capital of a principality that extended to the Nerbudda, and included the province of Chunderee, which is called after their name. They are styled Somabunsee, but they are not considered to be of pure descent, and their sons are carefully excluded from marriages with the higher clans. This tribe expelled the Baland tribe from Ajoree, Burhur and Mirzapur.

Near the Colehan, there are four rajput chiefs, viz., the rajahs of Mohurbunj and Porahat, the koer of Seraikilla and the thakur of Khursowan.

The Boondee ruling family belong to the Hara tribe of Rajputs. They have been elsewhere noticed as Chohan or Pramara Rajputs. The first rajah with whom the British Government had any intercourse was Omeda, who gave most efficient assistance to Colonel Monson's army in its retreat before Holkar: he died in 1804, after a rule of upwards of fifty years, and was succeeded by his infant son, Bishen Sing. During the Mahratta supremacy this state suffered much at the hands of Sindhia and Holkar, who virtually assumed the management of the revenues. The territory of Boondee was so situated as to be of great importance during the war in 1817 in cutting off the flight of the Pindaree. Maha Rao Bishen Sing early accepted the British alliance, and a treaty was concluded with him on 10th February 1918. By this, the tribute paid to Holkar and the lands in Boondee held by Holkar, were relinquished to the rajah, who engaged to pay to the British Government the share of tribute he had hitherto paid to Sindhia. In its earlier times, this little state became so connected with the imperial court of Delhi, that like Jeipoor, the princes adopted several court customs. The Purthan, or premier, was entitled Dewan and Moosahib ; and he had the entire management of the territory and finances. The Foujdar or Killedar is the governor of the castle, the Maire de Palais, who, at Boondee, is never a rajput, but some dhabhae or foster-brother, identified with the family, who likewise heads the feudal quotas or the mercenaries, and has lands assigned for their support. The Buckshee controls generally all accounts ; the Rassala those of the household expenditure. Boondee has a beautiful palace

The Macheri Rajput in Mewar, were formerly turbulent.

The Guhurwar, also written Gaharwar, is a tribe of Rajputs found in Dera Mungulpoor, Bithoor, Gajmow, Canouj and Bilhour in the Central Doab. The Guhurwar of K'hera Mungrore in Mirzapoor are converted to mahomedanism, and those of Mahaich in Ghazeepoor are reckoned an inferior branch. The chief of the Guhurwar resided at Bidjypoor, a few miles to the west of Mirzapoor, where the liberality of the British Government enabled him to keep up some show of respectability. At the time of the first occupation of Benares by the British, he was a fugitive from the tyranny and oppression of the Goutum Bhoonhar, who had expelled the Guhurwar family in A. D. 1758. The Guhurwar may be considered one of the most interesting races of the Upper Provinces, yet much obscurity hangs over their origin and lineage. They are recorded among the 36 royal tribes of Rajputs, and are said to be of the same family as the Rathor, with whom it is said they never intermarry.

The Birgujar, one of the 36 royal races of Rajputs, are settled along the Jumna from Rohilcund to Matura; some are mahomedans.

The Dhákara Rajputs are scattered over the country, from the south bank of the Jumna, about Agra, Mathura, across the Doab to Rohilcund.

The Bhál Rajputs are proprietors of lands in Bulandshahar and Aligarh.

The Bachhal Rajputs claim a descent from the Lunar race. They were formerly zamindars of Farida and Shah Jehanpoor, but are now settled in Aligurh, and different parts of Badoun, Mathura and Shah Jehanpoor.

The Hyovansa or Haihaya Rajputs in the Province of Benares, were once a dominant race on the banks of the Narmada, where Mahéswari was founded by Sahasrayuna, a raja who is largely mentioned in the legendary traditions of the hindoos.

The Húryá, a small tribe of Somavansi Rajputs, are dwelling in some parts of the province of Benares.

The Rajputs of the N. Western hills are ethnologically a much purer and finer race than those on the plains, but even they assert that their ancestors came from Ayodia or Oudh.

The Rajputs of the Punjab and adjoining hills are supposed to be not so high on the scale of Rajput orthodoxy as the Solar and Lunar races of Ayodiah. One of the grand points on which the hill chieftains pride themselves, is the purity of their descent ;—they consider themselves the only true and pure Rajputs in India, and to avoid the mixture of blood, they only give their daughters in marriage to purely descended Rajputs, and would rather condemn them to a life of single blessedness, entailing greater seclusion, and being far more irksome even than the confinement of the convent, than ally themselves by marriage to one of mixed blood, such as an illegitimate child is considered to be. These true-born Rajputs look down upon the chiefs who cannot boast of the same purity of descent ; not only will they not intermarry with them, but they will not eat with them, nor permit them to sit in their presence on a footing of equality ; the fear of the anger of the British authorities alone obliging the Rajputs to acknowledge, or permit an interchange of common civility, with those they look on as belonging to a mongrel breed.

A rajput, even of the humbler people, has a bold and dignified appearance, and their women are singularly beautiful. Almost all hindus who have taken to soldiering, Mahrattas, aborigines and Jat, claim a Rajput origin. The Rajput and Pathan are valiant and high-minded warriors ; but their pride and their courage are personal only, and concern them as men of ancient family and noble lineage ; they will do nothing unworthy of their birth, but they are indifferent to the political advancement of their race. The Rajputs are always brave men, and they form, too, a desirable peasantry. The Rajput has an inveterate contempt of the plough, yet multitudes, proud as they are, have been forced, of sheer necessity, to till or die. The tea cultivation in the Kohistan has given employment to many more. The best specimen of the hindu character, retaining its peculiarities while divested of many of its defects, is found among the Rajputs and other military classes in Gangetic Hindustan. It is there we are most likely to gain a clear conception of their high spirit, their enthusiastic courage, and generous self-devotion, so singularly combined with gentleness of manners and softness of heart, together with a boyish playfulness and almost infantine simplicity. In the lower Doab, the Rajput take the hindu royal designations of Raja, Rao, Rana Rawat, and Rawal. Rajput dominions run south of the Gogra, and thence across the Ganges into the Arrah District (Bojpur). The ranks of the Bengal Native Army were filled with Rajputs, Pathans and Brahmins, nearly all from the provinces of the Upper Ganges, the inhabitants of which have become greatly modified in character by complete conquest and mixture with strangers.

Akbar allied himself with the rajput royal houses, and for a hundred years, high civil and military posts were bestowed on them. But the rajputs were alienated from the moghul family by the bigotted conduct of the emperor Aurungzib, who reimposed the poll tax on hindus, which Akbar had abolished, and by his destroying hindu temples everywhere. The most brilliant conquests of Akbar, Jehangir, and Aurungzib were, however, by their Rajput allies; though the little regard Aurungzib had for opinion alienated the sympathies of a race, who, when rightly managed, encountered at command the Afghan amidst the snows of Caucasus, or made the furthest Chersonese tributary to the empire of Assam. Raja Maun of Jeipoor took Aracan, Orissa, and Assam. Raja Jeswunt Sing of Marwar retook Kabul for Aurungzib, and was rewarded by poison. Raja Ram Sing Hara of Kotah made several important conquests, and his grandson, Raja Essuree Sing and his five brothers were left on one field of battle.

The love of country and the passion for possessing land are strong throughout Rajputanah: while there is a hope of existence, the cultivator clings to the bapota, and in Harauti this *amor Patriæ* is so invincible, that, to use their homely phrase, " he would rather fill his part in slavery there, than live in luxury abroad." There are, however, amongst the Rajputs 84 mercantile tribes.

Every Rajput adores Asapoorna, the fulfiller of desire; and as Sacambhari Devi (goddess protectress), she is invoked previous to any undertaking. Amongst the Rajput races, according to Colonel Tod, Har is the patron of all who love war and strong drink, and is especially the object of the Rajput warrior's devotion; accordingly blood and wine form the chief oblations to Har, the great god of the Rajput. The Gosains, and the peculiar priests of Har, or Bal, the sun, all indulge in intoxicating drugs, herbs, and drinks. They are usually seated on a lion, leopard, or deer-skin, their bodies covered with ashes, their hair matted and braided with iron tongs to feed the penitential fires, and their savage appearance makes them fit organs for the command of the god of blood and slaughter. The bodies of these Gosain priests, ministers of Har, the god of war, are not burned like the hindus, but are buried, and a circular tumulus is raised over the remains; and with some classes of Gosein, are raised small tumuli, whose form is the frustrum of a cone, with lateral steps, the apex crowned with a cylindrical stone.

A Rajput never names his wife. The influence of women on Rajput society is marked in every page of hindu history, from the most remote periods. What led to the wars of Rama? the rape of Sita. What rendered deadly the feuds of the Yadu? the insult to Drupdévi. What made prince Nala an exile from Nirwur? his love for Damyanta. What made raja Bhirtri abandon the throne of Awinti? the loss of Pingani. What subjected the hindu to the dominion of the mahomedan? the rape of the princess of Canouj. In fine, in Hindustan as elsewhere the cause which overturned kingdoms, commuted the sceptre to the pilgrim's staff, and formed the groundwork of all their grand epics, is woman. Nevertheless, up to their latest wars, the Rajput opponents strove to humiliate each other by obtaining possession of their women, and the desire to avow this often led to the destruction of whole families, the women and children being destroyed by poison or the sword, and their male relatives rushing in despair on the foe. This destructive act was termed johur. When the foe was the Tartar, the johur might have been pardonable, but the practice was common in the international wars of the Rajputs; and there are numerous inscriptions on stone and on brass, which record as the first token of victory the captive wives of the foeman. When the mother of Sisera looked out of the window, and cried through the lattice, why tarry the wheels of his chariot, have they not sped? have they not divided the prey, to every man a damsel or two? her conduct gives a perfect picture of the Rajput mother expecting her son from the foray. The Jewish law with regard to female captives was perfectly analogous to that of Menu; both declare them " lawful prize," and both Moses and Menu establish rules sanctioning the marriage of such captives with the captors. " When a girl is made captive by her lover, after a victory over her kinsman," marriage " is permited by law." The forcible marriage in the hindu law termed Rachsas, viz., " the seizure of a maiden by force from her house while she weeps and calls for assistance, after her kinsman and friends have been slain in battle," is the counterpart of the ordinance regarding the usage of a captive in the Pentateuch, excepting the " shaving of the head." Malli and Noé, gardeners and barbers, are important members of every Rajput family, and are to be found in all the villages, of which they are invariably the cooks. The letter A, to the Rajput of the north-west, is as great a Shibboleth as H is to the Cockney :—thus Appa becomes Cappa.—*Annals of Indian Administration. Tod's Rajasthan, Vol. I., pp.* 1, 2, 77, 195, *Vol. II., pp.* 122, 202, 237, 290, 307, 309, 345, 356, 425, 450, 504. *Tod's Travels, pp.* 49, 54. *Milner's Seven Churches of Asia, p.* 100. *Layard's Nineveh. Sonnerat's Voyage,* I, 160. *Mr. Howell Thurlow, the Company and the Crown. Mr. Campbell, pp.* 61, 92, 93. *Malcolm's Central India, Vol. I., p.* 26, *Vol. II., p.* 220. *Times of India, April 25th. Wilson's Glossary of Indian Terms. Cunningham's History of the Sikhs, pp.* 12, 22. 83. *Elliot's Supplemental Glossary. Prinsep's Antiquities, by Thomas, pp.* 258, 259 *Aitcheson's Treaties, Engagements and Sunnuds, Vol. IV., p.* 63. *Powell's Hand-Book of the Economic Products of the Panjab, pp.* 254, 255. *Rennel's Memoir, pp. xlvi, xlvii. Richard F. Burton's Sindh, pp.* 378, 393. *Elphinstone's History of India, p.* 375-376. See Astarte ; Ashtoreth ; Baal, High Places, India ; Ken ; Sundbya ; Sundevan.

RAJ SUMUND, a stupendous work of marble, with an adjacent causeway, dams the lake of Rajsumund at Kankerowli. The structure cost upwards of a million sterling. The spectator who views this royal sea or *Rajsumund* on the borders of the plain ; the pillar of victory towering over the plains of Malwa, erected on the summit of Cheetore by rana Mokul ; the palaces and temples in this ancient abode, the regal residences erected by these princes, must be filled with astonishment at the resources of the Mewar state. They are such as to explain the metaphor of Zalim Sing, who said 'every pinch of the soil of Mewar contains gold.'—*Tod's Rajasthan, Vol. I., p.* 224.

RAJ TARINGINI, a work by Vedyadhar, it gives the various dynasties who ruled at Indraprastha or Dehli, from Yudishtra to Vicramaditya. It was compiled under the eye of Sowai Jey Sing of Amber.

RAJUN, Hind. Mimusops hexandra.

RAJUR, a Rajput tribe said to be of Bhatti descent, they confine their haunts to the desert, or the borders of Jeysulmeer, as at Ramgurh, Keâllah, Jaraillah, &c., and the t'hul between Jeysulmeer and Upper Sind : they are cultivators, shepherds, and thieves, and are esteemed amongst the very worst of the converts to mahomedanism.

RAJVANSA. See Infanticide.

RAJ VULA, the chronicle of the reign of Raj Sing, a prince of Mewar.

RAJWAR, outcast labourers of Bengal and Bahar.

RAJWARA. The territory of the raja of Kutch Bahar in Rungpur. Here, when the means of individuals prevent them from cultivating their own lands, it is not uncommon to hire out the whole with men and implements ; for the use of which one-eighth of the produce is the established consideration.—*Tod's Rajasthan, Vol. II. p.* 542. See Kattyawar.

RAJYUGNI. See Kunjuna.

RAK. Dut. Arrack.

RAK. Siamese. The tree which produces the beautiful varnish valued in the lacquer ware of China.

RAKAIGAL. Tam. Feathers.

RAKAL. Hind. of Kulu. Taxus baccata.

RAKAM. Ar. Hind. A kind of enumeration used at mahomedan courts and by the Kayast'h by the initial letters of the Arabic words, for the numbers. See Raqam.

RAKAT-CHANDAN. Beng. and Hind. Pterocarpus santalinus.

RAKCHAM. See Kunawer.

RAKH. Hind. In the Punjab, an uncultivated or waste tract, bearing grass, firewood and stunted jungle of Capparis, dhak, jhand, &c. ; also a reserved plantation, a shikargah, a rund, a chuk. Tracts of "rakh," are to be met with in portions of many districts of the Panjab. In the Lahore district there are no less than 86 such tracts, consisting of plots of uncultivated ground ; the total area is 2,50,000 acres, but not all of this yields wood, a great deal is grazing ground, much of which is quite capable of being brought under cultivation. The great value of the wood bearing rakhs consists in their being the source from which all the fuel for railway consumption is to be taken. Not only is the upper growth of wood valuable in this way, but the roots that remain in the soil after the stunted growth has disappeared from the surface are equally capable of being utilized.—*Powell's Hand-Book, Vol. I, p.* 549.

RAKH. Hind. Ashes.

RAKHA. Hind. A watcher or watchman.

RAKHAING, a race occupying Arracan, towards the embouchure of the Koladyn river, having the Sak, Kumi and Khyen on their north-east and south. A settlement of Rakhaing has been made on the Tenasserim coast in L. 98 E. from Lat. 13° 40 to 14′ 30″ E., east of the Moscos islands. They are a branch of the Burmese who separated themselves from the main stock at a very early period. The people of India call them Mug, a name of unknown origin and unknown to the Rakhaing themselves. The Mug are a highly Bengalised class of Rakhaing. They call themselves Myama-gyi or great Myama. They give their name to Aracan.

Bom-zu or Bunzu, called also Bondu, are a tribe of the Rakhaing, who dwell north of the Koladyn river. They have, on their north, the Lungkta, Kungye or Kuki in the highlands of Tipperah. The Bomzu and the Kuki seem to belong to the Burman race. The seaboard and the lower portions of the valleys opening into it, form the country of the Ra-Khoung-tha or Arracan tribe, of whom the Burmans are a branch. Some are found residing on the banks of the mountain streams, and are distinguished by the name of Khyoung-tha. Their language proves that they do not belong to the Yuma group, but are intruders from the north ; and their own traditions recognize the Ku-mi as the tribe in possession of the seaboard, when they entered Arracan.

The Mrung, in the upper basin of the Mayu and towards the hill frontier of Chittagong, are a colony imported from the Bodo country by the kings of Arracan, at the period when their conquests extended far up eastern Bengal.

On the south of Assam is the prominent Burmese race, who profess buddhism, and south of them the British province of Pegu containing Burmese. Mon, also called Talieng, Khe Karen, Kareni or Red Karen, the Khyen, whose women tattoo their faces, the Yet Baing on the Yoma range, and the Shan who form separate communities.—*Mason's Burm.*, *p.* 62.

RAKHAL. HIND. of Chamba and Beas, Taxus baccata, common yew.

RAKHAL PHAL. HIND. Schmidelia serrata, *D. C.*

RAKHAL-SUSHA. BENG. Karivia umbellata.

RAKHI. HIND. A kept woman.

RAKHI, an amulet placed by a Rajput woman round the wrist of a man to adopt him as a brother. The Rakhi festival, is held on the last day of Sawun, and was instituted in honour of the good genii, when Durvasa, the sage instructed Salone (the genius or nymph presiding over the month of Sawun,) to bind on rakhi, or bracelets, as charms to avert evil. The ministers of religion and women alone are privileged to bestow these charmed wristbands. The ladies of Rajasthan, either by their handmaids or the family priests, send a bracelet as the token of their esteem to such as they adopt as brothers, who return gifts in acknowledgment of the honour. The claims thus acquired by the fair are far stronger than those of consanguinity. Sisters, also, present their brothers with clothes on this day, who make an offering of gold in return.—*Tod's Rajasthan*, *Vol. II.*, *p.* 697. *Wilson.*

RAKKA. See Mesopotamia.

RAKKA, a race in the islands of Flores. Flores, called also Endie or Mangerye, is an extensive island of the Archipelago, 201 miles long from E. to W., and from 42 to 45 miles broad. It is named Flores from the Portuguese word 'flor,' a flower, but is called Ende and Mangerye, from its chief south and west ports. Its chief trade at Ende is with Sumba or Sandalwood Island ; the Mangerai port trades with the Bugi and Malay. The coast is occupied by the Malay or brown race, but in the interior is a people with frizzled hair, and a similar frizzled hair people live in the mountainous parts of Solor, Pintar, Lombata and Ombay. On the south coast of Flores is a tribe called Rakka, who are reported to be cannibals, accustomed to eat their enemies and their own relatives who die. Captain Keppel says that the natives captured from the island used to be much esteemed by the Celebes pirates, as slaves, and he gives the following translation from a Dutch journal :—"On the island of Flores, there lives a race called, on the south coast, Rakka, who not only devour their enemies, but with whom custom requires that the son shall cut the body of his deceased father in pieces, and sell the flesh to the inhabitants at the high price of its weight in gold. This flesh is greedily eaten by the people as a great delicacy. If the father was heavy and of great size, the son considers himself particularly fortunate. The population of Endore on the same island is also very greedy of human flesh. But these cannibals confine themselves to the heart, which, with incredible dexterity, they extract from the body, by giving a blow under the left shoulder-blade. It is then cut into very small pieces, eaten completely raw by the bystanders, who belong to the same race." Captain Keppel adds, "I am not able to corroborate this."

Galeteng is a locality in the island of Flores, occupied by a race so called. According to the statements of Bugi traders, who had settled in Flores, that island is inhabited by six different races, speaking as many different languages, the Ende, the Mangarai, the Kio, the Roka, the Konga and the Galeteng, names derived from the principal places of their resi- dence.—*Horsburgh.* *Bikmore*, *Keppel's Ind. Arch.*, *Vol. II.*, *p.* 149. *Crawfurd's Dict.*, I. *p* . *xciv.* See India.

RAKKISA TUNGA. TEL. Cyperus Rox- burghii, *Nees.*—C. Elatus, R. i. 204.

RAKSHANI. See Kelat.

RAKSHASA, a term applied by the Arya intruders into India, to the inhabitants wh they found settled there. In the present day, according to the hindu superstitions amon the evil genii of all India, is a being cal Rakshasa, of giant bulk, terrible teeth, wh feasts on dead bodies, a spirit or demon wh appears to be of various descriptions. As kind of Titan, or enemy of the gods, the hindu mythology, he assumes a gigant superhuman form, after the manner of Rávana and others. He is sometimes represented as the guardian of the treasure of Kuvera, the god of wealth; and sometimes as a cannibal, imp or goblin, haunting cemeteries, devouring human beings, impeding sacrifices, and disturbing religious people in their devotions. In this last named character, the Rákshasa appear to have waged continual war with men, as the Daitya or Dánava did with the gods. The European of the nineteenth century cannot realize the dread in which the hindoo stands of devils. They haunt his paths from the cradle to the grave. The Tamil proverb in fact says: "The devil who seizes you in the cradle goes with you to the funeral pile." The chief anxiety of the Tamil father when his child is about to be brought into the world, is to see that the leaves of the Margosa tree are carefully fixed over the threshold to prevent the devils from entering and seizing upon the child at the moment of birth. If he have lost two children before, and this be a son, a bracelet is placed upon the child's arm as a safeguard, a golden ring is fixed in its nose, and it is solemnly dedicated to some particular demon who is entreated to protect it. The child is then perhaps named *Payen* (the Devil's own,) a name of frequent occurrence in South India. The ring is allowed to remain in the nose till the child is grown, a great feast is then made by the parents, and sacrifices of sheep or cocks offered at the shrine of the tutelary demon. The periods of marriage and pregnancy are times at which devils are supposed to be especially malignant, and ceremonies are then performed to avert the influence of the evil eye, ill-omens and devils. In so slight a matter as the boring of a child's ears for ear-rings, it is considered necessary to propitiate Karuppan with the sacrifice of a goat, or a cock at least. person seeing a crowd assembled under Odiya tree (*Odina pinnata*) which the massive on chain hanging from its trunk betokened be dedicated to Karuppan, he rode up, and and there the quivering body of a ram just rificed to the demon. The head had been vered from the body by one blow of a large kle-shaped weapon, which was courteously nded for inspection. It was made, handle well as blade, of native iron, and had lately n presented to the shrine by a devotee. The ficer had made the present, offering on the picious occasion of an infant son having his s bored. The head of the ram fell, as usual, the share of the officiating priest, while the dy slung on a pole and carried on the shoul- s of two men, amid the beating of tom-toms s taken home to furnish the evening feast. temple was near, but on a pedestal under tree, reposed a hideous object made of potter's ware. This particular demon is supposed to be, when propitiated, very liberal in the bestowal of benefits; and the pujari mentioned to the looker on that if he would make a sacrifice of a goat or two, he would guarantee that his devil should obtain for him a lucrative appointment under Government! The sacrifices of goats is almost continuous:—sometimes as many as twenty goats are sacrificed at one time. The flesh is generally cut up, cooked and eaten on the spot; and round the shrines may often be seen a number of small earthen ovens. The strongest oath a sudra can take is to swear by the most famous devil of the district; and, often before a law suit is carried into court, the aggrieved party will say to his opponent,—"I will be satisfied, if you will go to such a demon's shrine, and there, on the justice of your cause, blow out the flame of a lamp in the presence of the Kali." A man who would not hesitate a moment to commit perjury in Court, would never dare to perform this ceremony knowing his cause to be unjust, for then he firmly believes that he would immediately be stricken down by the demon. So swears Latinus in the *Æneid*:—

> "*Tango aras, medios ignes et numina testor.*"—

Under this ever-present fear of demons, the hindu often hesitates to go even a hundred yards in the dark; he will not enter a forest alone; he fears to stand on the borders of a lonely lake, for there dwells the spirit which in Scotland is known by the name of the Kelpie, and it is near the water where, he has heard, may be often seen in the darkness of the night, the "fiery-mouthed devil," *Ignis fatuus*. But most of all, he fears the sandy plain, for it is a notion thoroughly oriental, that the unclean spirit "walketh through *dry places*," which are called in Tamil *Pay Kadu*, "Devil deserts." Devils are especially said to abound in the sandy wastes between Madura and Tinnevelly, where the mirage (in Tamil *Pay Ter*, the Devil's chariot), is frequently seen, and is said to be produced by them. When a fire takes place in a village, it is owing to the wrath of the village-devil. His worship has been neglected, or some insult has been offered to him and he thirsts for revenge. Near the village of Vediarpuram in the Tanjore district, for about four or five years accidental fires had been of annual occurrence, and it was commonly reported to be owing to the anger of *Aiyanar*, a demon whose shrine is situated to the west of the village. A banyan tree near the spot dedicated to him, was some years ago, felled without his permission, and since that time, the enraged demon, refusing to be propitiated by the usual sacrifices, yearly burned down a house or two. Many races, besides hindus, are very prone to make vows in time of sickness. Formerly we are told, people used to go from all parts of England to Canterbury—

"The holy blissful martyr for to seek,
"That them hath holpen when that they were sick."

The hindu makes a vow to go to a particular shrine, and there pour offerings of oil and spices. If a diseased member have been restored, oftentimes a golden image of it is made and presented to the shrine. A person suffered from a serious affection of the eyes. A vow was made that in case of recovery, two golden eyes should be made and presented to the shrine of Mari Amman. In like manner, the Philistines, we read, when afflicted with emerods, thought, after consulting with their soothsayers, that they could best propitiate the God of Israel by making and offering to him, golden images of the emerods. As may be expected the devils are most busy in the

"last scene of all.
That ends this strange eventful history;"

and a young girl fears to cross a dying man lest his latest breath should pass into her in which case she would be possessed beyond recovery. For a similar reason, a hindu at the point of death is always removed to expire without the house, which would otherwise be haunted. As the corpse is carried away, parched rice is scattered along the route of the funeral procession. It is believed that the devils will stop to pick it up, and it is considered advisable to keep them so engaged till next sun-rise, for should they return to the house before that time they would probably not be satisfied without another victim. A native proverb says:—"A Saturday's corpse goes not alone," when, therefore, a death takes place on a Saturday, to prevent evil consequences, a live cock is taken with the corpse to the burning ground, and it is there given away to some person of low caste, or like the scape-goat of old, allowed to escape into the adjacent jungle. Brahmans, averse to bloody sacrifices, substitute for a cock, the bolt of the door of the house, which they burn with the corpse. When a dead body is *buried*, instead of being burnt, as in the case of suniyasi *(wandering devotees)* salt is placed in the grave, and frequently with it the leaves of the margosa tree so famous as a charm against devils. Salt was till recently also in England placed on the corpse of Roman and Lutheran christians, for the avowed purpose of keeping it secure from the evil one, and the practice is still said to linger in the Highlands of Scotland. It was seen in 1833, placed over the dead body of a young girl at Greenwich. The Highlanders indeed in many of their superstitions are remarkably similar to the hindus. They formerly planted the rowan, or mountain-ash, regarding it as a safeguard against devils, just as the hindus regard the margosa. Throughout India, the belief is as common as it was formerly in Europe, that a man who dies a sudden or a violent death, becomes a demon. All the women in the district are immediately possessed by him, and innumerable mischiefs result. A brahman accidently drowned in the river Kaveri about the year 1870, became in consequence a "Brahma Rakshasa" one of the fiercest of demons: an officer of Artillery killed at the battle of Assaye, was buried beneath a tree near the village and his spirit is worshipped there to the present day. Dr. Caldwell mentions the case of an English officer mortally wounded at the taking of the Travancore lines in 1809, who was afterwards worshipped as a demon,—cigars and spirituous liquors being added to the usual offerings made in such cases. A few years ago a brahman who was sentenced to be hanged at Madras for the murder of another brahman, going on pilgrimage from Benares to Rameswaram, threatened that though they were about to hang him, he would not die, but would become a Brahma Rakshasa and torment all those who had given evidence against him.

Bells and chains are almost always used in devil-worship and exorcism; the notion involved seems less to be that of scaring the devil, than that of charming him, just as snake-charmer charms a snake by mus Near the fanes of the popular devils, the are massive iron chains hanging from the trees, with bells and knives attached to them. I the well-known Sanskrit work, the *Hitopades* occurs a story relating to a famous devil calle *Ghanta-karna* or Bell-ear. This Rakshasa w believed to dwell on the top of a mountain the town of Brahmapura. One day, a th having stolen a bell (probably one of those the demon's fane), was killed by a tiger, as was carrying off his plunder. The monk who dwelt in the adjacent forest obtained t bell and amused themselves by ringing it. T people of the town having found the d body of the man and continually hearing t sound of the bell were filled with intense h ror fully believing that the demon, enraged, h killed the thief, and was now ringing t bell. The town was in consequence deserted, when an old woman guessing t truth, went to the king and said that for a s sum she would undertake to settle the de The king, delighted, gave her what she as and the old woman after tracing the cabalis circle,—*(the Kolam)* and pretending to g through certain incantations, entered the for By means of fruits which she strewed on t ground, she was enabled to decoy the monk and having obtained the bell as a trophy of victory over the demon, she returned in triump to the town. So little has the belief in devils been shaken, that in the India of the present day, it would, in a like case, be just as easy to deceive the people and even their native hindu rulers.—*Williams Story of Nala, p.* 208.

RAKT. Sans. Blood.

RAKTA-BALI. Blood offering, a blood sacrifice to an idol. The blood sacrifice of the hindus. See Bali; Hindu.

RAKTA-CHANDANAM, also Rakta-gandham, and Ku-chandanam. Tel. Pterocarpus santalinus.—*Linn.*

RAKTA CHANDAN. Hind. Adenanthera pavonina, also Pterocarpus santalinus.

RAKTA-KANCHAN. Beng. Bauhinia variegata.—*Linn.*

RAKTA KRISHNA CHANDANAM. Tel. Santalum album, *L. Hari chandana* W. Fine old sandalwood of a deep yellow or red color with a brown heart.

RAKTIKA. Sans. Seeds of Abrus precatorius.

RAKTJAPA. Hind. Red Hibiscus.

RAKT-KANER or karbir. Hind. Nerium odorum.

RAKTO CHANDAN. Beng. Adenanthera pavonina.—*Linn. Willde.*

RAKUS. Hind. Agave Americana.—*Linn.*

RAKUS TAL or Tso Lánag, the Salt Lake; in L. 30° 39', L. 81° 10' (referred to Lágan Túnkan, on its southern border), in Gnári Khórsum, is 15,250 feet above the sea.—*Strachey.*

RAL. Hind. of Murree Hills, &c. Mimosa rubicaulis.

RAL. Duk. Guz. Hind. Dammar, resin, rosin. Ral, also Rala, is a general Hindi term for all resin-like substances. The white rosin is the safed ral from the Shorea robusta. The black and yellow rosins are called kala ral and zard ral. Sir Richard Jenkins states in his report on the Nagpore territory, that the Ral or rosin tree, as also other large wood, is obtained in the forests of Kakir (probably Conkir), and in the hills north of Ruttenpore. When Captain Sankey visited the Pachmurra range, Dr. Jerdon and he met with the "Vatica tumbugaia" which is probably Sir R. Jenkin's Rall tree, though it does not seem in those jungles, to attain a large size.—*Captain Sankey.* See Resins.

RALA. Duk. Panicum italicum. *Linn.* Setaria Italica. See Millet.

RALI, Hind. Red powder from fruit of Rottlera tinctoria.

RALLIDÆ, a family of birds:

Sub. Fam. Gallinulæ.

Porphyrio polyocephalus, *Lath.* The purple coot.
Fulica atra, *Linn.* The bald coot.
Gallicrex cristatus, *Latham.* The water cock.
Gallinula chloropus, *Linn.* The water hen.
" burnesii, *Blyth.* Small water hen.
Gallinula phœnicura, *Pennant.* White breasted water hen.
Podaca personata, *Gray.*

Sub Fam. Rallinæ.

Porzana akool, *Sykes.* The brown rail.
" maruetta, *Brisson.* The spotted rail.
" pygmæa, *Naaman.* The pigmy rail.
" fusca, *Linn.* The ruddy rail.
" zeylonica, *Gmel.* The banded rail.
" striatus, *Linn.* The blue breasted rail.
" indicus, *Blyth.* The Indian water rail.
" japonicus, *Schlegel.*
Crex pratensis, the corn crake.

RAM. Hind. A hindu incarnation of a deity.

RAM-RAM. A hindu salutation, equal to the salam alaikam in use amongst mahomedans.

RAMA, now a deified warrior, was the leader of one invasion of the southern part of the Peninsula of India, and of Ceylon, and his inroad seems to have been a great occasion of breaking up and scattering the races in the east of the Peninsula. He advanced into the forests of Dandacaranya, scattering the prior inhabitants, as he advanced, whom he described as rakshasha or demons, driving some of them into the forests and mountain retreats where they still reside in a barbarous freedom, and reducing others to a state of predial slavery, in which, the pariah, the pallar, cherumar and other humbled races are now dwelling in the plains. To such invasions is owing the circumstance that each province in India has its own peculiar helot races; and each range of mountains and each forest tract, its own tribes of wild savages either wholly independent or partially subject to their more civilized neighbours in the open country. In a period of anarchy two heroes are made to appear in India, to punish the wicked and the proud. The first of these is Vishnu, whose efforts seem to have been general, but the next warrior was Rama, also called Parasarama, who directed his power against the ruling chiefs. Vishnu is represented as the founder of the Indian kingdoms as far as Pandea on the south. Bunsen, (iii. 562,) regards this legend as an expression of the belief in the moral government of the world, similar to that in the hymns of the Rig Veda, where Varuna punishes sin by disease and death, but Indra destroys the wicked. From Ikshwacu to Rama, of the Sooryavansa or race of the sun, was a period of 1200 years. Rama preceded Krishna; but, as their historians Valmiki and Vyasa, who wrote the events they witnessed, were contemporaries, it could not have been many years.

Rama, of the solar line of hindu chronology, is however placed by the brahmans 867102 B. C. between the silver and brazen ages, but was brought down by Sir William Jones to B. C. 2029 and reconciled to the Rama of scripture. Rama's brothers were Lakshmana, Bharata, and

Satroghana, but he is variously supposed to have lived B. C. 2029 years, Jones; 950, Hamilton; and 1100, Tod. Rama, son of Dasaratha, according to Bentley, was 1 year old in 960 B. C.

From Rama, all the tribes termed Suryavansa, or 'Race of the sun', claim descent, as the present princes of Mewar, Jeipoor, Marwar, Bikáneer and their numerous clans; while from the Lunar (Indu) line of Budha and Krishna, the families of Jeysulmer and Cutch (the Bhatti and Jareja races), extending throughout the Indian desert from the Sutlej to the ocean, deduce their pedigrees. Rama was a king of Oude, and is almost the only person mentioned in the hindu traditions, whose actions have something of a historical character. He is said to have been at first excluded from his paternal kingdom, and to have passed many years in religious retirement in a forest. His queen, Sita, was carried off by the giant Ravana; for her sake he led an army into the Deckan, penetrated to the island of Ceylon, of which Ravana was king, and recovered Sita, after a complete victory over her ravisher. In that expedition his allies were an army of monkeys, under the command ofHanumán, whose figure is frequently seen in temples, and who, indeed, is more worshipped in the Deckan than any of the other gods. Ráma's end, however, was unfortunate, for, having, by his imprudence, caused the death of his brother Lachmana, who had shared with him in all his dangers and successes, he threw himself, in despair, into a river, and, as the hindus says, was reunited to the Divinity. He still, however, retains an individual spiritual existence, as is shown by the separate worship so generally paid to him. Rama is represented in his natural form, and is an object of general adoration. But in this respect he falls far short of history, which when stripped of its fabulous and romantic decorations, merely relates that Rama possessed a powerful kingdom in Hindustan; and that he invaded the Deckan and penetrated to the island of Ceylon, which he conquered. Sir William Jones places the subjugation of India by Rama about the year 2018 B. C. Mr. Bentley, after a much more accurate research, fixes his birth on the 6th April of the year 961 B. C. In his time and that of his father Dasaratha, astronomy was much cultivated; and it is supposed (not without much probability) that the first Astronomical Tables for computing the places of the planets were constructed on the observations made in Rama's time. There was an eclipse of the sun on the 2nd of July of the year 946 B. C. which according to Mr. Bentley, may be referred to with certainty, as an epoch of Rama's reign. Rama married Sita, daughter of raja Janaka. He gained her by breaking the great bow, their stories are told in the Ramayana.—*Prinsep, p. 215. Elphinstone's History of India, Vol. I, pp.* 193, 104, 389. *Ed. Warren, Kala Sanhita.*

RAMA, among the avatara of Vishnu, in the mythology of the hindoos, are recorded three favoured personages, in whom the deity became incarnate, all named Rama. They are distinguished by the names of Bala Rama, usually called Balaram: Parasu Rama, or Parasram, meaning Rama of the club, and Rama Chandra, and are all famed as great warriors, and as youths of perfect beauty.

The first named, Bala Rama, was elder brother to Krishna, and greatly assisted him in his wars; so that, in this instance, Vishnu seems to have duplicated himself, as indeed may be also said of the other, for Parasu Rama, and Rama Chandra, otherwise called, patronimically, Dasrat Rama, were contemporaries. But it has been made a question, whether they be not three representations of one person, or three different ways of relating the same history: and, whether any, or all of them, mean Rama, the son of Cush, Sir W. Jones says he leaves others to determine. He deems Rama, son of Dasaratha, to be the same as the Grecian Dionysos, who is said to have conquered India with an army of Satyrs, commanded by Pan; and Rama was also a mighty conqueror, and had an army of large monkeys, or satyrs, the general or prince of whom was Hanuman, a name said by this author to mean with high cheek-bones; others translate it, with bloated cheeks, alluding to his fabled origin from Pavan, regent of the wind. Rama is also found to resemble the Indian Bacchus; he is a descendant of the sun, and the husband of Sita; and it is very remarkable, that the Peruvians, whose Inca boasted of the same descent, styled their greatest fes- val Ramasitoa. Krishna, describing himsel Arjun as the first of all things, says, "Amo those who carry arms, I am Rama."

The following passage taken from the 'U tara Rama Cheritra,' affords an idea of t costume of the warrior race in ancient ti Janaka, the father of Sita, the heroine, is de cribing the hero, Rama:—

> . . . . 'You have rightly judged
> His birth: for see, on either shoulder hangs
> The martial quiver, and the feathery shafts
> Blend with his curling locks. Below his b
> Slight tinctured with the sacrificial ashes,
> The deer-skin wraps his body, with the zone
> Of murva bound; the madder-tinted-garb
> Descending vests his limbs; the sacred rosary
> Begirts his wrists; and in one hand he bears
> The Pipal staff, the other grasps the bow.
> *Arundati.* Whence comes he?

Of Parasu Rama it is related, that he w born near Agra, in the Tirtya yug, or seco age. His parents were Jamadagni, whose name appears as one of the rishi, and Runeka. He seems to have been a warrior prince who about B. C. 1176 over-ran the Malabar Coast and introduced an Aryan race from the north; and gave his name to an era used still on the Malabar Coast from Mangalore to Cape Comorin. The term Parasa, means a club, and was probably applied to him from his carrying a mace.

Rama Chandra.—In this avatar, Vishnu appears in the person of a courageous and virtuous prince, the son of the powerful sovereign of India (whose capital, *Ayodhya*, is said to have extended over a space of forty miles) to punish a monstrous giant, Ravan, who then reigned over Lanka or the island of Ceylon. The Ramayana contains the heroic description of the battles and lives of all three Rama, although it more particularly details the exploits of Rama Chandra, or Dasrat Rama, so distinguished from his royal father Dasarat'ha. The name of this heroic monarch means, whose car had borne him to ten regions, that is, to the eight cardinal and intermediate points, the zenith, and nadir. He was a descendant from Surya, or Heli, which is a name of the sun in Greek and Sanskrit; and one of his ancestors, the great Raghu, had conquered the seven Dwipa, or the whole earth. But we cannot explain, why a Suryavansa, or descendant of the sun, should be styled Rama Chandra, the latter patronimic referring contra-distinguishingly to the descendant of the moon, Chandravansa. In the hindu mythology, however, everything seems, directly or indirectly, to merge in, radiate from, or amalgamate with, the sun, or Surya, in one or other of its names, or prototypes. All of the vaishnava sects and tribes hating such deistical philosophers as sceptically deny the personal existence of inferior deities, attributes, or avatara, agree in stating, that, with the exception of Krishna, the potentiality of the preserving power of the deity was never exhibited in such plenitude as in this avatara of Rama. In popularity and in dramatic, historic, and poetic shapes, it rivals the avatara of Krishna. And as the Gocalastha sect adore Krishna as the deity himself, and draw rules for their religious and moral conduct from the Sri Bhagavata, so the sect called Ramanuj similarly clothe Rama in almighty attributes and deem the Ramayana a complete body of ethics and morality.

For Bala Rama, see Krishna; Jaganath; Vishnu; Mahabharata.

For Rama, son of Dasaratha—see Avatar; Hindu; Ramayana; Incriptions; Osiris; Nath; Narayana; Kuvera; Vahan; Vishnu, Ramesseram Polygamy; Suryavansa; Kush; Ravana; Saraswati; Sita,,

For Ramachandra, see Avatar; Ramanandi; Ramawut; Inscriptions; Kshetrya.—*As. Res. Vol. ii. p.* 132; *Vol. i. p.* 426; *Vol. iii. p.* 68. *Gita, p.* 86. *Coleman. Moor.*

RAMA, son of Cush, who invaded India, is supposed to be Bacchus or Dionysos, of the Greeks. See Bacchus.

RAMACUAM. Andropogon schœnanthus.

RAMACHANDRA BHOJA. See Inscriptions.

RAMA CHANDRA DEVA. See Inscriptions, p. 393.

RAMAGRAMA. See Topes.

RAMA SARAM PALA. See Kanta Bhaja.

RAMAH, called by the natives Ramla, is situated in a fertile plain, that formerly belonged to the Hebrew tribe of Ephraim. It is supposed to be the same as the ancient Arimathea, to which that Joseph belonged, who having begged the body of Jesus from Pilate, took it down from the cross, wrapped it in linen cloth, and laid it in his own new sepulchre. The monks there have a tradition that their chapel is built on the site of the house wherein he dwelt. —*Robinson's Travels in Palestine and Syria, Vol. I, p.* 28.

RAMALINA FURFURACEA. Angola weed.—*Simmonds' Com. Product, p.* 486. See Dyes.

RAMANAND, a reformer of Benares, about the end of the 14th century, a follower of the tenets of Ramanuj. He founded a sect: he instituted no nice observances, he admitted all classes of people as his disciples, and he declared that the true votary was raised above mere social forms, and became free or liberated. Kabir is said to have been the son of a virgin widow of a brahmin, her father was a follower of, and was paying a visit to Ramanand. Unaware of her condition, Ramanand wished her to the conception of a son, which occurred, but ashamed of her condition she bore the child in private and exposed it. It was found and brought up by a weaver and his wife. Kabir is said to have been originally styled Inyani, the knowing or wise. He died at Magor near Garakhpur, which was endowed by Mansur Ali Khan with several villages.—*Wilson's Hindu sects.* See Dadu-Panthi; Khaki; Kubeer; Sena-Panthi; Hindoo; Vairagi; Vaishnava.

RAMANANDI or Ramawat, a hindoo sect of whom professor Wilson gives two accounts. In his Hindoo Sects, he says that they are usually considered a branch of the Ramanuja sect of vaishnava, and address their devotions particularly to Rama Chandra and the divine manipulations connected with Vishnu in that incarnation, as Sita, Lakshmi and Hanuman. He is said to have been the fifth spiritual successor from Ramanuja, but he is more likely to have lived later than this, being in the end of the 14th or beginning of the 15th century. He resided at Benares, at the Pancha Ganga Ghat. They worship Vishnu as Rama Chandra. The sect reverence all the incarnations of Vishnu, but they maintain the superiority of Rama (hence their name Ramawut) in this Kaliyug age. They worship, singly or collectively, the male and female members of this incarnation, or of Rama and Sita, jointly and singly; or of Sita Rama. In his Glossary, however, Professor Horace Hayman Wilson says, the Ramanandi are a sect of vaishnava ascetics, who dwell in Math or monasteries. They are followers of Ramanand, who, about the end of the 13th century taught the especial worship of Rama. They are particularly numerous about Benares. *Wilson's Hindoo Sects.—Wils. Gloss.* See Hindoo; Ramanand; Vairagi.

RAMANDROOG or Raman Mullay, a hill 37 miles west from Bellary about 1½ mile long, ¾ of a mile broad, and 3,190 feet above the sea level. It is in L. 15°7'; L. 76°29'. In 1846, Drs. Macdonald, Godfrey and Balfour reported on it as a sanitarium, the latter unfavorably. A few officers and soldiers visit it in the hot weather, but as it is subject to the S. W. monsoon like Mahabaleshwar, Chikaldah and other hills it is always deserted early in June.

RAMAN PAAJ. The native name of the Great Basses.

RAMANUJA, a vaishnava philosopher, the founder of the so-called Visishtadwaita system. The Ramanuj, are worshippers of Ramachandra, and are subdivided into three sects:—

1. Worship Rama only.
2. Worship Sita only as his Sacti.
3. Worship both Rama and Sita conjointly.

The followers of Ramanuja Achary in Mysore, still are to be seen as a separate class speaking Tamil in their families, and Carnataca in public.

RAMA PHALAM. Tel. Anona reticulata. —*L.*

RAMA SITA MARAM. Tam. Anona reticulata.

RAMA SITOA, a title of the Inca of Peru. See Rama.

RAMASWARA USTI, or Kasi uste. Tel. Solanum pubescens.—*Willd.*

RAMASAWMY, a hindu name very common in the south of India; a silver cigar lighter.

RAMA TULASI. Tel. Ocimum gratissimum, *L.—R. iii.* 17—*x.* 86.

RAMAYANA, the oldest of the two great epic poems of the hindoos in which the principal hero is Rama. Three versions exist of this book, one supposed to have been composed by Valmiki, one by Tulsi Das, one by Vyasa. That of Vyasa is known as the Adhi Atma Ramayana. The story of the Ramayana has some resemblance to that of the Iliad. Sita the beautiful wife of the hero Rama is carried off by the giant Ravana to the island of Lanka or Ceylon whither Rama follows him, and after a variety of adventures recovers his spouse. The reef across the straits of Manar is called Rama's bridge, and the legend goes that he threw the rocks which compose it into the sea. The bare story of each epic is probably historical. Bentley assigned the Ramayana to the fourth century of our own era. The Ramayana gives the exploits of Rama, and the Mahabarata gives the narration of the great Kaurava war. The scene is laid in Oude, but the subject is the conquest of the parts then conquered and pertaining to brahminic India, and of the Island of Ceylon. With its other subjects, the Ramayana describes the forest or wilderness of Dandaca as covering the whole extremity of the southern peninsula, and the rude inhabitants are designated Rakshasha (monsters) or vanara (monkeys); the former meaning races or tribes hostile to the Arians. The word vanara is from vana a wilderness, and nara a man, that is a wild or uncivilized man, and to this sense as to the wild races in the extreme south, the fable of Hanuman, the chief monkey and that of his army, Mr. Taylor thinks may be reduced. He says that those who have seen the Colleri and Marava will readily consider them to differ from all family likeness of the Arian hindus, and as their visages often resemble baboons more than men, it would require even less than the ardent poetical imagination of a Valmiki to induce the employment of an equivalent word which would so aptly seem to convey the idea imparted by their appearance.—*Reverend William Taylor.* See Inscriptions; Jagannath; Kasambi; Krishna; Mahabarata; Nath; Rama; Veda; Vidya; Vishnu.

RAMBABHA—? A very plentiful tree of Akyab which grows to a large size, and is sometimes used for planks.—*Cal. Cat. Ex.* 1862.

RAM BABUL. Hindu. Acacia Arabica, *var.* cupressiformis.

RAMBAYA or Rambiya, Malay. Metroxylon sago; Sagus lævis.

RAM BEGUN, Beng. Solanum ferox. *L.*

RAMBEH, Malay. Pierardia dulcis. Another species of the same genus is called P. sapida, from its also yielding an edible fruit. It is found in the district of Tippera, to the eastward of Calcutta, and also in China, where it is cultivated for its agreeable fruit, it is there called Lutqua, and is called Lutco by the hindoos on the eastern frontier of Bengal.—*Eng. Cyc.* See Duku.

RAMBHA. Hind. Pji. A sort of flat trowel or hand hoe, like the khurpa of Hindustan.

RAMBODDE, near Newera Elia in Ceylon presents superb cascades in the rainy season.

RAMBOWE. A Malay State, N. and E. of Nanning, and Salangore. It has two divisions, Rambowe Ulu and Rambowe Ilir, each under its own four suku or heads of tribes, and all subject to the control of one panghula who resides at Chembong. Besides Malays, are several aboriginal tribes inhabiting the slopes of the mountains and the forests, who subsist by hunting, to whom the resident population apply the general terms Orang Benua. They are subdivided into several tribes, among the most remarkable of which are the Udai, Sakkye, Jakun, and Rayet Utan. The last three do not differ from one another. Their features are of the Malay caste. Their hair is sometimes straight like that of the generality of Asiatics, but, more frequently curling, at the same time very different from the frizzled locks of the African. Their stature is short, but they do not differ much in complexion from the Malay. They bear little resemblance to the descriptions of the Semang in the interior of Quedah, or to the thick-lipped, wooly haired Papuan. Malays entertain a high opinion of the medical skill of these tribes who are to be found over the whole of the interior of this part of the Peninsula particularly in Ulu-kalang, Sungi Ujong, Johole, Jompole, Jellabu, Ulu Muar and Segamet.

The tribes of Rambowe are.

Rambowe Ilir.

Tribes.	*Heads of Tribes.*
Battu Ampar.	Gompar Maharaja.
Payu Kumba Barrat.	Mera Bongsa.
Munkal.	Sangaura Pahlawan.
Tiga Nenik.	Bongsa de Balang.

Rambowe Ulu.

Tribes.	*Heads of Tribes.*
Paya Kumba Darrat.	Sama Rajah.
Battu Ballang.	Andika.
Sa Melongang.	Mendalika.
Sri Lummah.	Senda Maharajah.

Newbold's British Settlements, Vol. II., p. 122.

RAMBUT, Malay. hair of the head.

RAMBUTAN, Malay. The fruit of Nephelium, lappaceum the name being from Rambut, Malay, the hair of the head, in allusion to its villose covering.

RAMCHUNDER ROY, under the direction of the Hon'ble H. T. Prinsep, compiled General Register of the Hon'ble East India Company's Civil Servants on the Bengal establishment, from 1799 to 1842.—*Calcutta*, 1846.

RAMCIHUM. Maleal. Andropogon muricatus.—*Retz.*

RAM DANA, Hind. Amarantus mangostanus.

RAMDAS. A Sikh Guru. See Narayana; Sikhs.

RAM DOOLIYA. Beng. Elœocarpus aristatus.

RAME. It. Copper.

RAMENA PU MARAM. Tam. Sterculia guttata.—*Roxb.*

RAMERTUG. Rus. Cambric.

RAMESA. A name of the chief of the Suryvansa race, king of Koshala, of which Ayodhya was the capital. His sons were Lava and Cush.

RAMESES II was the Pharaoh who oppressed the Israelites, but Menephthah was Rameses I and was reigning at the Exodus. We know nothing of him, but his tomb is in the valley of king's tombs near Thebes. The name of his son and successor is variously written in the hieroglyphics.

The tomb of king Oimenephthah near Thebes is the most beautiful in Egypt; and as it escaped the search of the Greeks, Romans, and Arabs, it was in good preservation. In a small vaulted room once stood the alabaster sarcophagus of the king which is now in Sir John Soane's museum. With the sarcophagus had been buried many hundred small images made of wood, in the form of mummies, which were there placed by the mourners at the funeral in token of their grief. The walls of these caverns are covered with painted and highly-finished sculptures, and several curious fables. On the sarcophagus there is the conquest of the Eternal Serpent, the great enemy of the human race, whose conquerors bear along his lengthy folds in solemn procession. There also within a garden are seen the river which divides life from death, and the bridge of life, and the keepers of that important bridge; there also are the tombs of the dead, their doors, and the keepers of those doors. The god Osiris is there sitting to judge mankind, who are mounting up the steps of his lofty throne; before him are the great scales to weigh the conduct of the dead, and beneath his feet are the wicked men labouring with hatchets, as if condemned to work in the Egyptian gold mines. That solemn trial of every man for his conduct in this life, which was to fix his reward or punishment in the next, was enacted by the priests as part of the funeral ceremony. They put on masks distinctive of the several gods, and thus received the body in due form. Osiris sat on a raised throne holding his two sceptres, and wearing the crown of Upper Egypt. Before him were placed the offerings and the dog Cerberus, and near him were seated the four lesser gods of the dead. The deceased holds up his hands in prayer and is introduced by two goddesses, each wearing on her head the emblem of truth. A large pair of scales is set up, which is adjusted by the dog-headed Anubis and the hawk-headed Horus. In one scale is placed the heart or conduct of the deceased, and in the other a figure of the goddess of truth. A small weight is moved along the beam by Horus, to make the two scales balance, and to determine how much the conduct falls short of the standard weight. Thus is measured the goodness and the failings of the life lately ended. Forty-two assessors are at hand to assist Osiris in forming his judgment, which when pronounced is written down by the Ibis-headed Thoth. Those who were too intimidated to listen to a sermon might thus learn wisdom from what they saw with their eyes, and this ceremony was a forcible method of teaching the ignorant multitude, that a day of judgment awaits us all after death, and that we should so regulate our lives that when weighed in the great balance they may not be found wanting. Of king Amunmai Rameses II. son of Oimenephthah, are carved and painted on the walls of the temples of Thebes his victories over Negroes and Ethiopians, over Arabs, and over a people whose single lock of hair on a shorn head proves that they were of a Tartar or Scythian race; he slays them to the honour of the god Amun-Ra.—*Sharpe's History of Egypt, Vol. I. pp.* 71, 73 74, 75, *and* 80.

RAMESSID. See Ken.

RAMESWARA. See Rameshwara; Kala; Priyanath.

RAM GANGA. See Kamaon.

RAM GHAUT. A ghat or pass through the mountains of the western ghats, leading from Belgaum to the sea shore.

RAMGANGA, a river running near Moradabad, Bareily and Kurruckpur in Oudh.

RAMGHUR, a revenue district of Bengal formed out of the ancient Bahar. See Kol.

RAM-GOOA, Beng. Slender betel-nut tree, Areca gracilis, also Caryota urens.—*Linn.*

RAM HORMUZ. See Kab.

RAM HEGLA, Beng. Typha angustifolia.

RAM HUN. Hind. qu? RAN-HUN. The wild dog, Canis primævus, is a native of the Cashmere ranges, and although not to say common, is by no means rare; it is so stealthy in its habits that attempts to obtain specimens often prove abortive. They hunt in packs, and attack the largest deer. Even the Cashmere stag is said to be brought to bay and killed by packs of wild dogs. The wild dog seen by Dr. Hooker on the Khasia mountains, and known there by the names kulsam, and khas may be a different species, though Colonel Sykes considers it identical with the kolsum of the Deccan, C. dukhunensis.—*Adams.*

RAMI also called Tali Rami. Malay. The China-grass of China Bœhmeria nivea, a nettle, the bark of which furnishes a thread remarkable for strength and durability.

RAMICHUM. Maleal. Andropogon citratum.

RAMI TSJINA, *i. e.* "Chinese Rami," a name given by the Malays to the jute, Corchorus olitorius to the true hemp; and to the Urtica nivea.—*Royle.*

RAMIUM MAJUS, Rumph. China grass.

RAMISWARA, Ramisseram, written Rama Iswara, Ramisseram and Rama Ishura, is a small island, situated between Ceylon, and the continent of India, at the entrance of Palk's passage in the Straits of Manaar; where there stands a very ancient pagoda, and formerly an Observatory. It was found by Colonel Lambton's Survey to lie in 79° 28' 5" (5 h. 17' 28" 20"') longitude of Greenwich, in 77° 1' 50") 5 h. 8' 7' 30") east of Paris, and consequently in 3° 28' 50" (14' 55" 20") east of Lanca, its latitude being 9° 18' 7" N. Many Telugu and Tamil astronomers, as Balodityaolu, and Mallicarjanadu refer their computations to the meridian of Ramiswara. It is, in a line with the island of Manaar, near Ceylon; which forms the Adam's Bridge, famed throughout India as a hindu shrine. It is united by a bank of sand to the island of Manaar. Hindu pilgrims resort to Ramisseram from remote parts of India; Its celebrated temple is sacred to Vishnu in his avatara of Rama, called Ramiswara; or, in its neighbourhood, Ramisseram, comformably with the Tamil and Canara termination of names, ending with a vowel or a liquid. This temple was visited by Lord Valentia.—*Moor.*

RAMJUNNE, a mahomedan dancing girl.

RAM KANTA. Hind. Mar. a variety of Acacia arabica.

RAM-KELA, Hind. Stauntonia latifolia.

RAM-KULA B. and H. Musa sapientum, Musa paradisiaca.

RAM MOHUN ROY, a religious reformer of the hindoos, the only great mind to whom modern Bengal can point. He went to England where he died, and was buried near Bristol. He was the founder of the Brahma Samajh. He was wealthy. He was a native of Calcutta and a great reformer of the hindoo religion; author of The Precepts of Jesus, the Guide to Peace and Happiness. He visited England twice, and died and was buried there near Bristol. He translated books, passages and texts of the Vedas. His exertions for the abolition of Suttee were great. He distinguished himself in India by his spirited attacks on the prevailing system of idolatry, and by his benevolent efforts, to convince his countrymen of the guilt of Suttee or female immolation. From his inculcations the reforming sect known as the Brahmo-Samajh was founded.—*Dr. Marshman's Defence of the Deity and Atonement of Jesus Christ, London, 1822. Calcutta Review.*

RAM NAOMI is a hindoo festival in honour of the birth-day of Rama Chandra, at Oudh, B.C. 1400, and is held from the 1st to the 9th of Chaitra, about 12th April. During the nights of the nine days, Kirtan is preached, the Ramayana is recited, sprinkling with the red gulal powder, and natching. Rama is said to have become incarnate at noon of the 9th day, the object being to destroy Ravana, the ten-headed tyrant of Lanka or Ceylon, and which he effected with the aid of Hanuman, the chief of the monkey tribe. On the Ram Naomi, the images of Rama in the temples are decorated with ornaments, and brocade, and at noon, the image is brought out, as if then incarnate, and put into a cradle, on which there is much rejoicing and throwing of gulal. Rama is commonly described as an incarnation of Vishnu and the observances of the Ram Naomi is chiefly performed by worshippers of Vishnu. Naga-Panchami is celebrated on the 5th of Shravan, which commonly falls about the 4th August. The serpent Kali, said to have been slain by Krishna, is worshipped at this festival, and the women proceed to snakes' holes, circle round hand in hand, prostrate themselves and pray for blessings.

RAMNIA. Hind. Cratægus oxyacantha.

RAMNAD, a town on the Paalk's Straits in the Gulf of Manaar.

RAMNAGGAR, in L. 22° 39'; L. 80° 12' in Malwa, on the left bank of the Nar-ada, one day's march E. of Mandla. The en-ance to the fort is 1,588 feet and the level of he Narbada at Ramnagger 1,514 feet above e sea.—*Schl. Roxb.*

RAMNAGGER, in L. 24° 13' and Lon. 81° ' in Málva, N. of the Son, on one of its luents. The mean height of the plain is 172 feet above the sea.—*Schl. Roxb.*

RAMNAGGER, L. 27° 9' 9"; L. 84° 18' ' in Bengal, in the district of Sáhrun. The jah's house is 359 feet above the sea.

RAMNA PU-MARAM. Tam. Sterculia ttata.

RAMNATH. See Sri Sampradaya.

RAM PHAL. Hind. Anona reticulata.

RAMPUR in the western Himalaya, in L. 31' N.; L 77° 37' E. is the chief town of hill state of Basahir. The valley of the Sutlej r, is 2,912 feet above the sea. Basahir, a petty te near Simla, is independent, governed by jah, whose dominion also extends over nawar; it commences a very little north of garh, and occupies the south side of the r Sutlej and the mountain slopes above it, far east as the confines of Kunawar. The y of the Sutlej in the western part of Basa- from Rampur downwards, has an elevation of little more than 3,000 feet, Rampur 3,140 feet above the bed of the river, being 3,400 feet above the level of the sea. The river at the height of the rains, is an impetuous torrent of great size. Rampur, 12 miles from Nirat, is shut in a gorge of the mountain and elevated in a terrace above the Sutlej, a jhula or suspension bridge 211 feet long connects it to Kulu. It has a population of 3,000, and carries on a trade with Tibet, Ladak and Kulu chiefly in shawl wool. It manufactures white soft shawl cloths, and has fairs or melas in May and November. It is built on a small level tract of ground, about a hundred feet above the bed of the river Sutlej, which it overhangs and which is there 211 feet wide. An alteration of the level of the river occurs at different periods of the day, from the variable amount of solar action on the snows by which it is fed.

The Guddee tribe resembling the G'hosi, are now mostly mahomedans, and have a few scattered communities in several pergunnahs, such as in Gurhmooktesur and Surawa of Meerut, and the Rampur territory. It is not unusual to call any converted hindoo a Guddee, which is looked on by a mahomedan as a term of reproach.—*Elliot's Supp. Gloss. Dr. Thomson's Travels in Western Himalaya and Tibet, pp.* 51—54.

RAMPUR is a station of the Rajashay district of Bengal, 125 miles from Calcutta.

RAMPUR, in L. 23° 40' 7"; L. 81° 3' 1", in Malwa, 2 miles E. of the large fort Bandugarh is 2,436 feet above the sea.

RAMPUR BOLEA, in 24° 21' 8"; L. 88° 34' 3", in Bengal on the Podda, one of the branches of the Ganges. The mean height of the station is 56 feet above the sea.—*Schl.*

RAMPA MAREDU or Bantikattu-tige Tel. Combretum ovalifolium.—*R.*

RAMPUTRI. Guz. Hind. Mace.

RAMPUT UDANG UDANG. See Begonia geniculata.

RAM RAJA. See Sevaji; Mahratta Governments; Vijianuggur.

RAM RAM, a hindu salutation.

RAM RAYI. See Hindu; Sikh.

RAMREE or Yambie, or new Island, forms the N. E. side of Cheduba Strait, is of moderate height near the sea, and extends N. W. to Saddle Island in lat. 19° 26' N., on the north side of which is the entrance to Khyouk Phyoo harbour. From its southern point, the islands of Amherst or Juggoo, Adam Hill, Wyndham and Harrison project in a chain. Many wells of petroleum or earth-oil are met with. They are generally situated near the bases of low hills, and are of various depths. The deepest is said to be about fifty feet, having about six feet diameter at the mouth. The sides of this well have been ingeniously boarded by the natives, having diagonal cross bars, which not only secure the structure but serve as a ladder. There is no sort of machinery used to get up the oil. A young lad is first sent down, a man on the cross bars lets down to him earthen pots in succession, into which the contents of the well are filled, and then the pot is drawn up. The whole of the contents of the pot, as drawn up, is not oil, which is of a light bluish colour and floats on water, there is sediment scooped up from the bottom. This takes place twice a day, and the yield is from four to six gallons per day. The oil sells in the bazaar at a rupee per gallon. The deepest of the wells in the island of Ramree is situated in the Laytoung Circle, and is said to have been productive for a great number of years. Natives have been known to dig wells of short depths for temporary purposes, after which the wells are abandoned and soon choke up from the falling in of the earth. There is a fish found in these waters called "Luckwa," the oil extracted from the liver of which is said to have the same properties as cod liver oil. The island lying about two and a half miles to the westward of old Kyouk-Phyoo, is called on old marine charts "Saddle Island" from its shape. When Kyouk-Phyoo was a military station, some of the officers it is said let loose thereon a pair of goats; these have increased to such an extent; that the island now abounds with wild goats and hence it is now called by the natives "Chy-Kyser," or "Goat Island."

RAM REKHA, a river near Amorba in Goruckpoor.

RAM-RUMBHA. Beng. Musa paradisiaca.

RAMSANEHI or Friends of God, a sect of hindu schismatics in western India.

RAM-SARRAS. Dekh. Acacia odoratissima.—*Roxb. Willd.*

RAM-SITA-PHAL. Dekh. Fruit of Anona reticulata.

RAM-TIL. Hind. black til, Guizotia oleifera of DeCandolle; Verbesina sativa of Roxburgh. —*Simmond's Dict.*

RAM TAMBUT. Mahr. Flacourtia montana.—*Graham.*

RAM TCHOO. Lake. is frequented by great abundance of water-fowl, wild-geese, ducks, teal, and storks, which, on the approach of winter, take their flight to milder regions. Prodigious numbers of the saras, the largest species of the crane kind, are seen here at certain seasons of the year, and any quantity of eggs may there be collected, they are found deposited near the banks, they were as large as a turkey's egg.—*Turner's Embassy.*

RAMTEK, 24 miles N. of Nagpur, has ever been amongst the hindus a chosen seat of religious veneration. Of the many old temples, the oldest appears to be one in a small dell on the north side of the hill. It is built of hewn stones, well fitted together without mortar. From its shape and structure it is probably a Jain temple, though local tradition would make it the work of one Hemarpant, by some, said to have been a brahman by; others a "Rakshasa," with whose name many remains of buildings in the Bhandara and Nagpur districts are connected.

RAM TIL. Beng. Hind. Gingelly seed. Guizotia oleifera.—*D. C.*

RAMTILLA OLEIFERA. *D. C.*

Guizotia oleifera.—*D. C.* *W. Ill.*	Verbesina sativa.

The Oil.

Valeesaloo noonay...Tel.	Kala til ka tel... Hind.

This sweet tasted edible oil is used for nearly the same purposes as the sesamum. See Guizotia abyssinica.

RAM TULSI. Hind. Ocimum gratissimum.

RAM TURAI also Dhenrus. Hind. Hibiscus esculentus. Abelmoschus esculentus.

RAMUDI TALAMBRALU. Tel. Sorghum vulgaris, *Pers. var.*

RAMUJA. See Mantra.

RAMUNUJA. See Ramanuju Sanyasi.

RAMUSI or Ramoosi, are a tribe dwelli near the Bombay ghats. They have immigrat from Telingana within a recent period, an though they have adopted Marathi, they preser a few words of their original Telugu for purpos of crime. They are a Telugu race who cros into the west of India, and there assumed p datory habits. They speak the Telugu tong in their families. They are in small numbe west to Bombay, southwards to Sholapore, northwards towards Berar. In the Mah country, the low caste tribes, are the hum village servants, the Ramusi, Bhil, Go Mhar and Mhang, all of whom serve as wa men. The Ramusi, Kallar, Marawar, Beder sturdy semi-military predatory races. B the ghats near Bombay the dher are known Parwari. As amongst the Dravidian races the south of India, so the various Arian Hindi districts contain numerous small trib the supposed remnants of a prior colonizati and mostly supposed to be, like the Tam people of Tartar or Scythic descent. Of th are the Ramusi of the Bombay Presidency.

RAMUTH. Heb. Coral.

RAMZAN, a mahomedan month of fasti and prayer. The Eed or festival at the cl of the Ramzan, is held on the 1st of Shaw is Faraiz, as also is the Eed of the 6th day of the 12th month or Zihaj or Bakr-Eed.

RAN, also Ranwar. Mahr. Wild : a forest. —*W*.

RANA, a genus of reptiles of the second sub class Batrachians, of the order of tailless Batrachians or Batrachia salientia, of which the following species occur in the E. Indies.

Rana Kuhlii, *Schleg*. Ceylon, Ningpo.
„ hexadactyla, *Less*. Ceylon, Madras.
„ cyanophlyctis, *Schneid*. Ceylon, S. India, Lower Bengal.
„ tigrina, *Daud*. All India.
„ liebigii, *Gthr*. Sikkim, Nepaul.
„ esculent a S. China.
„ sylvatica *Leconte*. Ningpo.
„ gracilis, *Wieg*. from Madras to S. China.

—*Gunther*. See Reptiles ; Frogs.

RANA, a title of the rulers of Mewar, a rajput race whose capital is Oudeypur, but is also given to the chief of Porebundar. Rama had two sons, Loh and Cush: from the former the family of the rana of Mewar claim descent. He is stated to have built Lahore, the ancient Loh-kote ; and the branch from which the princes of Mewar are descended, resided there until Keneksen emigrated to Dwarica. The difficulty of tracing these races through a long period of years is greatly increased by the custom of changing the appellation of the tribe, from conquest, locality, or personal celebrity. Sen, an army, seems to have been the martial termination for many generations : this was followed by Dit, or Aditya, a term for the sun. The first change in the name of the tribe was on their expulsion from Saurashtra, when for the generic term of Suryavansi, was substituted the particular appellation of Gehlote. This name was maintained till another event dispersed the family, and when they settled in Ahar, Aharya became the appellative of the branch. This continued till loss of territory and new acquisitions one more transferred the dynasty to Seesoda, a temporary capital in the western mountains. The title of Ranawut, borne by all descendants of the blood royal since the eventful change which removed the seat of government from Cheetore to Oodipoor, might in time have superseded that of Seesodia, if continued warfare had not checked the increase of population ; but the Gehlote branch of the Suryavansa still retain the name of Sisodia.—

The solar dynasties are three, viz :—

1. Grahilot or Gehlot or Geholot, with 24 sakka or branches of which the Sisodia is the most distinguished ; and the rana of Udayapur is a Grahilote.
2. Rahtor, said to be descended from Rama by Kusa his second son. It has 24 branches ; and the raja of Jodhpur or Marwar belongs to this tribe.
3. Kachwaha also sprung from Kusa. The rajah of Jeypur is of this tribe. It has 12 kotri or houses.

The Lunar dynasty is sprung from the moon, through Yadu or Jadu, and is called Yadu or Jadu. It has 8 branches, of which the Jhareja and Bhatti in Cutch and Jeysulmer are the most powerful.

The Agnicula have four tribes and 87 branches, viz. :—

1. Primara with 35 branches.
2. Parihara „ 12 „
3. Chalukya „ 16 „
4. Chouhon „ 24 „

In the 36 royal tribes, there are others, the origin of which is not known, such as

Chaura or Chawara.
Tak or Takshak.
Jit of the Punjab.
Jat of the Jamna and Ganges.
Hun.
Katti.
Batta.
Jhalamakwahana.
Gohil.
Sarwaya or Sariaspa.
Jetwa.
Kamari.
Dabi.
Gor.

Doda.
Gerhwal.
Chandela.
Bundela.
Birgujar.
Sengar.
Sikharwal.
Bais.
Dahia.
Johya.
Mohil.
Nikumba.
Rajpati.
Dahirya.
Dahima.

—*Wils. Gloss. Tod's Rajasthan, Vol. I. p.* 215.

RANA BHANJA. See Inscriptions.

RANA BHERI, or Bheri, Leonotis Nepetæfolia, *R. Br.*—Phlomis nep. *R.* iii. 8.

RANA BILLA, or Purudona, Mallea Rothii, *Ad. Juss.*

RANADITYA, according to all accounts, was a very powerful prince, but native writers have accredited him with the miraculous reign of 300 years. This has naturally given rise to much speculation as to the period of his reign, but general Cunningham places it as between A. D. 480 and 555. The date therefore of the two smaller temples of Ranesa and Amriteswara may be assumed as about A. D. 500.—*Cole, Ill. Ancient Buildings of Kashmir.*

RANA GUVVA, or Varaguna, Tel. Cycas circinalis, *L.*—*R.* iii. 744.—13, 21.

RANAI. Hind. Eunoymus fimbriata.

RANA, also Rana Ruman. Arab. Punica granatum, Pomegranate.

RANA SINGHA. Chief of Chittore in 1526, defeated the emperor Baber at Futtehpore Sikri, but shortly after, in 1527, Baber overthrew him and completely broke his power.

RANAT. —? A small Khong bong,

RANAWAT in Mewar, descendants of rajah Oody Sing. They are also styled Poorawat, or Kanawat.

RANA ZEBA. See Kabul.

RAN-BOR. Mar. Zizyphus glabrata.

RANDA. Hind. A perfume. See Abeer.

RANDAL CHINI. Mahr. Cinnamomum iners.—*Rein.*

RANDIA, a genus of plants of the natural order Rubiaceæ of which several species, R. dumetorum, floribunde, longispina, nutans and uliginosa grow in the E. Indies. One species of Randia, the Nalla Manga, Tel. is a good sized, armed tree of the Godavery forests: furnishing a very hard and close grained wood, good for turnery —*Captain Beddome.*

RANDIA DUMETORUM, *Lam.*

Gardenia spinosa, *Linn.*
Pasoqueria dumetorum, *Roxb.*
Ceriscus Malabaricus, *Gaertn.*
Randia longespina, *D. C.*
Canthium coronatum, *Lam.*
Gardenia dumetorum, *Retz.*

Jowz-ul-kueh	Arab.	Mindhal	Panj.
Jowz-ul-kowsul	,,	Mendphal	,,
Ghela	Bombay	Madana	Sansc.
Gaerah	,,	Maru karang	Tam.
Pieralu	,,	Madu karray	,,
Bush-Randia	Eng.	Monda	Tel.
Mnen-phal ka-jhar	Hind.	Manga	Tel.
Myn	Hind.		
Gehela	Mahr.		
Wali kukuru-man	Singh.		

This is a shrub or small tree, thorny, and branching, met with in the hotter parts of Ceylon; in Coimbatore, it seldom exceeds the size of a large shrub, and, it is one of the most common trees of the Bombay forests, but the wood never reaches any size. It is, however, strong, hard and close grained. It grows also in Guzerat and northwards in the Dehra Dhoon and the Kheree Pass. The fruit is used in Malabar to poison or intoxicate fish, which are still considered good for eating.—*Drs. Wight, Ainslie, Stewart, Gibson, Voigt, and O'Shaughnessy. Thwaites. Capt. Beddome.*

RANDIA LONGIFLORA, *Lam.*

Posoqueria longiflora, *Roxb.*
Gardenia longiflora, *Willd.*

A tree of Chittagong and Penang with large flowers, white the first day, but, on the second, becoming yellow.—*Roxb. Voigt.*

RANDIA LONGISPINA? This wood in Amritsar is called "rára."

RANDIA ULIGINOSA. *D.C.W and A. Ic.*

Gardenia uliginosa. *Roxb. Cor.*
Posoqueria ,, *Roxb.*

Bog Randia	Eng.	Guahu	
Devata malle		Pedda mranga	Tel.
Nalla Kakasi	Tel.		

The flowers solitary, sessile, is a native of Ceylon and British India in moist places. The flowers are large, white and fragrant, and in twos or threes at the top of the branchlets. The berry is about the size of a pullet's egg, ash-coloured or olive-grey, and 2-celled. The seeds are flattish, nestling in the pulp. The unripe fruit is employed as a vegetable dye.—*Thw. Enum. Pl. Zeyl.* ii. *p.* 159.

RANDU-KUNING. Malay. a yellowish and close grained wood.

RANEE. Hind. A princess, a queen.

RANEE CHANDA, one of the inferior wives of Ranjet Singh, chief of the Sikh kingdom, and mother of the maharaja Dhuleep Singh. She was the sister of Juwahir Singh. She proclaimed Dhuleep Singh sovereign in 1843, and assumed regency. From this she was removed by Lord Hardinge, but she continued to intrigue, and she was removed to Benares from which however she fled to Nepaul.

RANEEGUNGE so called from the ranee of Burdwan, who had the proprietary rights vested in her name.—*Tr. of Hind. vol. I, p.* 170.

RANEEZYE, towards the lower extremity of the Swat valley, a formidable range of hills, bounding the valley runs for many miles from east to west, nearly parallel to the British frontiers; and at the eastern extremity of this range stands the Mora mountain. Between this range and the frontier, however, intervene two tracts, named Raneezye and lower Osman-kheyl, both quasi dependencies of Swat. The best of the passes leading into Swat is named Mulla-kund, which opens from Raneezye. A little further to the eastward of Raneezye also there are some passes, leading into the Loondkhor valley, which belongs to British Eusufzye. These latter passes are not available for passage from Swat to British territory, because leading into Loondkhor, they can be stopped by any party holding that valley. The passes via Raneezye and Osman-kheyl, if the people of those tracts accord a passage, lead straight on to the British Plains of Hushtnuggur. Above the Loondkhor valley, just beyond the British frontier, is the strong village of Pullee. The sub-divisions of the Peshawur district adjoining the tribes above described, are Loondkhor or north-west corner of Eusufzye, and then Hushtnuggur. See Khyber.

RANELLA, a genus of molluscs. See Mollusca.

RAN FANNAS. Mahr. Artocarpus hirsuta, Lam. also Artocarpus sylvestris.

RANG. Hind. Colour: dye.

RANG. Singh. Gold. Hence Rang Wella, golden sand. Rang-galla, golden rock.

RANGA. Duk. Hind. Tin.

RANGA-MAKHON-SHIRIN. Beng. Casuvalis gladiata.

RANGANATH. See Sri Sampradaya.

RANGA-NUTEEYA. Beng. Amarantus atropurpureus.

RANGAR, a rajput race in Malwa and Mewar, also disorderly persons in the N. W. of India, a slothful caste of agriculturists.

RANGHA-AS—? A Penang wood, of a light brown colour, used for furniture.—*Col. Frith.*

RANGA-SHAK. Beng. Amarantus gangeticus.—*Linn.*

RANGBODDE, or Rambodde, in L. 7° 9'; L. 81° 49' in Ceylon, 10 miles N. W. of Nurelia. The old rest house is 3,187 feet above the sea. The flag-staff at the foot of the Rangbodde pass is 6,586 feet, *F. and S.*

RANGCHARI. Hind. Elsholtzia polystachya.

RANG-CHUL. Hind. Euonymus fimbriata, also Syringa emodi.

RANGHITMARA, also Ranghi-Mara, Can. Ficus religiosa.—*Linn. Roxb.*

RANGIT in L. 27° 19'; L. 88° 16', a river in Sikkim, a little above the junction with the Kalhet, the level of the river is 1,839 feet, 2 miles S. of Tassidong, the level of the river is, 2,030 feet.—*Hooker.*

RANGOLI. Hind. Physalis *sp.*

RANGO PEAK. in L. 33° 8'; L. 78° 54' in Ladak, N. of Hanle. The top of the peak is 20,786 feet.—*Cunningham.*

RANGOON, the chief town of British Burmah, was founded in the second-half of the sixth century before Christ by a missionary body of buddhists. It was rebuilt in 1755, by Alompra, and named by him the "Peace effected" or according to some "Victory achieved" in commemoration of his conquests. In a commerical point of view, it is the most important town of Pegu and of British Burmah. It is built on the left bank of the Irawadi, twenty-six miles from the sea, and possessing a continuous water communication with the upper provinces, its situation is most convenient for foreign trade. Rafts of valuable teak timber are floated down from the vast forests of Pegu and the mountainous districts of Ava. It thus presents great facilities for ship building which indeed has been carried on here since the year 1786. The Elephant Pagoda, by Captain Heywood's observations, is in lat. 16° 29' N. long. 96° 15' E., and the Shooay Dagon pagoda, according to Lieut. C. Y. Ward, I. N., is in lat. 16° 47' N., and long. 96° 10' E. At full and change, it is high water at the Elephant point and occurs on Rangoon bar about 3½ hours (Qu. 5½). The Rangoon river is called also Sirian and Pegu river. Velocity of tide 4 and 5 knots. Rise of tide then and for two days afterwards from 20 to 25 feet, and 13 and 14 feet on the neaps. During the springs in the S. W. Monsoon, it at times blows very strong, when great care should be taken not to get to the eastward of the middle ground between which and the Zingaat mountain or Martaban shore, the sands extend a long way to seaward over which the bore rushes with the flood, which makes it very dangerous when near them: the same bore runs up the Sittang River 15 leagues east of Rangoon bar. It is very slightly felt in the Delta or of the Irawadi. Horsburgh mentions the bore as being in the Rangoon river, but it merely rushes over the extensive sand at the entrance of the Rangoon river and on the Sittang. There is a bore in Bassein Creek, which joins the Rangoon and China Buckue branch, but it is not known into which entrance it runs. Rangoon has been twice taken by the British Indian armies, once on the 11th May 1824 and, again, on the 5th April 1852, and the British soldiers are now cantoned on the S. W. and West of the Shooay Dagon pagoda.—*Winter's Six Months in Burmah, p.* 6. See Burmah; Irawadi.

RANGPUR, a district and town in Bengal, the town 268 miles from Calcutta.

RANGREK. Hind. Pyrus aucuparia, also Spiræa Lindleyana.

RANGRI BASHA, a hindi dialect spoken in the central parts of Hindustan and on the western borders of Rajputana. In the schools of Central India the common language taught is the dialect of the Hindi termed Rangri, which as well as accounts, is learnt by all the children who can afford it. The Rangri Bhaka prevails as far west as the Indus, east as far as the frontier of Bundelcund, south to the Satpurah hills, and north to Jeypoor, Joudpoor and Jeysulmer. There is, in different provinces, a difference in the pronunciation, in many of the words, but the language is the same, and is written in the same character. Many books and songs have been composed in this language. The word Rangur the Rajputs say, is derived from "Run," signifying battle, and Ghur, a fort, an epithet asserted to have been given them by one of the kings of Delhi, expressive of their bravery, but the Mahrattas say, that the derivation is from Ran, which means a jungle or forest, and Gurree, a man, or metaphorically a barbarian.—*Malcolm's Central India, Vol. II, p.* 191.

RANG-SAL or **SANG-SAL,** the name of the great idol at Bamian.

RANGUNGA, a tributary to the Ganges, rises in Kumaon, in lat., 30° 6', and lon., 79° 20'; about 7,144 feet above the sea. It runs S. E., 20 m.; S. W., 70 m.; S. to Moradabad S. E. and S., into the Ganges. Length, 325 m. It receives the Kosee, 150; Gurra, 240 m. It is fordable at Moradabad, at 15 miles below its confluence with Kossee; but not usually fordable below Jellalabad.

RANI. The consort of a hindu raja, a queen. The queen of England is known in India by the hindu title rani, and by the mahomedan title malikah.

RANIAH was founded by Rai Sing of Bikander, and named after his queen or Rani to whom it was assigned. It was taken by Imam Mahmood.

RANI of Jhansi was the widow of a Bundela chief, called Gungadhar Rao, who died in 1854, having adopted a son. But lord Dalhousie declared the Jhansi State a lapse and when the revolt and rebellion occurred, she instigated the native regiments there to rise, and the British officers sought refuge in the fort. Unable to hold out, they capitulated on terms, but with one exception, the sepoys destroyed man, woman and child. The Rani then re-assumed sovereign power, dug up cannon, and assembled an army of 14,000 men, but sir Hugh Rose opened fire against the place on the 25th April 1858. The place was stoutly defended, even women aiding, but the town and fort fell on the second and third days, the Rani fled to Calpee, Gwalior and Sipri in succession, and fell in action at Morar on the 17th June 1858. She was energetic and able.

RANIGANJ, coal is worked here.

RANIGHA, a musician amongst the Mahrattas.

RANI-GOVINDI——? Hind. Didymocarpus aromaticus.

RANINA DENTATA, frog-crab of the Mauritius. Carpilius maculatus, spotted crab of the Mauritius and the Indian Ocean.

RANJAH. Hind. Pushtu, antimony.

RAN JAI-PHAL. Mar. Myristica cinerea.

RAN JAMBOOL. Mahr. Eugenia caryophyllata. *Thun*.

RANJANA. Beng. Adenanthera pavonina. *Linn. Willde.*

RANJEET SINGH was originally only a petty chief, and appointed governor of Lahore by the king of the Afghans, Zaman Shah. Favoured by the dissensions between this prince and his brothers, he made himself entirely independent, and, to the province confided to his care soon added Kashmir, Peshawur, Kohat, Dereh Ismael Khan and Mooltan which accessions of territory rendered his power equal, if not superior, to that of his former master. He did not extend his conquests to Kashmir, Mooltan, Peshawur, or even beyond the Jelum, until he was assured of the pacific intentions of the English.—*Ferrier Journ. p.* 347.

RANJET MALLA. See Nepal.

RANJHA, or Ranjhan is the name given to Leander by hindu poets.—*Wilson*.

RANJUNNEE, a variety of dancing girls.

RANKROOS. Hind. is a phrase embracing mental or physical infirmity.

RANNA WARA. Singh. Cassia auriculata.—*Linn. Roxb.*

RANOJEE. Sindia. See Mahratta Governments.

RAN PANGARA, Mar. Erythrina indica and Erythrina suberosa.

RAN SARRAS. Mar. Acacia odoratissima.

RANUNCULACEÆ *DeC. Lindl.* Nat. Syst. About 80 species have been discovered in N. America; 32 in S. America; 30 in China; 21 in Australia; 15 in N. Africa; 20 in S. Africa; 6 in Mexico; 5 in the W. Indies; and a few in Japan, Cochin-China, and Sierra Leone. Dr. Wight asserted that wherever, within the tropics, we meet with herbaceous forms of Ranunculaceæ, we may feel assured of jungle fever. In 1818, according to DeCandolle, the India known forms of this order amounted only to 19. At present their number has risen to 135; viz., 32 species of *Clematis*; 3 of *Naravelia*; 18 of *Thalictrum*; 16 of *Anemone*; 1 of *Adonis*; 32 of *Ranunculus*; 3 of *Caltha*; 1 of *Trollius*; 1 of *Copis*; 2 of *Isopyrum*; 2 of *Aquilegia*; 14 of *Delphinium*; 7 of *Aconitum*; 1 of *Actæ*; 1 of *Cimicifuga* and 1 of *Pæonia*. Eight of these also belong to Europe. Acridity, causticity, and poison, are the general characters of this order, which, however, contains species in which these qualities are so little developed as to be innoxious.—*Voigt, p.* 1. *Wight*, (*Ill. p.* 3)

RAN SARRAS. Mar. Acacia odoratissima.

RANSCHGELB. Ger. Yellow sulphuret of Arsenic,.

RAN TAMBUT, also Uttuk. Mar. Flacourtia montana.

RANUNCULUS, a genus of plants belonging to the Ranunculaceæ or Crow foot family. R. aquatilis L. grows at Saharunpur, R. arvensis L. grows in S. Europe and on the mountains of Kumaon. R. bulbosus is a plant of Kunawar and of Europe and America, R. indicus, Roxb. of Europe, Siberia, Cochin-China, India, Serampore, Calcutta, &c. has small, yellow flowers. It is a very acrid plant; when applied fresh, quickly producing a blister.

RANUNCULUS INDICUS. Roxb. Syn. of Ranunculus scelerotus.—*Linn.*

RANUNCULUS SCHLERATUS.—*Linn.* Syn. of R. Indicus, *Roxb.*

RANZURA. Hind. Pinus longifolia.

RAO. A hindu title originally meaning a chief or prince; now in general use as a title of honor.

RAO, a river near Najibabad, in Bijnour,

RAO. Hind. of Pangi, Abies Smithiana, Himalayan spruce.

RAO NANO RAO. See Kabal.

RAONG and Raongi, pulses of Kangra.

RAOTA. Hind. See Phiraota.

RAOTI. Hind. A kind of tent.

RAPE, the plant Brassica napus is the common or cultivated rape seed or cole seed plant, from the seeds of which is expressed the rape seed oil the Sarson-ka-tel. Hind. so extensively used for lubricating machinery, and the refuse is the rape cake used for feeding cattle for which also the green stalks are used.

Rape seed. Seed of Brassica napus.

Roefero............ Dan.	Sursi, Surrus. Guz. Hind.
Graine de navette... Fr.	Sherebapa............ Sans.
Repsaat .... Ger.	

The produce of a hardy biennial plant, of the cabbage tribe extensively cultivated in England and on the Continent, on account of its seeds, which are crushed for oil, and its leaves, are used as food for sheep. In India, also it is extensively cultivated, whence both the seeds and oil are largely exported to England and France.—*Hogg, Vegetable Kingdom, p.* 67.

RAPESHO. Hind. Lonicera hypoleuca.

RAPHANUS, a genus of plants of the order Brassicaceæ.

RAPHANUS CAUDATUS.—*Linn.*

Long podded Radish.	Mugra............ Hind.

This curious plant, with its enormously elongated seed-pods, has excited much attention in Europe, where the seeds sell at a high price. It is cultivated in Guzerat and the Punjab, and in the latter place the seed can be easily had for Rupees 2 a seer. The natives have an idea that this is only the R. sativus, subjected to a peculiar treatment, viz. being taken up, and having all its roots cut close round and then re-planted.—*Dr. J. L Stewart.*

RAPHO-CHE, or **RA-CHE**, and the female Ra-mo-chhe Tibetan, means the great goat, and is the Mar-khor or snake-eater of the Mahomedans. It is common in Balti, Badakshan and Chitral.

RAPHUS. Brison's name for the Dodo.

RAPO, Bugis, Areca catechu.

RAPSAAT, Ger. Rape seed.

RAPTEE, a river near Bheempedee in Nepaul and near Gorukpoor.

RAPTORES or Birds of Prey are numerous in India, the peregrine falcon, the true hobby, the kestrel, the British sparrow hawk, all the Indian harriers and the Short-Eared owl are true migratory birds. See Birds.

RAQM. Pers. The Persian term for the phonetic expression of the numerical powers of the Arabic letters. The following is an attempt to reduce the orthography of the Roman equivalents to as close an adherence to the literal definition of the original Kufic as the nature of our English system of writing will allow. In this case, the nine letters of the Arabic alphabet whose powers have been perverted in the utterance of foreigners have been made to follow the Persian system of phonetic expression, and are severally represented by the following English pointed or accented equivalents :—

	1	2	3	4	5	6	7	8	9
	ث	ح	ذ	ص	ض	ط	ظ	ع	ق
The Arabic powers of these letters are severally......	s̤	ḥ	ḍ	ṣ	ẓ	ṭ	z̤	a," u," etc.	ḳ
	th (thick)	h	th (this)	s	d	t	th (father)	a	k guttural
The Persian phonetic expression......	Adad.	Adadn.	Salasa.	Arba.	Khamsa.	Sitta.	Saba.	Samania.	Tissa.

Thomas' Prinsep.

RARA. Hind. Randia dumetorum. In Kangra it is Pongamia glabra.

RARAR. Hind. Aralia Cachemirica.

RARI. Hind. of Chenab. Rhamnus purpureus, also Prinsepia utilis.

RARK. Maleal. Sapindus emarginatus.—*Vahl.* Soap-nut.

RAS. Malay. Castor.

RAS. Ar. A cape, a headland.

RAS. Hind. Rasa. Sansc. a circular dance performed at the festival of Krishna by cowherds and worshippers of Krishna.

RASA, also Sutum, also Parada. Sans. Mercury.

RASA GADI MANU. Tel. Solanum pubescens, *R. I.* 564.

RASALAH. A troop of horse: a pamphlet Rasaldar, a commander of a troop.

RASAM. Tam. Tel. Mercury.

RASA-MALA. Malay. Liquidamber altingia.

RASA-MANDALA. This mystic dance, appears analogous to the Pyhrric dance, or the fire dance of the Egyptians. The movements of those who personate the deity, and his fair companions are full of grace, and the dialogue is replete with harmony. The Chobi of Mat'hura and Vindravana have considerable reputation as vocalists; and the effect of the modulated and deep tones of the adult blending with the clear treble of the juvenile performers, while the time is marked by the cymbal or the soothing monotony of the tabor, accompanied occasionally by the murali or flute, is very pleasing.—*Tod's Rajasthan, Vol. I. p.* 543. See Hooly or Hohli.

RASAN. Hind. Transmutation of metals.

RASANNA. Hind. Berthelotia lanceolata.

RASAUT. Hind. The extract from the wood and roots of the Berberis aristata and other species of berberry.

RASE KUSTURI. Malay. Civet.

RAS-EL-AIN. See Mesopotamia.

RASGRAMEE. See Kunawer.

RASH, in Bombay, a salt measure of capacity for weighing about 40 tons, nearly 14½ lasts.—*Simmond's Dict.*

RASHA. Hind. Tribulus alatus.

RASHANA or **ROXANA,** mother of the child of Alexander the Great. See Kabul.

RASHID-UD-DIN, author of Jami-ut-Tuarikh, was written (A. H. 710) A. D. 1310, gives a picture of the knowledge regard- in India which mahomedans possessed at the close of the tenth century.—*Elliot's Hist. of India.*

RASHOON. Beng. Allium sativum.—*Linn.*

RASI. Bali. Chavica seriboo.—*Miq.*

RASIKULIA RIVER. See India.

RAS JAR D'AFOON. See Abdul Koory.

RAS MUSSUNDUM. See Muskat.

RAS KAPUR. Hind. Calomel. See Mercury; Medicine.

RASKIACH. Hind. Astragalus *sp.*

RASNA, Beng. Rheum palmatum.

RASOLNIKI. A fanatic sect in Kazan, a horrible practice reigns among some of the members of this sect—that of condemning their persons to mutilation, the females also use violent means to obtain the same end. The greatest part of the money changers in St. Petersburgh are said to follow this custom. The severest persecution has been from time to time employed against the Raskolniki—*Turnerelli's, Kazan, Vol. I, p.* 171.

RASO. It. Satin.

RASORES Gallinaceous birds or game birds, the Gallinæ of Linnæus; the Gallinacei of Viellot; and the Pulveratrices of some authors. The families and genera of the Rasores or game birds, are as under:

Fam. Megapodiidæ, 1 gen. 1 sp. 1 Megapodius Nicobarensis.

Fam. Phasianidæ.

Sub-fam. Paveninæ, 2 gen. 3 sp. viz. Pavo cristatus, Pavo muticus; 1 Meleagris gallopavo.

Sub-fam. Polyprectoninæ 5 gen. 10 sp. viz. Pavo; 3 Ceriornis, 1 Ithaginis, 3 Galloperdix, 2 Polyplectron, 1 Argus.

Sub-fam. Phasianinæ, 3 gen. 2 sub-gen; 16 sp. viz. 3 Gallus; 7 Euplocomus; 1 Pucrasia; 3 Phasianus; 1 Thaumalea; 1 Lophophorus.

Sub-fam. Tetraoninæ, 2 gen. 2 sp. viz. 1 Tetragallus himalayensis; 1 Lerva nivicola.

Sub-fam. Pteroclinæ, 1 gen. 4 sp. viz. 4 Pteroclis arenarius, *Pt.* fasciatus, Pt. alchata, Pt. exustus.

Sub-fam. Perdicinæ, 8 gen. 32 sp. viz. 1 Numida, 4 Francolinus; 1 Caccabis; 2 Perdix, Rhisothera; 4 Arboricola; 3 Rollulus; 3 Perdicula; 4 Coturnix.

Fam. Tinamidæ.

Sub fam. Turnicinæ, 1 gen. 3 sp. viz. 3 Turnix ocellatus; Turnix; Dussumieri; Turnix; Sykesi.

RASPBERRY. See Rubus.

RASSA. Mal. Mercury.

RASSE KURUNDU. Singh. Cinnamon.

RASSI. Hind. Cordage.

RASTA. Hind. of Lahul, Ribes nubicola, glacialis and grossularia.

RASUK. Hind. Taraxacum officinale.

RAS-UL-KHYMA, in Lat. 25° 48' N., long. 56° 4' E. A narrow sandy spit, known to historians as the scene of an expedition of the British Government of India against the Wahabee sect. It is an Arabic name, signifying the "Cape or head of the tent," situate on the Arabian coast of the Persian Gulf nearly in latitude 25° 49' North. The Juasmi pirates, a tribe of the Wahabi, having captured some of the East India Company's ships, and murdered the greater number of their crews, in 1820 an expedition was sent against them, which completely effected the object of the expedition, by destroying Ras al Kheimah, the Juasme capital, and above fifty large dows. —*Ouseley's Travels, Vol. I., p.* 326.

RASU-MUNCHU, the hindoos have a sacred edifice, so called, in which the image of Krishna is annually placed and worshipped. —*Ward's View of the Hindoos, Vol. II, p.* 3.

RAS YATRA, the annual commemoration of the dance of Krishna with the sixteen Gopi. Vast crowds, clad in their best attire, collect in some open place in the vicinity of the town, and celebrate the event with music, singing and dramatic representations of Krishna's sports. All the public singers and dancers lend their services on this occasion, and trust for a remuneration to the gratuities of the spectators. At Benares and Bindraban, this festival is held with much display.

RAT, amongst naturalists, the genus Mus. The coffee-rat is an insular variety of the Mus hirsutus of W. Elliot, found in Southern India. They inhabit the forests making their nests among the roots of the trees, and feeding, in the season, on the ripe seeds of the nilloo.

The Mus rufescens, *Gray*, syn. of Mus flavescens, *Elliot*, and Mus nemoralis *Blyth*, are named ree rats. They make their nests on the ranches of trees in the forest. The tree rat orms its nest on the branches, and by turns akes its visits to the fields and dwellings of the atives, frequenting the ceilings in preference to he lower parts of houses. Here it is incessantly ollowed by the rat snake, Coryphidon Blumenachii, *Merr*, whose domestication is encouraged y the servants, in consideration of its services destroying vermin. One day a snake had st seized on a rat of this description and oth were covered by a glass. The serpent ppeared stunned by its own capture, and llowed the rat to escape from its jaws which owered at one side of the glass in the most itiable state of trembling terror. On setting em at liberty, the rat bounded towards the earest fence; but quick as lightning it was llowed by its pursuer, which seized it before could gain the hedge, through which the ake glided with its victim in its jaws. In arts of the Central Province of Ceylon at oreah and Bintenne, the house rat is eaten a common article of food. The Singhalese lieve that it and the mouse are liable to ydrophobia. The genus Mus, the rats, has een largely described by Mr. Blyth.—*Tennt's Sketches of the Natural History of ylon, p.* 423. See Mus; Mammalia.

RATA. GHORKA. Xanthochymus pictorius.

RATA ATTIKA. SINGH. Figs.

RATALU. HIND. Dioscorea sativa.

RATA-ENDURU. SINGH. Fœniculum panori.—*D. C.*

RATA KÆKARI. SINGH. Cucumis sativus. -*Linn.*

RATA KOMADU. SINGH. Cucumis melo. —*Linn. W. and A.*

RATAMI. SINGH. Achras sapota. *Willd.* Diospyros sapota.

RATA-MIRIS. SINGH. Capsicum Nepalensis.

RATAN.

Bet, Bed.........	HIND.	Kowe Sunda......	JAV.
Beta...	BENG.	Calamus rotang..	LAT.
Cane, Ratan, Ratan Cane...	ENG.	Rotan.	MALAY.
		Piramba...	TAM.
Panjalin...... ...	JAV.	Bettam......	TEL.

The Ratan canes of Commerce are obtained from Calamus rotang, *Linn*. Cal. rudentum, *Lour*: Cal. Royleanus, *Griff*, and Cal. fasciculatus, *Roxb*. The Malay, rotàn, is an abbreviation of raotan from the verb raot, to pare or trim, that is, the object pared or trimmed, but, of this universal product of the forests of the islands, the name is different in all the different languages. Thus, in Javanese, it is panjalin, and in Sunda kowe. The plants which yield ratans are considered by botanists as a genus of the family of palms, which consists of many species from the girth of a goose-quill to that of a stout walking stick. They are abundant in all the forests of the Malay and Philippine Archipelagos, and are every where extensively used as cordage or ligatures, or in the manufacture of mats and basket-work. These singular plants creep along the ground or climb trees, according to the species, to the length of from 100 to 1,200 feet. The principal places of production for the general market are Sumatra, Borneo, and the Peninsula. By far the most valuable, probably a distinct species, is brought from Banjarmassin on the southern coast of Borneo, for in the market they are worth about 150 per cent. more than any others. A vast quantity of ratans are exported from the Malay Archipelago to Europe, Hindustan, and China. though apparently insignificant, they form a considerable article of trade; so many as four or five millions of them being in some years shipped from the territories under the Government of British India, they are products of several genera of palms, which all contribute their quota to the general quantity required in the markets of the East and in Europe. Amongst the plants producing them may be named the genus, Calamosagus, of Griffith, with its four species; *C. lariniæfolius; (Wallichiæfolius)* termed "*Rotang Simote*;" C. ochriger, "Rotang Donam," with C. scapiger, and C. lacineosus. The Calamosagi, are all climbing plants. The Ratan cane is used extensively in Burmah and the Tenasserim Provinces, instead of Cordage. The stays of the masts in the native boats, are usually made of ratans, and they are split up into strings for innumerable purposes, to which cord and twine are usually applied. There are numerous species indigenous in the forests, and the Karen have different names for seventeen species or varieties. Ratans are manufactured by the Chinese into chairs, baskets and other articles, the best are the produce of Malacca and the eastern isles. A coarse description is found in many parts of the Peninsula of India, and are there used for ordinary purposes, as baskets, &c., they also furnish material for the cables of Shakespearian bridges. One species called country rattan, pedda piramboo, *Tam.* moti bet, *Hind.* Pedda bettam, *Tel.* grows to a great length in most districts of the Peninsula. When green, it is formed into cables for drawing the cars of the hindoo idols, and in some parts for suspension bridges. It answers better than bamboo for baskets and for strong fences, when interwoven between stakes. The rattan when burnt, yields an ordinary black for paint. About sixty thousand bundles are annually imported into Liverpool, 100 in each bundle, and selling price from 1*s.* 6*d.* to 3*s.* *per* 100, Total £7,500. The rattans of Borneo are esteemed finer than those produced in any other part of the world, and are exported to Singapore and Batavia in immense quantities from the Coti and Banjar rivers; on the south and eastern parts of the island they are collected, and brought down these streams on rafts by the Dyaks for a very small remuneration; they are principally exported finally from Batavia and Singapore to India and China. The exports of ratans from India are principally from Calcutta and Bombay to the Mauritius, Cape of Good Hope and N. S. Wales, to the value of £ 3060 to £4000, annually,

1857-8	£3753	1859-60	£2828
1858-9	£4539	1860-61	£2500

—*Seeman on Palms. Rohde. M.S. S.—Crawfurd's Dict. p.* 365. *William's Middle Kingdom, Vol. II. p.* 402. *Low's Sarawak, p.* 42. *Mason's Tenasserim.* See Calamus; Canes.

RATAN FOOT BALL is used in this game by the Burmese.

RATA NELLI. Singh. Cicca disticha.—*Linn.*

RATAN FRUIT. See Calamus viminalis.

RATANJOT, Onosma echioides.

RATANKAT. Hind. of Kaghan, Andromeda ovalifolia.

RATAN KHAUR. Hind.? A tree of Chota Nagpore, furnishing a hard, white timber.—*Cal. Cat. Ex.* 1862.

RATANPUR. A town of the Central Provinces of India, in the district of Bilaspur, situated twelve miles north of Bilaspur town. It was here that the ancient rajas of the country first held their court, and it was from this point that the early hindu settlers, gradually acquiring strength displaced the aborigines, reclaimed the wilderness and spread over the plain their civilization and faith. The township covers an area of fifteen square miles, and contains within its limits a perfect forest of mango trees, amid the luxuriant shade of which are scattered an almost countless number of tanks and temples. The most prominent of these is near the old fort, where a large building gracefully adorned on all side with arches and minarets, proclaims that here, some 230 years ago, twenty rani of raja Lachhman Sahi became voluntary martyrs to brahmical cruelty and popular feeling.—*Cent. Prov. Gazetteer.*

RATANS, GROUND. The excellent walking sticks known to the English under this name, are made from the Rhapis flabelliformis which grows in Lin-kin and Southern China. Most of the fibre used by the Chinese is made from the bark of the coir palm, *Rhapis flabelliformis* called *tsung*, which is stripped off in large sheets from the trunk of the tree; when steeped in water the fibres separate in short wiry threads, of a dark brown color, having all the properties of the cocoanut coir. It is the material from which the cordage in Chinese vessels, and sometimes the cables, is manufactured; brooms, rain cloaks, sandals, hats, brushes for block printing, twine, and other articles are also made from it. The Rhapis grows all over southern China, attaining at times the height of 30 feet and upwards; the bark is stripped off every year. The price for the prepared coir is about four sp. dlrs. per pecul. Another kind of coir is also in extensive use in the Archipelago for rigging; it is called *gomuti* or *ejoo*, and the thread sells at sp. dlrs. 1-50 or sp. dlrs. 2 per pecul. The best comes from Amboyna. The excellent walking-sticks known to the English under the name, of *Ground Ratans*, are made from the Rhapis flabelliformis, which grows in Linkin in southern China.—*Seeman. Morrison.*

RATAN SAGO PALM. Calamosagus laciniosus. See Ratan.

RATEEANUJ. Hind.? Colophony. Resin.

RATEANUJ-ROOMI also Butum. Arab. Turpentine.

RATH. Hind. A car, an idol car, a four wheeled carriage.

RATHA or Padha Jatra, the procession of Jugganath in his car, a festival in much repute among the hindus of Bengal and Orissa.

RATHMANDI. Hind. Microlonchus divaricata.

RATHOR. See Rahtor; Rajput.

RATI-PANCHI. Tam. Tel. Lichen rotundatus.

RATI-SURKH. Hind. Trichodesma indica.

RATI, the wife of Kama-deva, the Indian cupid. Rati is the hindoo goddess of enjoyment.

RATI. Tel. Seed of Abrus precatorius Rati weights. A jeweller's weight. The root is employed as a substitute for liquorice. The leaves have a similar taste, and mixed with honey are applied externally in swellings of the body and pulverised and chewed with sugar, are given to mitigate coughs.—*Powell's Hand-Book, Vol. I, p.* 341.

RATI BENDA NAVILI. Tel. Lygodium scandens.—*Swartz.*

RATINARIA, a Lichen.—*M. E. J. R.*

RATI PACHI. Tel. Lichen, generic term.

RAT JAMBUL. Mar. Eugenia caryophyllata.

RATL. Ar. One pound, Troy, equal to 5,760 grains.

RAT MUNDI. Hind. Macrotomia euchroma. also Trichodesma Indica.

RATNA. A gem. In hindu mythology, Chatur-dasa-ratna are the fourteen articles, called gems, produced by the churning of the ocean. This event is fabled to have occurred in the second incarnation or avatar of Vishnu in the form of a tortoise or Khurma, when the ocean was churned by means of the mountain, Mandara, the serpent Sesha being employed to whirl the mountain round.

RATNAPURA, or the gem city, now called Ava, or Ayn-wa, a town in Burmah, in L. 95° 89' E. and L. 21° 50' N. It was at one time the capital city and it is stated to have been founded in A D. 1364, by Thado men bya, prince of Ta-goung, who mastered the kingdoms of Pan-ya and Sa-gain, into which the country was then divided. The first mention made of Ava, by any European traveller; is that by Nicolo di Conti, who was there about 1440 (Ramusio, i, 840.) It continued to be usually the royal residence, with some intervals, till the end of the eighteenth century. In 1526, the Shanraces of Monyin and Mogoung took the city and overran the country, of which they held possession till 1554. In that year, the Toungoo king of Pegu, Tsheu-byoo-mya-yen (Lord of many white Elephants) conquered Ava and destroyed the city. The king Nyoung-mentara, who re-established the city and kingdom, after the fall of Pegu in 1601, appears to have been a natural son of the conqueror. Ava was taken by the Peguers during their resumption of independence in 1752. They were speedily expelled by Alompra, but he always resided at Mout-sho-bo. In 1763, on the accession of Tshen-byoo-yen, Ava again became the seat of royalty. It was, however, abandoned on the founding of Amarapoora in 1783, and re-occupied in 1823 by the king and queen who entered in great state, accompanied by the white elephant, and by all the dignitaries of the court only to be again deserted in 1837 by Tharawaddi who had vowed to make it a heap of ruins.—*Yule's Embassy, p.* 184. See Buddha; Jain; India; Karen; Kiayn; Lawa; Mangles; Negrais; Nicolo di Conti; Petroleum; Rangoon; Tee.

RATNAPURA in L. 6° 42'; L. 80° 17, a town in Ceylon, 56 miles S. E. of Colombo. Mean height of the village above the sea is 77 ft. Gillemalle village is 112 ft. The great bulk of the gems of Ceylon come from Ratnapura, which means the city of gems. See Precious Stones.

RATNI. Sans. Ell.

RATSAHARA of Beas, Coriaria Nepaulensis.—*Wall.*

RAT SNAKE of Ceylon, Coryphodon Blumenblachii, is almost domesticated, and is often kept in households.—*Tennent's Sk. p.* 42.

RATTA. Hind. Chenopodium, *sp.*

RATTA. See Tin.

RATTA-HUNU. Singh. Chalk.

RATTAN CANE. Eng. Calamus rotang, Calamus fasciculatus.—*Linn, Roxb.* See Ratan.

RATTANJOG. Hind. Anemone obtusiloba.

RATTANKAT, Hind. Andromeda ovalifolia and Rhododendron anthopogon.

RATTANAS, a species of coarse sacking, made of a long stout fibre in Madagascar, about five feet square, and largely used in the island of Mauritius, to dry sugar on.—*Simmond's Dict.*

RATTI. Hind. Abrus precatorius.

RATTL, an Arab weight in Bangalore, 24 rattl make one maund of 25 lbs., in Travancore 25 rattle or rautel = the maund of 18 lbs. 12 oz. 13 grs.—See Rottolo.—*Simmond's Dict.*

RATUA. Hind, a variety of rice of Amritsar.

RATUN-DASTI. Hind. Juniperus communis berries.

RATWA. Hind. Cervulus moschatus.—*De Blain.*

RAU. Hind. of Ravi, Coriaria Nepalensis, *Wall,* also Cotoneaster obtusa.

RAUCHYA. One of the 14 patriarchs who are supposed to preside successively over the 14 Manwantara of the Calpa.—*E. Warren.*

RAUGHAN. Hind. Pers. ghi, butter. grease, fat, oil, balsam, resin.

Raughan i-badam, almond oil.
„ i-baiz-i-murgh, oil of egg shell.
Raaughan-i-balsan, medicinal Balsam, Balsamodendron Berryanum.
„ i-bhirbute, a medicinal oil for blistering
„ i-gul, rose scented oil.
„ i-majmua, scented oil, compound scents.

Raughan i-mom, wax oil, medicinal.
,, i-motya and chambeli, jessamine oil.
,, i-pin, Dera Ghazi Khan, a medicinal oil, made of pelican's fat.
,, safed, ghi or clarified butter.
,, siya, coarse oil.
,, i-turb, BalsamodendronRoxburghianum, gugal resin.

Raughan-i-Bhir Bhuti, oil of the red velvet insect, "bhir bhuti," which appears in the rains ; the oil is used only as an irritant and blistering agent.

Raughan-i-Pin, "Pelican oil," is made from its fat ; one bird yields a quarter of a seer. The Persian name of the bird is Fitan.

Raughan-i-Baiz-i-Murgh, oil from the shells of hens' eggs, obtained by dry distillation ; used in native medicine.

Scorpions' oil, is made by steeping scorpions in oil it is used in medicine and as a cure for scorpion's bites.—*Powell's Hand-Book. Econ. Prod. Punjab, p.* 160.

RAUL, amongst the Mahrattas, a low tribe who weave a coarse cloth and tape.—*Wilson.*

RAULI. Hind. Litsœa, *sp.*

RAULPINDI, L. 33° 36' 5" ; L. 72° 59' 8" in the Punjab, a large military station. Mean height of the cantonment, 1,737 ft. *Schl. Rob.*

RAUNG-THMOO. Burm ? A wood of Amherst, said to be a kind of teak. It is used for house posts.—*Cat. Ex.* 1861.

RAUNJ. Hind. Acacia leucophlœa.

RAUNS. Hind. Cotoneaster baccillaris, Indian mountain ash.

RAU PALLEE MARAM. Tam. Spathodea arcuata.

RAUSLI or Rusli. Hind. A kind of soil same as Maira of Punjab.

RAUSHANAK. Pers. Cucumis pubescens.—*Willd. W. & A.*

RAVANA or Ravan, a powerful asura, the sovereign of Lanka, or Ceylon (Lanka, Resplendent) destroyed by Rama Chandra. Ravana was the son of Visvarawa Muni by his wife Nikaksha. Another wife of Visvarawa Muni was Brabira, daughter of Trinavindhu, a king of the Solar Line of Vesala, descended from Sradha Deva. He is described with numerous heads and arms, and is said to have become so potent, in consequence of an ill-judged promise (according to some of Siva, and according to others of Brahma) obtained in the usual manner by marvellous religious austerities and devotion, as to have brought all the gods under his subjection. As the promise of the deity could not be revoked, Vishnu found the means of evading the performances of it by becoming incarnate as Rama Chandra to effect this. Ravana is also called Dasagriva, the ten-necked ; and, Pulastya ; and Visravana as son of Visrava, the father also of Kuvera. His numerous heads, and his twenty hands, are the usual symbols of dominion. Ravana is seen in plates along with Garuda ; this animal, half-bird, half-man is the vahan or vehicle of Vishnu, and is very frequently introduced into the pictures of the vaishnava sect, carrying the deity, with or without Lakshmi ; by their sectarists, Krishna and Rama, identified with the preserving power, are also sometimes mounted on this vehicle of their archetype. Another account describes Ravana as the son of the sage Visrava, by Naikasi, the daughter of Sumali, a demon, who, observing the splendour of Kuvera, a son of the sage by his wife Irvira, directed his daughter to propitiate the sage, that she also might have children by him. Having succeeded in obtaining the good graces of Visravas, Naikasi had by him Ravana, Kumbhakarna, and a daughter, Surpanakha. In reality, Ravana, obtained possession of Sita, wife of Rama, and brought on himself an invasion of his island, by Rama, in which Rama was assisted by the uncivilized races of the Dandacarya or forests of the southern part of the peninsula of India. Ravana and his brother were slain. Sita was recovered. The story of the Ramayana recounts this war. A festival is celebrated in honor of Ravan by the Shanar race. Ravana ruled over a powerful and civilised state, which comprised Ceylon and the whole of the southern division of India.—*Moor, p.* 334. *Hero and Nymph, p.* 288. See Avataram ; Hanuman ; Inscriptions.

RAVA-PU. Maleal. Guettarda species. —*Linn.*

RAVA KADA or Reyyi Kada. Tel. Salsola nudiflora, *R.* ii. 60.

RAVANA SURUNI MISALU. Tel. Spinifex squarrosa, *Spreng.* This curious diœcious grass called "the sea-pink" is found in great abundance along the Coromandel Coast. When the seed is ripe, the spherical head of the plant is detached and blown about the sands by the wind, illustrating in a remarkable manner "the rolling thing before the whirlwind," of Isaiah xvii. 13 and "the wheel before the wind," of Psalm lxxxiii. 13.

RAVASALA BARTA KADA. Tel. Phyllanthus bacciformis, *R.* iii. 661.

RAVEN. *The Corvus corax* or 'Raven,' has the circuit of northern regions ; rare in N. Africa, Punjab, Kashmir, Afghanistan ; the Tibetan Raven is considered as a peculiar species by Mr. Hodgson, an opinion to which the Prince of Canino seems to incline : it may be presumed to inhabit the lofty mountains of Butan to the north. The smaller crow of Southern Asia is the C. splendens, while the common black crow of all India, C. culminatus, would seem to stand here alike for the 'Raven,' the 'Carrion Crow' and the 'Rook,' the true Rook (Corvus frugilegus) however, is known to inhabit or visit the Peshawur valley, Afghanistan, and Kashmir. The Rook of China and Japan is considered a distinct species, C. pastinator of Gould; and the Jackdaw (C. monedula) accompanies it in those countries, while the true northern Raven *Corvus corax* is met with not only there, but also over a great portion of the Punjab. In other parts of India the comparatively small C. culminatus is popularly known to Europeans as "the Raven:" but the northern Raven would make a meal of one and not feel much the worse for it. The Raven of Ladak is a larger bird than that of the Northern Punjaub, owing most likely to the climate being better adapted to its habits and constitution. Dr. Adams scarcely thinks there are sufficient grounds to consider this species distinct from C. corax, the differences in what Mr. Hodgson calls this variety C. tibetanus, being only in a somewhat larger size, the wing measuring 18½ inches, tail 11½, and the bill to gape 3 inches. The raven of Tibet has been called C. tibetanus by Mr. Hodgson (An. and Mag. Nat. Hist. iii, p. 203) for the reason that it is somewhat larger than C. corax.—*Blyth. Adams.*

RAVENALA SPECIOSA, the traveller's palm of Madagascar, has been introduced into India.—*Tennant.*

RAVENSARA-NUTS, the produce of Agathophyllum aromaticum, found in Madagascar where they are used as a spice, and from thence occasionally exported to France. The article imported into China, from India, under this denomination is a nut of a dark brown colour, the size of a nutmeg, in smell and taste resembling both cloves and pimento: internally it is divided into cells, and contains a kernel extremely hot and biting to the taste, with a strong spicy smell.—Ravensara is, also, however, the name given to the bark of the clove-cinnamon tree, growing in the Brazils and Madagascar, of which the foregoing is probably the fruit.—*Comp. Descr. Simmond's Dict.*

RAVERTY, Captain H. G. of the 3rd Regiment Bombay Native Infantry, author of a Grammar, Text-Book and Dictionary of the Pukhto or Pushto or Afghan language. London, 1860, also Thesaurus of English and Hindustani technical terms. According to Captain Raverty, the people who dwell about Kabul and Kandahar, Shorawak and Pishin, are designated B'r-Pushtun or Upper Afghans; and those occupying the district of Roh, which is near India, are called L'r-Pukhtun or Lower Afghans. Persian is the official language of Afghanistan, but the Pushto is alike the common tongue of the uneducated people, of the families of the Sadozye kings, and of the dwellings of the amir. There are, however, he say two divisions of the Afghans, termed Pushtun and Pukhtun, who speak Pushto and Pakhto respectively. The Pushto being the western dialect with affinityto Persian, and the Pukhto the eastern with many Sanscrit and Hindi words. The Pushto is spoken, with slight variation in orthography and pronunciation, from the valley of Pishin, south of Kandahar, to Kafiristan on the north; and from the banks of the Helmund on the west, to the Attock, Sindhu or Indus river, on the east;—throughout the Sama or plain of the Yuzufzye, the mountainous districts of Bajawar, Banjhkora, Suwatt and Buner to Astor, on the borders of Little Tibet,—a tract of country equal in extent to the entire Spanish peninsula: also, throughout the British districts of the Derajat, Banu Tak, Kohat, Peshawar and the Samah, or Plain of the Yuzufzyes, with the exception of Dera Ghazi-Khan, nine-tenths of the people speak the Afghan language.

RAVI. TEL. Ficus religiosa.

RAVI OR **SURYA**, a name of the sun. See Graha.

RAVI. AR., a reciter of poems, stories, &c., Hammad Ravi lived in the time of the khalif Walid, his memory was great. He was addicted to debauchery, kalifs Walid and Hisham each gave him 100,000 dirhem, and Mehdi 20,000, but he improvisatrised and greatly altered ancient poetry.

RAVI, a tributary to the Chenab river. It rises in lat. 32° 26', lon. 77° in the Pir-Panjal, or Mid-Himalaya range, to the W. of the Rotang Pass. It runs S.W., about 40 m., then W. to Lahore: and S. W. to its junction with the Chenab, length, 450 m. It receives as affluents the Nye, 20; Sana, 36; Chakki, 50 miles. About 22,000 sq. m. are drained. It has a tortuous course; and is fordable in most places for eight months of the year. The Ravi, is the Hydraotes or Hyarotis of the ancient Geographers, and is the least of the Punjab rivers. Its principal source is said to be a little lake, named Muni-mys. Its name in Sanscrit, is Iravati, in the local dialect Iraoti (the Irrawaddy of the Ayeen Akberi), which doubtless suggested the names of Hydraotes in Arrian, and Hyarotis in Strabo. Ptolemy calls this river Adris. The Ravi continues its intramontane course for about 130 miles, debouching from the plains at Shahpur. The average fall of this portion according to general A. Cunningham, is 115 feet per mile. It is called Rawa, in Bara Banghal and is formed of several impetuous streams, issuing from beneath large glaciers, at an elevation of 14,000 feet on the south side of the Mid-Himalaya, and east and west of large spurs, running from the outer range.

About forty miles below its source, the Ravi proper is joined by two large feeders, the Budhil and the Nai or Duna. Near the head of the river there is not much timber, much having been felled in past times, and the rest consists of trees immature or inconveniently situated.—*Powell*, *p.* 531. *Cleghorn*, *Punjab Report*, *p.* 109. *History of the Punjab*, *Vol. I. p.* 13-14. See Grahu ; Jamu ; Khetri ; Punjab.

RAVUDANA. Tel. Dillenia, *R. ii.* 652 ; *Cor.* 20—*W. and A.* 16.

RAVUNCHENI, also Sirah. Hind. Gamboge.

RAWADARU. Tel. Syn. of Dillenia pentagyna.—*Roxb.*

RAWA-KADA. Tel. Syn. of Salsola nudiflora.—*Willd.*

RAWAL, the titular appellation of the chief priest of the temple of Badarinath in the Himalaya. He is always a Namburi brahman from Malabar. Rawal, is also a title of some Rajput princes as the Rawal of Bhownaggar, or Raoul, the title once was that of the Mewar house, is yet borne as a princely title by the Aharya prince of Dongurpoor, and the Yadu prince of Jeysulmer whose ancestors long ruled in the heart of Scythia. Raoul seems to have been titular to the Scandinavian chiefs of Scythic origin. The invader of Normandy was Raoul, corrupted to Rollon or Rollo —*Tod's Rajasthan*, *Vol. I. p.* 213, *Vol. II. p.* 237. See India ; Kedarnath.

RAWAL of the Wagri, Circaetus gallicus. —*Gmel.*

RAWAL PINDEE is about sixty-eight miles east of the Indus, it is well known as a British cantonment.—*Cal. Rev. Jan.* 1871 See Kabul ; Raulpindi.

RAWALA, the Rawula of a hindu prince is a world, within itself, and resembles the mahomedan harem. It is the labyrinth containing the strings that move the puppets which alarm mankind. Here intrigue sits enthroned, and hence its influence radiates to the world, always at a loss to trace effects to their causes. —*Tod's Rajasthan*, *I. p.* 464.

RAWAN. Hind. Lathyrus aphaca, also Dolichos uniflorus and different kinds of pulse.

RAWAN, H'RAD. See Indus.

RAWANA or Rama. Spinifex squarrosus. See Ravana Suruni.

RAWANAH. Hind. An invoice, a custom house permit or pass for a certain quantity of opium, spirits, &c.

RAWAND-CHINI or Rewa, or Rewand, also Sirah. Guz. Hind. Rhubarb.

RAWANG. Arab. Rhubarb.

RAWANG. Arab. Rhubarb.

RAWARI. Hind. Lathyrus aphaca.

RAWASAN. Hind. Dolichos sinensis.

RAWASH. Hind. Rheum emodi.

RAWAT also Raji, a small savage tribe in the Rohilcund Terai ; also a wandering uncivilized tribe in Kumaon 20 or 30 families are occupants of the forest of Kumaon, who claim to be descended from a prince of Kumaon who was driven from his throne. Their language is dissimilar to the Hindui of Kumaon. The Rawat are considered to represent the aborigines of the district.—*Latham. Mr. Campbell*, *p.* 47. See Haiyu ; Chetang.

RAWAUN. Bussahir is a tributary state, gave Rs. 3,945 as tribute. Rawan, on the left bank of the Pabur was transferred to Keonthul. The thakoorai of Kotegurh and Koomharsein were declared independent of Bussahir.

RAWD. See Mesopotamia.

RAWE. Jav. Cowage.

RAWI. See Chepang.

RAWKUS GUDDA. Hind. Bryonia epigæa.

RAWLINSON, Sir Henry Creswicke, K. C. B., rose to be Lieut.-Colonel in the Bombay Army, was member for Reigate, he, in 1858, deciphered the cuneiform inscriptions of Assyria, Persia, and Babylonia. He was born in Chadlington in 1810. He entered the military service of the East India Company in 1826, and served in the Bombay Presidency until 1833, when he was appointed, with several other officers of his own standing, to the army of the king of Persia, in which country he served until 1839, having obtained the local rank of Major. He was appointed Political Agent at Candahar, in 1840, and held that position through the Affghan war. In 1843, he was transferred to Bagdad as Political Agent in Turkish Arabia, where he subsequently became British Consul, and eventually Consul-General. In 1851, he was made Lieut.-Colonel in Turkey. He was Ambassador to Persia. For his contributions to antiquarian and scientific knowledge he was made a Fellow of the Royal Society and Honorary D. C. L. of Oxford, a Chevalier of the Order of Merit in Prussia, a Corresponding Member of the Institute of France, an Honorary Member of the Academy of Munich, and a Member of the Geographical and Asiatic Societies of Germany and of numerous other literary and scientific associations. He was also made a Knight of the First Class of the Persian Order of the Lion and Sun for his services in that country, whilst his services in Affghanistan were recognized by the bestowal of the Knighthood of the Durani Empire, and he was made a Military Companion of the Bath for his services in Candahar. He assisted Sir J. Gardner Wilkinson in a new translation of "Herodotus," by his brother, the Rev. George Rawlinson, and is author of a work on the comparative Geography of Affghanistan. He wrote a series of papers on Assyrian Antiquities and the cuneiform character from 1850 to 1852. On the arrow-headed character found in the ruins of Persepolis, and on bricks and stones in the ruins of Babylon and Nineveh, and the celebrated inscription near Hamadan on the Besitun was deciphered by colonel sir Henry Rawlinson, and another by by professor Grotefend.—*Ferrier's Hist. of Afghans, p.* 371. *Geo. Trans.* 1842, *Vol. XII, part* 2, *p.* 112. *Royal Geographical Journal. Journal of the Royal Asiatic Society of London.*

RAWUN RUDD LAKE. See Kunawer.

RAY. Hind. ? A tree of Chota Nagpore, furnishing a hard timber.—*Cal. Cat. Ex.* 1862.

RAYA in the dialect of the south of India, a prince : also a usual name amongst the Telinga race, as Jesul Raya Pillay.

RAYA DASI. See Hindu.

RAYAH or Rayap, Malay. White ants.

RAYAKOTTA, in L. 12° 31′ ; L. 78° 3′ in the Karnatik, 12 miles S. of Saulgherri. It is 2,449 feet above the sea.—*Scott.*

RAYA MANU. Ficus religiosa.—*Linn.*

RAYAP. Malay. White ants.

RAYAVATA. One of the 14 patriarchs who are supposed to preside over the 14 Manwantara of the Calpa, and whose anniversaries are noticed in the Calendar.

RAYEE. Tel ? A tolerably plentiful tree of Ganjam and Goomsoor, which attains an extreme height of 30 feet and a circumference of 3 feet. The distance from the ground to the outer section of the first branch is 15 feet. It is only used for firewood.—*Captain Macdonald.*

RAYEDURU DUMPA, also Goru Chutugadda. Tel. Eulophia virens.—*R. Br.*

RAYAT LAUT, a seafaring race of the Indian Archipelago, adventurous navigators. The Rayat Laut, subjects of the sea, or Orang Akkye, are unquestionably from the same stock as the Jakun. The two tribes, are expert divers, and fishermen, and frequently make long voyages in their fragile vessels. Otherwise they reside along with their families in their boats. for months together, employed in fishing, collecting Agar-agar Tripang, &c. the Rayat Laut have but faint ideas of the existence of a benignant superior Being, and of a state of future existence ; in appearance, they resemble the Jakun and Malay, allowing for the physical alteration always induced by difference of food, daily occupations, and habits, especially when continued through many generations. They are darker than the Malay, more savage and uncouth in aspect.—*Newbold's British Settlements, Vol. II. pp.* 411, 412, 413. See Kedah or Quedah.

RAYKABEEAÑ. Hind. Saucers.

RAY, a cartilaginous fish in which, although the skeleton is not osseous, the development of organs is so advanced that they would appear to be the highest of the class.

Raja Narinari, *Bl.* the Aetobates narinari, *Mull* has a produced snout, pointed and winged like pectoral fins, and an exceedingly long tail, armed with a strong, serrated spine, which is always broken off by the fishermen immediately on capture, under the impression that wounds inflicted by it are poisonous. Like most deep sea fishes, the ray has a wide geographical range, and occurs not only in all the Indian Ocean, but also in the tropical tracts of the Atlantic.—*Tennent's Sketches, of the Natural History of Ceylon, p.* 328.

RAYMOND, a French officer in the service of Nizam Ali, Nizam of the Dekhan. In March 1795, with 18,000 men, he met the Mahrattas at Kurdla, with 130,000 horse and foot, and 150 pieces of cannon, and was completely defeated.

RAYYI PAPPU, also Jaji. Tel. Grislea tomentosa.—*Rox.*

RAZAI, a counterpane quilted with cotton.

RAZAQ. Pers. Food.

RAZBAM. Hind. Lonicera quinquelocularis.

RAZEEANUJ. Arab. Fœniculum panmori. —*D. C.*

RAZI. Jav. *qu.* Rassi, Arab, a ferment used in Java in the distillation of the fermented liquor called Badek.

RAZZIA, the heiress of the great Feroz, an intrepid but unfortunate queen, she was compelled to abandon her throne by an usurper, and sought and found a protection amongst the Jit, who with their Scythic brethren the Ghikar assembled all their forces and marched with their queen at their head, like Tomyris of old, to meet her foes : but she fell, in battle, in her attempt to overturn the Salic law of India.

RAZEE-NAMA, an acquittal, literally, "a deed of consent or acquiescence."—*Malcolm's Central India, Vol. II, p.* 292.

RAZIANUJ, Arab. Fennel seed.

RAZIAN-I-RUMI. Pers. Pimpinella anisum. Aniseed.

RE. Hind. Abies Smithiana, Picea Webbiana ; bang re, and kaird re, is Abies Smithiana ; kul re, is Picea Webbiana, or Himalayan spruce.

RE, also Ravi, also Ragi, Tel. Ficus religiosa.—*Linn, Roxb., Ph.*

RE or Rey, the Rhages of the Bible, the ruins of which are situated a little to the south of Teheran. All Oriental writers agree upon its antiquity, and it is called "the mother of cities." It was once a very large place, the capital of the Jabbal (the hills), and very rich and flourishing; but it was destroyed, and the inhabitants were put to the sword by the Tartars at the beginning of the seventh century of the Hijra.

RE. Tel. Ficus religiosa.—*Linn.*

REALGAR. Red orpiment; Red Arsenic.

REAM, 20 quires of paper of 24 sheets each = 480 sheets. A printer's ream is 21½ quires, or 516 sheets.

REAMAN or Raimane. Tel. Ficus religiosa.

REANG, a half breed between the low Tipperah tribes and the Kuki.—*Cal. Rev. No. cxx. December* 1860. See India.

REAUMERIA HYPERICOIDES, is a native of Syria and Persia and R. Vermiculata, a native of Sicily, Bombay, and Egypt. This plant resembles *Salsola fruticosa.* It is used at Alexandria as a remedy for the itch, being bruised and applied externally, and a decoction taken internally.

REBARI. Throughout Hindusthan, the Rebarri are persons employed in rearing and tending camels, and are in many places mahomedans. In Rajputanah they are a distinct tribe following hinduism, employed entirely in rearing camels or in stealing them, in which they evince a peculiar dexterity, uniting with the Bhatti in the practice as far as Daodpotra. When they come upon a herd grazing, the boldest and most experienced strikes his lance into the first he reaches, then dips a cloth in the blood which at the end of his lance he thrusts close to the nose of the next, and wheeling about, sets off at speed followed by the whole herd, lured by the scent of blood and the example of the leader. The Rebarri of Guzerat are nomade shepherds, who rear camels, sheep and goats and subsist by the sale of the wool and milk and not of the animals.—*Tod. Wilson.*

RECCAN or Rakan River, on the Sumatra coast, in lat. 2° 10' N., long. 100° 37' E., is about 15 miles broad at its mouth, but is almost dry at low water of spring tides. It is dangerous from the rapidity of 7 miles an hour producing a bore at springs and a rise of 30 feet.

RECHUK. Beng. Croton tiglium.

RECORDER, the Chief Justice of Singapore, Rangoon, Moulmein.

RECURVIROSTRIDÆ. A family of birds comprising 2 gen. 3 sp. 2 Himantopus; 1 Recurvirostra avocetta. The 'Avocet,' which inhabits Europe, Asia, all Africa: not rare in India.

RECRUITS for the Army of Britain for 1869 showed in that year 17,749 recruits offering themselves for enlistment in the United Kingdom, were medically inspected—13,128 Englishmen, 282 Welshmen, 1,312 Scotchmen, 2,901 Irishmen, 126 born beyond the seas, 6,660, or 375 per 1000 were rejected. The Glasgow recruiting district continued to show the highest proportion of rejections, and in Bristol and Liverpool it was considerably above the average; Belfast had the lowest ratio of rejections. Diseases of the eyes and eyelids formed the most cause of rejection. There was a marked increase in 1869 in the proportion rejected for muscular tenuity and debility, which now holds the second place in point of frequency as a cause of rejection. Disease of veins (varix), malformations of chest and spine, defects of lower extremities, disease of the heart, and varicocele follow in succession. There was an increase in the rejections in the classes of manufacturing artisans, and of shopmen and clerks; and the ratios are higher than among labourers, husbandmen, and servants, a class which furnished 502 in every 1,000 recruits; 739 in 1,000 were able to read and write; 183 could do neither; 78 could read but not write. Upwards of half the recruits inspected were between 5 ft 6 in. and 5 ft. 8 in. Of the recruits inspected at head-quarters of recruiting districts 1,387 in 10,000 did not weigh more, than 120lbs.; 5,606 from 120lbs. to 140lbs.; 3,000 from 140lbs. upwards.

RED.

Lal	Hind.	Erra	Tel.
Abang	Malay.		

Red is one of the primitive colours, of which the chief commercial varieties are fine venetian, red lead, orange, Indian, red and vermilion. The colour seems to be esteemed sacred in many instances by those who inhabit a great portion of Asia; from China to Caucasus; from Tibet and Butan to the extremity of India, and to Ceylon.—*Ouseley's Travels, Vol. I. p.* 87.

REDANG ISLAND, from lat. 5° 38' N. to about lat. 6° N., on the east coast of the Peninsula, along which they form an extensive chain. Turtle and *Kimor* or large scollops are procurable on the N. E. side.

RED ARSENIC, Red Sulphuret of Arsenic. See Arsenic.

RED CEDAR or Pencil Cedar. See Cedar.

RED CLOVER. See Clover Seed.

RED-COLORED WOODS. See Forests of Timber in India. Red-wood.

RED COTTON TREE, Bombax Malabaricum, common throughout Southern India, is abundant in the plains of British Burmah, and its light and loose grained wood is there used for coffins.

RED-DEER. Cervus Wallichii, *Cuv.*

REDDI. Tam. Tel. The head of the village authorties in Southern India. The name is applied to an enterprising race of agriculturists who have migrated from their original seats near Rajahmundry, over the whole of Southern India, also into Maharashtra, being met with as far North as Poona, where they are considered the most thriving cultivators. Among the Reddi of Southern India, a very singular custom prevails. A young woman of sixteen or twenty years of age may be married to a boy of five or six years. She however lives with some other adult male, perhaps a maternal uncle or cousin, but is not allowed to form a connection with the father's relatives, occasionally it may be the boy husband's father himself, that is the woman's father-in-law; should there be children from these liaisons, they are fathered on the boy husband. When the boy grows up the wife is either old or past child-bearing, when he in his return takes up with some other "boy's" wife in a manner precisely similar to his own and procreates children for the boy husband.—*Shortt, Trans. Ethn. Soc. New Series, Vol. VII. p.* 194—*Lubbock. Orig. Civil, p.* 55.

REDDI BUMMALA WANLOO. Tel. People of the Reddi caste.

REDDI VARI NANU BALA Euphorbia thymifolia.—*L. R. ii.* 473.

RED DYE WOOD. Cæsalpinia sappan.

RED DYE PLANTS. See Dyes.

RED FISH. Fish Roes and Sardines are, in the Malay peninsula, made into condiments and the species of fish used in their preparation, are Alausa toli, (Ikan truboh,) Engraulis brownii, (Bunga ayer or badah,) Dussumieria acuta (Tamban-bulat) and Clupeonia perforata, (Tamban-nepes or batuh.) Engraulis brownii, Gmelin inhabits the sea and estuaries of all seas. Total length 6 inches. In Java, Sumatra and the Straits of Malacca, large quantities are preserved both for home consumption and exportation to China and India. The delicious condiment is famed under the denomination of "Red fish," (Ikan merah of the Malays,) or "Malacca fish," and is used as a relish. The following mode of preparation, as practised at Bencoolen and Malacca, was communicated by W. T. Lewis, Esq. Asst. Res. Counsellor, Penang. After the heads have been removed, the fishes (those of middling size are preferred), are cleansed, salted (in the proportion of one to eight parts of fish), and deposited in flat glazed earthen vessels. In the latter they are for three days submitted to pressure by means of stones placed on thin boards or dried plaintain leaves. The fishes are next freed from salt and saturated with vinegar of cocoa palm toddy, after which are added powdered with ginger and black pepper (the latter mostly entire), and some brandy and powdered "red rice." After having been kept for three days, a little more vinegar is added before placing the fishes in well closed jars or bottles. They should be kept four or five months before being used. The expenses of a quart bottle of the condiment is about 30 cents, the selling price one Spanish dollar. The Chinese settlers in the Straits prepare a similar red condiment with slices of Polynemus indicus and P. tetradactylus and also with prawns.

RED FLOWERED WATER LILY, Nymphœa rubra. *Roxb.*

RED GOURD. Eng. Syn. of Cucurbita maxima.

RED GUAVA, Psidium pomiferum.—*Linn.*

RED-HAIRED, Hang-Mao of the Chinese, a term for English foreigners who are so called.

RED INK. See Ink.

RED ISLAND. In lat. 0° 51′ N. long. 108° 38′ E. in Straits of Duryan, an oblong island covered with trees of moderate height.

RED JUARI. Anglo-Hind. Sorghum vulgare.

REDIAH. See Inscriptions.

RED KAREN. See Karen.

RED LEAD.

Isreng	Ar.	Tempearea	Maleal.
Minium	Fr. Lat.	Sandura	Sans.
Minning	Ger.	Vermillion	Sp.
Sandur	Guz. Hind.	Segapu Sindoorum	Tam.
Minio	It.	Yerra Sindoorum	Tel.
Sada Langgam	Malal.		

Red Lead is massicot finely ground and calcined. It is a red powder, but with a liability to become black, and is used in painting, in the manufacture of glass, in surgery, &c.—*Waterston. McCulloch.* See Lead.

RED MALABAR NIGHTSHADE. Basella cordifolia, *Linn.*

RED MANGROVE or Paletuvier, is the Rhizophora candel. Its branches though they bend downwards do not take root in the ground. The wood is heavy, of a deep red, and takes a fine polish. The bark is used in dyeing red, is astringent, and used in the West Indies for the cure of fevers, as well as of the bites of venomous insects.

RED NEPHELIUM. See Nephelium.

RED OCHRE. See Ochre.

RED ORPIMENT. See Red sulphuret of arsenic. Arsenic.

RED PADOUK. See Kino; Padouk; Pterocarpus.

RED PEPPER. Capsicum annuum.

RED PUMPKIN. Cucurbita hispida. *Willd.*

RED RAG. See Rust.

RED RATAN. Calamus draco.

RED RICE is the variety of Oryza sativa called glutinosa the pulut, or brasse pulut of the Malays, steeped in an infusion of cochineal. In the Straits Settlements red rice is imported from China, and sells at the rate of 10 cents of a dollar per lb.

RED ROBIN, also red gum. See Rust.

RED SAND, of Cape Comorin, is a kind of small garnet, may be interesting, and probably useful for polishing gold and silver, as it is much used by the Natives for that purpose. Other sands from the same locality, are objects of curiosity, the white resembling grains of rice. The whole beach to the westward of Cape Comorin, to the extent of several miles, is generally covered at different seasons with red sand, and immediately on the opposite side, to the eastward, almost entirely with black sand—*M. C. C.*

RED SANDERS WOOD. Pterocarpus santalinus.

RED SEA, or Arabian Gulf. The earliest route between Europe and India, of which there is any record in the works of Pliny, Herodotus, Strabo and others, was by the Red Sea. Even before the building of Troy, spices, drugs, and many other kinds of merchandise were sent from the east by this route. The ships coming from the Indian seas landed their cargoes as Arsinoe, the modern Suez, from whence they were carried by caravans to Cassou, a city on the coast of the Mediterranean. The distance from Arsinoe to Cassou was about 105 miles. It is said that on account of the great heat the caravans travelled at night only, directing themselves by the stars, and by landmarks fixed in the ground. According to Strabo, this route was twice altered, in search of a more commodious one. India seems to have been known to the Greeks only as a country, which, by sea, was to be reached by the way of the Euphrates, and the Persian Gulf; and though Scylax had, by the order of Darius, dropped down the river Indus, coasted Arabia, and thence reached the Red Sea, this voyage was either forgotten or disbelieved, and in the time of the Ptolemies it seems probable that nobody thought that India could be reached by sea from Egypt, and Eudoxus of Cyzicus in Asia Minor came to Alexandria to persuade Euergetes to give him the command of a vessel for this voyage of discovery. A vessel was given him; and though he was but badly fitted out he reached a country, which he called India, by sea, and brought back a cargo of spices and precious stones. He wrote an account of the coasts which he visited, and it was made use of by Pliny. But it is more than probable the unknown country called India, which Eudoxus visited, was on the west coast of Africa for Abyssinia was often called India by the ancients, and all east of the Euphrates was also known as Hind or India.

The Hebrew name of the upper part of the Red Sea meant the Sea of Sedge. In a communication to the Royal Geographical Society, Captain Burton gave his reasons for believing that the Greeks borrowed their Erythrean Sea from the Arabic Sea of Himyar. The Erythrean sea was a name, which seems to have been some part of India. (*Pliny*, *lib.* vi. *cap.* xxii. and xxiv.) applied to the Indian Ocean as well as to the two gulfs, the Red sea and Persian gulf, which it forms on each side of Arabia. Herodotus does not particularly distinguish the Persian Gulf, but includes the Arabian sea and part of the Indian Ocean, under the general name of Red or Erythrean Sea. And Pliny styles the Persian Gulf "a bay of the Red Sea." Greek and Roman authors, however, generally used the term "Persian Gulf," but it appears also among them as the Babylonian Sea, and, the Erythrean Sea, and this has caused a confusion with the "Red Sea." The Persian Gulf, by many, is described as the "Green sea" also in Eastern manuscripts as the Sea of Fars or Pars, the Sea of Oman, the sea of Kirman, Sea of Katis, Sea of Basrah, deriving these and other names from the adjoining provinces and from remarkable places on its Arabian and Persian coasts. The origin of the term Red Sea or Erythrean Sea is deemed by many moderns, to be doubtful. M. Ehrenberg, while navigating the Red Sea, observed that the occasional red colour of its waters was owing to enormous quantities of a new animal, which has received the name of Oscillatoria rubescens, and which seems to be the same with what Haller has described as a purple conferva swimming in water; yet Dr. Bonar, in his work entitled "The Desert of Sinai" records:—Blue I have called the sea, yet not strictly so, save in the far distance. It is neither a red nor a blue sea, but emphatically green,—yes, green of the most brilliant kind I ever saw. This is produced by the immense tracts of shallow water with yellow sand beneath, which always gives this green colour to the sea even in the absence of verdure on the shore or sea-weeds beneath. The blue of the sky and the yellow of the sands meeting and intermingling in the water, form the green of the sea; the water being the medium in which the mixing or fusing of the colours takes place." It is however from the Trichodesmium erythræum a filamentous alga that the Red Sea is supposed to have obtained its name. It is of a blood red colour often covers large areas, and appears and disappears, somewhat capriciously. It has, as synonym, T. Ehrenbergii. T. Hindsii, also of a blood red colour, has been found off the west coast of

S. America. Under the microscope the Trichodesmium seems sheaves of minute fibres. Dr. Collingwood however mentions that he had never seen red Trichodesmium, or any tint of red. He had seen it yellowish brown. He had seen the Indian Ocean red from myriads of minute red Crustaceæ, and in the Formosa channel from red gelatinous worms but never by Trichodesmium.

There is no precipitation in the Red Sea; it is also a rainless region; not a river runs down to it, not a brook empties into it, therefore there is no process by which the salts and washings of the earth, which are taken up and held in solution by rain or river water, can be brought down into the Red Sea. Its salts come from the ocean, and the air takes up, from it, in the process of evaporation, fresh water, leaving behind, for the currents to carry away, the solid matter which, as sea water, it held in solution. Its winds are either northerly or southerly. The wind from May to November is northerly and the other six months is southerly, but there are also land and sea breezes. It has a rainless tract in that part where the dry N. E. trade wind crosses it. The Red Sea was long supposed to be 36 feet higher than the Mediterranean, and the Persian Gulf rather less. The French Engineers also, at the beginning of the present century, came to the conclusion that the Red Sea was about thirty feet above the Mediterranean; but the observations of the late Mr. Robert Stephenson, the English Engineer, at Suez; of M. Negretti, the Austrian, at Tineh near the ancient Pelusium; and the levellings of Messrs. Talabat, Bourdaloue and their assistants, between the two seas, have proved that the low-water mark of ordinary tides at Suez, is rather more than one inch lower. Mr. Morris, Chief Engineer of the Oriental Company's steam-ship "Ajadaha," collected specimens of the Red Sea water all the way from Suez to the Straits of Babelmandeb, which were afterwards examined by Dr. Giraud, who reported the following results in 1000 parts:—

	Latitude.	Longitude.	Spc. Gr.	Saline Contents.
No. 1. Sea at Suez...	...	...	1,027	41·0
„ 2. Gulf of Suez..	27·49	33·45	1,026	40·0
„ 3. Red Sea	24·29	36	1,023	39·2
„ 4. do ...	20·55	38·18	1,026	40·5
„ 5. do ...	20·43	40·03	1,024	39·8
„ 6. do ...	14 34	42·43	1,024	39·9
„ 7. do ...	12·39	44·45	1,023	39·2

These observations show that the surface waters at the head, are heavier and salter than the surface waters at the mouth, of the Red Sea.

M. Courbon found an immense basaltic wall at Edd, built by nature, the whole country being of volcanic formation. The island of Perim is trachytic; the culminating points of the island reach an elevation of 228 feet, and prove that the island itself is the result of a volcanic eruption under the sea. The lava had first raised up the large bank of Madrepore which covered the bottom, and had then forced its way through the interstices, and become visible over the water. This volcano, the vast crater of which embraced the bay of Perim, in course of time covered the new island with mud, ashes, trachytic blocks, &c., and then became extinguished. Among the specimens brought by M. Courbon was a new species of the genus Gymnodactylus, a Saurian, to which M. Valenciennes has given the name of Gymnocephalus. There were also two species of fish, the Cyprinodon lunatus and Cyprinodon dispar, which M. Courbon had fished in a lake near Massuah, the waters of which marked as much as 111 degrees of Fahrenheit. This was the first instance on record of Cyprinodons living in such warm water. A third kind of fish, inhabiting the rivers of Abyssinia, and belonging to a genus of which a single species only has as yet been met with in Java, M. Valenciennes has called Balitora pusilla.—*Maury's Physical Geography, p.* 123, 247. *Burton's Pilgrimage to Meccah, Vol. I. p.* 288. *Ouseley's Travels, Vol. I. p* 163. *Ajaib al Baldan. Pliny, lib. vi. ch. xxiii. and xxiv. Curiosities of Science, page* 176. *Sharpe's History of Egypt, Vol. I. p.* 403. *Collingwood's Voyage of a Naturalist. Leonard Horner, in Proceedings of the Royal Society of England*, 1855.—See India; Kulzum; Musiris; Semitic races; Tehama; Iran; Kishm; Perim; Periplus; Trichodesmium.

RED SNOW. See Snow.

RED SORREL, Hibiscus sabdraiffa, *Linn.* See Hibiscus.

RED START. The white-capped redstart, Ruticilla leucocephala must not be confounded with the chesnut bellied or Guldenstadt's redstart, R. erythrogastra, a native of the more alpine regions. The first is distinguished from the other by having the basal portion of the wing quills black.

Associated with the white-capped redstart is frequently observed another and smaller species, the plumbeous or sooty redstart, R. erythrogastra fuliginosa, a diminutive little creature seen hopping around and vibrating its tail, which it spreads out like a fan. It is not more than five inches in length. The black Indian redstart frequents gardens.

RED ARSENIC.

Hung.—Sin.......	CHIN.	Hung-sin-Shih...	CHIN.

A heavy crystalline mineral.

RED SULPHURET OF MERCURY. Cinnabar.

RED SWEET YAM. See Guranyo aloo.

RED TAMARISK. Tamarix dioica.

RED TOURMALINE. See Tourmaline.

RED WOOD is a commercial term applied to several timbers, viz., the Cæsalpinia sappan, *Linn*: another red wood tree is the Adenanthera pavonina, a large and handsome tree, and well suited for planting in avenues, also to the Pterocarpus santalinus, *Roxb*., and the red wood of the Andamans, is said to be the product of Pterocarpus dalbergioides. *Roxb.*

The red wood fig tree, is the Ficus racemosa.—*Linn.*

The red wood of Japan, Fa-ang, JAP. also Tsiampan, JAP. is a product of Ooy or Kiu, in Thunberg's time, belonging to the king of Siam. It was also obtainable in Bambilisoi, on the coast of Cambodia, and from Bimen island, between Bali and Timor. It was imported into Japan, where, Thunberg remarks, "this wood rubbed with some lime and water, yields the finest violet colour we could wish to see."

The red wood of Mergui is the Syndesmis Tavoyana.

The red wood of the English in Penang is in general use for furniture. Its colour is red, and its specific gravity 1,000.

A red dye wood occurs in the Vizianagrum zemindary. The red wood used in Japan for dyeing, called Ubar, is a red wood of Sumatra resembling logwood. It is used by the natives in tanning twine for fishing nets, and appears to be the okir or Tanarius major of Rumph, Vol. III., p. 192, and Jambolifera rezinoso of Lour. Fl. C. C. p. 231.—*Marsden's Hist. of Sumatra, p. 95. Thunb. Hist. of Japan, Vol. I. p. 42-43. Col. Frith.*

REEAZUT, penances, mortifying the flesh.

REECH SHAH, a mohurrum fuqueer.

REED.

Baroo...	HIND.	Pedda relloo	TEL.
Peroo nanal..	TAM.		

Reeds of the best quality of which pens are made are imported into India from Arabia, but inferior descriptions from Saccharum sara, abound on many hills and on the banks of rivers in India. Reeds for weaving are formed of these, though used also for pens. In Peninsular India, reeds for weavers are constructed by a class of persons, who also practice as oculists, the materials used for reeds are strips of several descriptions of reed: for silk weavers they are made of the fine teeth of the mango fish.—*Rohde's MS.S.*

REED FERN. See Ferns; Polypodium.

REEDUNG. See Kunawer.

REEFS. Coral islands are arranged by Darwin into the Atoll or lagoon island, a coral margin with a lagoon in the centre; Barrier reefs, stretching along a vast extent of coast: and coral reefs which are merely fringes of coral along the margin of a shore. Von Birch is of opinion that the lagoon island is the margin of a submarine crater on which the coral animal has built its wonderful structure. The barrier reefs according to Darwin are due to subsidence. In a sheltered archipelago, they rarely rise to the surface. But in an open ocean, rolling waves and breakers throw up a barrier of broken coral, far above the usual high water mark. One such coral reef is known 1,062 miles long, with an average breadth of thirty miles, giving a surface of 31,860 square miles. There are innumerable coral reefs and coral islands, but Mr. Darwin's essay on the Structure and Distribution of Coral reefs has satisfactorily shown that "Atolls" or annular reefs were originally fringing reefs constructed around islands that have since subsided. Coral reefs have thus been divided into three classes according to their geological character; The shore reefs fringe the shores of continents or islands: the encircling reefs or barrier reefs; the third, enclosing a lagoon is called an Atoll, or lagoon island, and is a ring or annular breakwater around an interior lake. the encircling reef of New Caledonia is 140 miles beyond the island. In the Eastern Archipelago and the Pacific ocean, are many Coral Islands or Atolls. An atoll differs from an encircling barrier reef only in the absence of land within its central expanse; and a barrier reef differs from a fringing reef in being placed at a much greater distance from the land with reference to the probable inclination of its submarine foundation, and in the presence of a deep water lagoon-like space or moat within the reef. Atolls sometimes constitute a great circular chain enclosing a deep basin: but opening by one or more deep breaches into the sea. Sometimes they surround a little island by a girdle of reefs; or form the immediate edging or border of an island or continent. Atolls occur in the Pacific, in the Chinese Seas, in the Marianne and Philippine Islands, Maldives Laccadives, and Sunda group.—*Darwin, on the structure and distribution of Coral Reefs. Hartwig.*

REEPERS are longitudinal sections of the palmyra palm, used for building purposes; the trunk of the tree is split into eight for reepers, and these are dressed with an adze. In Ceylon they are made of the kittool palm, and known as Nipera reepers; these are dearer than any other kind, they last, in many instances, for 50 or 60 years.—*Simmond's Dict.*

REETHA HIND. Sapindus emarginatus, *Vahl*, also Sapindus detergens.

REETHA. BENG. Soap berry, Acacia rugata, syn. of Acacia concinna.

REFE. IT. Thread.

REFUGE CITIES. Cities where criminals and others could obtain refuge. See Bast; Hebron; Kedish; Shechem.

REG. Pers. Sand, hence Registhan, a sandy desert, the Baloo-Desa of India : Reg-rawan, the moving sand.

REG. See Greeks of Asia.

REGA. Tel. Rhamnus jujuba.

REGALIZ, also Obozuz. Sp. Liquorice juice, Liquorice root.

REGAN. See Kirman.

REGDAWAN. Hind. Pshtu. Recoma undulata.—*Wall, II.* 54.

REGELTA Hind. Tamarix dioica.

REGENCY, in Java, a paid native chieftancy.

REGENERATOR. See Linga ; Siva.

REGENT BIRD of Australia, is the Sericulus melinus. It builds its nest in bowers like the satin bird and bower bird.

REGI. Hind. Kuhat, a sandy soil.

REGISTHAN, an open space strewn with sand. Also the sandy desert or baloo-desa of India.

REG MAHI, a small mottled lizard, Lacerta scincus, *Linn.* from 6 to 8 inches in length, found in the sands of Sindh and occasionally in dry tracts of the Multan division. This animal used to be formerly in the Materia Medica of Europe as a restorative stimulant, and antisyphilitic ; even some modern physicians have, however, justified the use of these animals.

REG RAWAN, or moving sand, is a hill in the Kohistan of Kabul, remarkable for a bed of sand on its southern face. This is subject to sliding movements, which occasion sonorous sounds. It is styled the Khwaja Reg-rawan, and is forty miles north of Kabul, near the foot of the Indian Caucasus. Burnes describes the sounds heard there as loud and hollow, very like those of a large drum, whilst sultan Baber speaks of the sounds of drums and nagarets, and the same instruments were specified by Odoric. A still more apt comparison is afforded by Captain Newbold's account of the like phenomenon in the Sinai desert, at the sand hill known as Jabal Nakus, " the Hill of the Bell." Dr. Wallin also was told when crossing a Wadi of the Sinai desert called Hamade, near Wadi Araba, that sometimes very strange sounds, like those of kettle drums or nakkara, were heard to rise from the earth, without any discoverable cause. Friar Odoric gives an account of a sandy hill, on which he heard the sound of invisible nakkara or drums. Mr. C. R. Markham says the musical sounds caused by moving sand, which astonished Odoric, are heard also in the deserts of the west coast of Peru. Mrs. Markham and himself heard them when they halted amidst the medano or hills of light sand in the Arequipa Desert. Another case was discovered by the late Hugh Miller in the Island of Eigg (Cruise of the Betsy, quoted in Petermann's Mittheilungen, 1858, p. 405.) Mr. Bollaert in his notice of the Bramador or Rumbling Mountain of Tarapaca, says the mountain of Tarapaca appears to be an instance distinct from Mr. Markham's—*J. G. S.*, xxi, 104, *quoted in Yule Cathay, I. p. ccxliv.*

REG-TILA. Hind, sand containing gold.

REGU CHETTU or Gunga Regu. Tel. Zizyphus jujuba, *Lam.*

REGU RAKU TIGE. Hirœa Indica. R. ii., 448—*Ic.* 381.

REGUTTI or Gullem also Guli. Tel. Capparis grandis, *L.*

REGULUS CRISTATUS. 'Golden-crested Regulus,' of Europe, N. Asia, Japan, W. Asia, Barbary : partially migratory, is replaced in the W. Himalaya by R. himalayensis.

REGULOIDES PROREGULUS. The Regulus modestus, or 'Dalmatian Regulus' of Asia is very rare in Europe : one specimen obtained in Dalmatia and another in England. Common in India with several affined species. See Birds ; Phylloscopus albogularis.

REH, Hind ; a deterioration of the land irrigated from the Ganges and Jumna canals which first attracted serious attention in the villages along the Western Jumna canal, and its branches, about Delhi, Paniput, Rohtak, and Karnal. In 1857, Mr. Sherer, Joint-Magistrate of Allygurh, went on a deputation to examine the tracts of country deteriorated, and the picture presented by him of the suffering in some of the villages was truly deplorable. Out of 580 canal villages, 59, or nearly 10 per cent had been injured in degrees ranging from severely to partially, 6 per cent being severely injured. The maximum appeared to be reached in Paniput where 46 villages, or 19 per cent were injured. The saline substance effloresces in several parts of the Punjab, where there are no canals at all ; in these places it appears in land irrigated from wells where the water is very far from the surface. The efflorescing salt consists of sulphate of soda with a variable proportion of chloride of sodium or common salt. Mr. Medlicott, found in a sample soil from near the Western Jumna canal, 76 per cent. In some of the instances given by Dr. O'Shaughnessy, the per-centage is much higher ; at Jagu, in Paniput, it was 20 per cent. As far as experience goes, lands near canals, like the Hasli, in the Lahore district, constructed at, but not below, the ordinary level of the water shed, are usually found to be free from Reh efflorescence. Generally speaking the farmers assert that fully impregnated Reh land is incurable and valueless. In gardens and small plots, it has been found useful to dig out the soil to the depth of 2 feet or so entirely, and putting in fresh soil. Nitrate of Lime as a manure is recommended. Whether this can be made conveniently and cheaply, remains yet to be seen.

REHAN. Hind. Ocimum basilicum.

REHANI. Hind. A 3rd quality of rice, which grows in the Simla states, &c.

REHAT, in buddhism, a being entirely free from evil desire, and possessing supernatural powers.—*Hardy's Eastern Monachism, p.* 440.

REHI. See Sarug.

REHMANNIA CHINENSIS. *Tatarinov.*

Ti-whang	Chin.	Mau-ti	Chin.
Sang-ti-whang		Mau-yuen	,,
Shah ti-whang	,,		

A plant of the order Gesneraceæ. Its roots are sun-dried and brought from Kwang-p'ing-fu in Peh-chihli, from Yuen-chan-fu in Kiang-si, and very largely from Hwai-king-fu in Ho-nan. The root is deemed by the Chinese, alterative and tonic.—*Smith's China Mat. Med.*

REHOBOTH. See Nineveh.

REICHARDIA DECAPETALA, *Rottl.* syn. of Cæsalpinia sepiaria.—*Roxb.*

REIGU. Tel. Zizyphus jujuba. *Linn.* Regu-Pandu, Tel. Its fruit.

REIM. See Jakun.

REINE. Hind. Rottlera tinctoria.

REINE KOHLE. Ger. Charcoal.

REISH SAFED or Resh-safed. Pers. literally, white beard, the elder or superior of a village. —*Fraser's Journey into Khorasan, p.* 208.

REJANG is the alphabet of Lemba and Pasummah on the western side of Sumatra. It consists of 23 substantive characters, formed of upright scratches or strokes, and on the whole it is more complete than either the Batak or Korinchi. See India ; Kyans ; Languages.

REIJORE. Bhot. Limnaetus Nipalensis.—*Hodgson.*

REK. Hind. of Kanawar, Amygdalus persica, the peach.

REKKALU. Tel. Feathers.

RELA CHETTU. Tel. Cassia fistula or Cathartocarpus fistula. *L.*

RELIC-RECEPTACLE. A Dehgopa.

RELIC WORSHIP. See Hindoo.

RELIGION. Of the religions of the S. and E. of Asia and philosophies which take their place, the demon and spirit and nature worship of the ruder races is perhaps the most ancient : the religion of the Jews, three thousand years old, may be the next, followed by the buddhist philosophy which seems to have been since 3,200 years, 850 years before Sakya Muni gave it fresh vigour, and is the most numerous of all. The philosophy put forth by Kung-fu-tse or Confucius about 700 years before Christ, has been added to and altered by subsequent sages of China. The Christian religion, first established in Western Asia nineteen centuries ago, and early taught in Africa, Arabia and Central and Eastern Asia, and at one time largely followed, has, at present, in India, but a comparatively small number of professors. If India and South Eastern Asia be looked at in their religious aspects, three polytheist faiths will be seen, Buddhism, Brahminism, and Shamanism : three monotheistic faiths, Jewish, Christian and Mahomedan ; a mixed faith the Sikh, partly monotheistic but believing in incarnations, and lastly the worship of fire as an element by the little numerous but intellectual Parsees. The followers of the various religions in the world, according to Hassel are, in millions,

Christians, ...	120	Brahmins, ..	111
Jews, nearly ...	4	Buddhists, ...	315
Mahomedans, ...	250		

The ancient history of India shows that it has had four great religious eras.—The Vedic, in which Agni, Indra and other personifications of spiritual existences were propitiated with feasts and invoked with the hymns of the Rig Veda, and in which maidens selected their husbands in the Swayamvara and monarchs sacrificed the horse in the Aswamedha. In the Brahminic period the Kshatriya feasts were converted into sacrifices for the atonement of sins against brahminical law, and divine worship was reduced to a system of austerities and meditations upon the Supreme Spirit as Brahma. It was in this era that the brahimns assumed the character of a great ecclesiastical hierarchy and established that priestly dominion which still extends over the minds and senses of the hindus of India. Thirdly, the Budd'hist period in which Sakyamuni appeared, and fourthly, the Brahminical revival during which brahmins abandoned the worship of their god Brahma, and reverted to the old national gods and heroes of the Vedic Aryans. In this era, Vishnu came to be regarded as the Supreme Being, and Rama and Krishna as his incarnations. Religion may be ethical, intellectual and affectional. The Chinese religion has never advanced beyond the latter, towards their parents.—*Wh. p.* 56.

RELIGIOUS FIG TREE. Eng. Ficus religiosa.—*Linn.*

RELIGIOUS MENDICANTS. See Gudara; Dhasre ; Dewanagi-wanlu ; Mendicants.

RELNU. Hind. Zizyphus flexuosa ; also Cæsalpinia sepiaria.

RELLU GADDI, also Billu-gaddi. Tel. Saccharum spontaneum, *L.*

RELOGES, Sp. Watches.

REMBHA. See Lakshmi ; Saraswati.

REMBUS. One of the Dicœlidæ, is found on the Malabar and Coromandel coasts, at Calcutta, and in Nepal : Panagæus has its chief habitat in India.

REMIJA. See Cinchona.

REMORA or Sucking Fish, generally found adhering to the back of a shark. See Fishes.

REMUSAT, a learned Parisian sinologue.

RENEALMIA NUTANS. *Andr.* Syn. of Alpinia nutans —*Roscoe.*

RENEALMIA CALCARATA. *Andh.* and Renealmia erecta *Redoute.* Syns. of Alpinia calcarata.—*Roscoe.*

RENEALMA SUMATRANA. *Donn.* Syn. of Alpinia Malaccensis.—*Roscoe.*

RENGA. TEL. Zizyphus jujuba.

RENNELL, author of a History of India, the first writer who gave any intelligible account of the countries now called British India.

RENNET.

Wfeheh	AR.	Maya	GUZ.
Panir	GUZ. HIND. PERS.		

The dried contents of the stomach of a calf, used for coagulating or curdling milk.—*Faulkner.*

RENOUL. See Himalaya.

REOBARBARO. IT. Rhubarb.

REODAN. HIND. Tecoma undulata.

RENPU. See Ken.

RENUKA, the wife of the rishi Jamadagni and mother of Parasurama, in S. India, identical with the gramadevata Ellammen.

REORA. HIND. Holarrhena pubescens; also Bignonia undulata.

REPTILES of Southern and Eastern Asia have been described by Dr. Gunther, in a volume published by the Ray Society, from information obtained from the Museums in London, and from drawings and descriptions by Sir W. Elliot; Mr. B. H. Hodgson; Sir A. Smith; Sir J. E. Tennant; Captain Beddome and Mr. L. S. Dillwyn, but the labours of Mr. Blyth, Drs. Jerdon, Kelaart, Cantor, Mason Hooker, have also been great.

FIRST SUB-CLASS, REPTILIA PROPER.

The order of Tortoises—Chelonia.

I. Land Tortoises-Testudinidæ.

Testudo elegans, *Schöpff.*	Penin. of India, Ceylon.
,, horsfieldii, *Gray*	Afghanistan.
,, elongata, *Blyth*	Gamboja, Arakan, Mergui.

II. Freshwater Tortoises—Emydidæ.

Manouria emys, *M. & Schl.*	Pinang, Arakan, Tenasserim.
Cuora amboinensis, *Daud.*	Eastern India.
,, flavomarginata, *Gray*	China, Formosa.
,, trifasciata, *Gray*	China.
Cyclemys oldhami, *Gray*	Mergui, Gamboja.
Pyxidea mouhotii, *Gray*	Cochin-china.
Notochelys platynota, *Gray.*	Singapore.
Geoemyda spinosa, *Gray*	Tenasserim, Pegu.
,, grandis, *Gray*	Gamboja.
Emys ocellata, *D. and* B.	Tenasserim, Pegu.
,, bealii, *Gray*	Southern China.
,, thurgi, *Gray*	Bengal, Penang.
Emys mutica, *Cantor*	Chusan.
,, nigricans, *Gray*	Southern China.
,, sinensis, *Gray*	Canton, Formosa.
Emys crassicollis, *Gray*	Mergui, Malayan Peninsula, Gamboja.
,, reevesii, *Gray*	Cochin-china, Southern China.
,, trijuga, *Schweigg*	Penin of India, Ceylon.
,, macrocephala, *Gray.*	Siam, Gamboja.
,, hamiltonii, *Gray*	Lower Ganges.
Pangshura tecta, *Gray*	
,, tentoria, *Gray*	Deccan, Indus.
,, flaviventer, *Gthr*	Bengal ?
,, smithii, *Gray*	Punjab ?
Batagur baska, *Gray*	Ganges, Irawaddy, Penang.
,, lineatus, *Gray*	Nepaul, Moulmein.
,, ellioti, *Gray*	Kistna River.
,, affinis, *Cantor*	Malayan Peninsula;
,, dhongoka, *Gray*	Nepal, Assam.
Platysternum megacephalum, *Gray*	China, Pegu.

III. Fresh water Turtles—Trionycidæ.

Emyda granosa, *Schöpff*	Hindostan, Sikkim, Bengal.
Emdya ceylonensis, *Gray*	Ceylon.
,, vittata, *Peters*	Goa.
Trionyx sinensis, *Weigm.*	China, Chusan, Formosa.
,, gangeticus, *Cuv.*	Ganges, Penang.
,, javanicus, *Schweigg.*	Ganges, Deccan, Penang.
,, ornatus, *Gray*	Siam, Gamboja.
,, subplanus, *Schweigg*	Singapore, Penang.
,, guntheri, *Gray*	
Chitra indica, *Gray*	Ganges, Malayan Penins.

IV. Marine Turtles—Chelonidæ.

Caouana olivacea, *Eschsch*	Coasts.
Chelonia virgata, *Flem*	Coasts.
Caretta squamata, *L.*	Coasts.
Dermatochelys coriacea, *L.*	Coasts.

THE ORDER OF LIZARDS—SAURIA.

I. Crocodiles—Crocodilidæ.

Crocodilus palustris, *Less.*	Ganges, Peninsula of India, Ceylon.
,, siamensis, *Schneid.*	Siam, Gamboja.
,, porosus, *Schneid.*	All rivers.
,, pondicerianus, *Gray*	Pondicherry.
Gavialis gangeticus, *Gm.*	Ganges.

II. Water Lizards—Varanidæ.

Varanus flavescens, *Gray.*	Ganges, Indus, Penang
,, dracæna, *L.*	From Bengal to Ceylon.
,, lunatus, *Gray*	
,, nebulosus, *Gray*	Bengal, Siam.
Hydrosaurus salvator, *Laur.*	China, Siam (Ceylon.)

III. Land Lizards—Lacertidæ.

Tachydromus sexlineatus, *Daud*	Rangoon.
,, meridionalis, *Gthr*	Southern China.
,, septentrionalis, *Gthr.*	N. China.
Cabrita leschenaultii, *Edw.*	Coromandel.
Ophiops jerdoni, *Blyth*	Mhow.
Acanthodactylus cantoris, *Gthr.*	Ramnuggar.
,, nilgherrensis, *Jerd.*	Coonoor.

IV. Cordyles—Zonuridæ.

Pseudopus gracilis, *Gray*	Khasya.

V. Skinks—Scincidæ.

Tropidophorus microlepis, *Gthr.*	Chartaboum.
,, cochin-chinensis, *Cuv.*	Cochin-china.
,, aspris berdmorreii, *Bly.*	Mergui.
Euprepes chinensis, *Gray.*	China.
,, rufescens, *Shaw*	From Afghanistan to China.
,, monticola, *Gthr.*	Sikkim.
,, olivaceus, *Gray*	Malayan Peninsula.
,, macularius, *Blyth*	Rungpore ?
,, trilineatus, *Gray*	Carnatic.
Mabouia quadrilineata, *Bly.*	Hongkong.
,, chinensis, *Gray*	China.
,, maculata, *Blyth*	Assam.
Eumeces bilineatus, *Gr.*	Neilgherries.
,, himalayanus, *Gthr.*	Himalayas.
,, schlegelii, *Gthr.*	Sikkim.
,, modestus, *Gthr.*	Ningpo.
,, reevesii, *Gray*	China.
,, ladacensis, *Gthr.*	Tibet.
,, formosus, *Blyth*	Mirzapore, Wuzeerabad
,, indicus, *Gray*	Sikkim.
,, taprobanensis, *Kelaart.*	Ceylon.
Eumececes chalcides, *L.*	Penang, Siam, Hongkong.
,, siamensis, *Gthr.*	Siam.
,, bowringii, *Gthr.*	Hongkong.
,, albopunctatus, *Gray*	Nellore, Mergui.
,, hardwickii, *Gray*	Peninsula of India.
,, punctatus, *B.*	Peninsula of India.
,, isodactylus, *Gthr.*	Gamboja.
Hagria vosmærii, *Gray.*	Bengal.
Chiamela lineata, *Gray*	
,, anguismelanosticta, *Merr.*	Coromande.

VI. Acontiads—Acontiadidæ.

Acontias layardi, *Kelaart*	Colombo.
Nessia burtonii, *Gray*	Ceylon.
,, monodactyla, *Gray*	Ceylon.

VII. Sand Lizards—Sepsidæ.

Sphenocephalus, tridactylus, *Blyth*	Afghanistan.

VIII. Geckos—Geckotidæ.

Gecko guttatus, *Daud.*	From Southern India to China.
,, stentor, *Cant.*	Penang.
,, smithii, *Gray.*	Prince of Wales' Island
,, monarchus, *D. & B.*	Malayan Peninsula, Ceylon.
,, japonicus. *D. & B*	China, Chusan.
,, swinhonis, *Gthr.*	Northern China.
,, subpalmatus, *Gthr.*	Chikiang.
Ptychozoon, homalocephalum, *Creveldt.*	Penang, Singapore.
Hemidactylus, triedrus, *Daud.*	Ceylon, Peninsula of India.
,, maculatus, *D. & B.*	From Ceylon to China.
,, sykesii, *Gthr.*	Deccan.
,, frenatus, *D. & B*	From Ceylon to Siam.
,, leschenaultii, *D. & B.*	Madras.
,, punctatus, *Jerd*	Tellicherry.
,, coctæi, *D. & B.*	Penang, Bombay, Ceylon.
,, leiurus berdmorei, *Blyth*	Mergui.
Peripia peronii, *D. & B.*	Penang, Ceylon.
,, cantoris, *Gthr.*	Penang.
Nycteridium schneideri, *Shaw.*	Ceylon, Bengal, Assam, Siam, Penang.
Phelsuma, andamanense, *Blyth.*	Andaman Islands.
Gymnodactylus triedrus, *Gthr.*	Ceylon.
,, pulchellus, *Gray*	Penang, Singapore.
,, frænatus, *Gthr.*	Ceylon.
,, kandianus, *Kelaart.*	Ceylon.
,, mysoriensis, *Jerdon*	Bangalore.
,, indicus, *Gray*	Nilgherries.
,, (malabaricus *Jerdon*	Malabar.
,, littoralis, *Jerdon*	Malabar.
,, deccanensis, *Gthr.*	Deccan.
,, variegatus, *Blyth*	Moulmein.
,, naultinus fasciolatus, *Blyth*	Subathoo.
Pentadactylus borneensis, *Gthr.*	Borneo.
,, felinus, *Gthr.*	Singapore.
,, duvaucelii, *D. & B.*	Bengal.
Puellula rubida, *Blyth*	Andaman Islands.
Eublepharis hardwickii, *Gray.*	Peninsula of India.

IX. Agames—Agamidæ.

Draco volans, *L.*	Penang, Singapore.
,, reticulatus, *Gthr.*	Philippine Islands.
,, timorensis, *Kuhl*	Timor.
,, cornutus, *Gthr.*	Borneo.
,, fimbriatus, *Kuhl*	Java.
,, maculatus, *Gray*	Siam, Penang, Tenasserim.
,, spilopterus, *Wiegm*	Manilla.
,, dussumieri, *D. & B.*	Peninsula of India.
,, quinquefasciatus, *Gray.*	Penang.
,, tæniopterus, *Gthr*	Siam, Tenasserim.
,, hæmatopogon, *Boie.*	Java
,, bimaculatus, *Gthr.*	Philippine Islands
,, lineatus, *Daud*	Amboyna, Celebes.
,, rostratus, *Gthr*	Borneo ?
Otocryptis bivittata, *Wiegm.*	Ceylon.
Lyriocephalus scutatus, *L.*	Ceylon.
Ceratophora stoddartii, *Gray.*	Ceylon.
,, tennentii, *Gthr*	Ceylon.
,, aspera, *Gthr.*	Ceylon.
Cophotis ceylanica, *Peters.*	Ceylon.
Japalura variegata, *Gray.*	Sikkim.
,, swinhonis, *Gr.*	Formosa.
,, polygonata, *Hallowell.*	Loochoo.
Sitana pondiceriana, *Cuv.*	Western India.
,, minor, *Gthr.*	Madras, Ceylon.
Dilophyrus grandis, *Gray.*	Rangoon.
Bronchocela cristatella, *Kuhl.*	Malayan Peninsula.
,, smaragdina, *Gthr.*	Gamboja.
,, jubata, *D. & B.*	Pondicherry.
Calotes versicolor, *Daud.*	Ceylon, Continent of India.
,, nemoricola, *Jerd*	Neilgherries.
,, mystaceus, *D. & B.*	Pegu, Siam, Mergui, Ceylon.
,, rouxii, *D. & B.*	
,, ophiomachus, *Merr.*	Ceylon, Southern India.
,, platyceps, *Blyth.*	Cherra Punji.
Calotes nigrilabris, *Peters.*	Ceylon.
,, emma, *Gray.*	Mergui.
,, maria, *Gray.*	Himalayas.
Salea horsfieldii, *Gray*	Neilgherries, Ceylon.
Oriocalotes minor, *Gray.*	Himalayas.
Acanthosaura armata, *Gray.*	Eastern India.

Acanthosaura capra, *Gthr.*	Chartaboum.
,, coronata, *Gthr.*	Chartaboum.
Oriotiaris ellioti, *Gthr*	Sikkim.
Tiaris tiara subcristata, *Blyth.*	Port Blair.
Physignathus cochinchinensis, *Cuv.*	Cochin China.
,, mentager, *Gthr.*	Chartaboum.
Liolepis guttatus, *Cuv.*	Eastern India, China.
Uromastix hardwickii, *Gray.*	Hindostan.
Charasia dorsalis, *Gray*	Southern India.
Stellio tuberculatus, *Gray.*	Upper Hindostan, Himalaya.
Trapelus megalonyx, *Gthr.*	Afghanistan.
Phrynocephalus tickelii, *Gray.*	Afghanistan.
,, caudivolvulus, *Pall.*	Tibet.
,, brachysaura ornata, *Blyth.*	Sagur.

FAMILY OF CHAMELEONS—CHAMÆLEONIDÆ.

Chamæleo vulgaris, *Daud.*	Peninsula of India, Ceylon.

THE ORDER OF SNAKES—OPHIDIA.

First Sub-order. Innocuous Snakes.

I. Blind Snakes—Typhlopidæ.

Typhlina lineata, *Boie*	Penang, Hongkong.
Typhlops nigroalbus, *D. & B.*	Penang, Singapore.
,, horsfieldii, *Gray.*	Khasya, Assam, Tenasserim, Cochin-China.
Typhlops bothriorhynchus, *Gthr:*	Penang.
,, striolatus, *Peters.*	Bengal.
,, siamensis, *Gthr*	Siam.
,, braminus, *Daud.*	All over the Continent, Ceylon.
,, pammeces (tenuis) *Gthr.*	Madras.
,, mirus, *Jan.*	Ceylon.
Onychocephalus acutus, *D. & B.*	Peninsula of India.

II. Short-tails—Tortricidæ.

Cylindrophis rufus, *Laur*	Gamboja, Singapore, Tranquebar.
,, maculatus, *L.*	Ceylon.

III. Xenopeltides—Xenopeltidæ.

Xenopeltis unicolor, *Reinw.*	Malayan Peninsula, Gamboja.

IV. Rough-tails—Uropeltidæ.

Rhinophis oxyrhynchus, *Schneid*	Ceylon.
,, punctatus, *Müll.*	Ceylon.
,, philippinus, *Cuv.*	Ceylon.
,, trevelyanus, *Kelaart*	Ceylon.
,, sanguineus, *Beddome*	Wynad.
,, blythii, *Kelaart.*	Ceylon.
,, pulneyensis, *Beddome*	Pulney Hills.
Uropeltis grandis, *Kelaart*	Ceylon.
Silybura macrolepis, *Peters*	Peninsula of India.
,, beddomii, *Gthr*	Peninsula of India.
,, ocellata, *Beddome*	Neilgherries.
Silybura ellioti, *Gray.*,	Madras, Deccan.
,, bicatenata, *Gthr*	Deccan.
,, shorttii, *Beddome.*	Shevaroy Hills.
,, brevis, *Gthr.*	Anamallay Hills, Neilgherries.
Plectrurus perrotetii, *D. & B*	Madras, Neilgherries.
,, guntheri. *Beddome*	Neilgherries.
Melanophidium wynandense, *Beddome*	Wynad.

V. Dwarf Snakes—Calamaridæ.

Calamaria siamensis, *Gthr.*	Siam, Cochin-China.
,, quadrimaculata, *D. and B.*	(Java.)
,, albiventer, *Gray*	Penang.
,, nigro-alba, *Gthr*	Penang.
Calamaria leucocephala, *D. and B.*	
,, catenata, *Blyth*	Assam.
,, reticulata, *Blyth.*	Assam.
Macrocalamus lateralis, *Gthr.*	
Oxycalomus longiceps, *Cantor.*	Penang.
Geophis microcephalus, *Gthr.*	Madras.
,, (Platypteryx, perroteti,) *D. and B.*	Neilgherries.
Aspidura brachyorrhos, *Boie*	Ceylon.
,, copii, *Gthr.*	
,, trachyprocta, *Cope.*	Ceylon.
Haplocercus ceylonensis, *Gthr.*	Ceylon.

VI. Oligodontes—Oligodontidæ.

Oligodon subgriseus,	Peninsula of India.
,, spilonotus, *Gthr.*	Madras.
,, ellioti, *Gthr.*	Madras.
,, subpunctatus, *D. and B.*	Coast of Malabar.
,, spinipunctatus, *Jan.*	
,, fasciatus, *Gthr.*	Deccan.
,, sublineatus,	Ceylon.
,, affinis, *Gthr.*	Anamallay Hills.
,, templetonii, *Gthr*	Ceylon.
,, modestus, *Gthr.*	
,, dorsalis, *Gray*	Afghanistan ?
,, brevicauda, *Gthr*	Anamallay Hills.
Simotes venustus, *Jerdon*	Peninsula of India.
,, russellii, *Daud.*	Ceylon, Peninsula of India, Himalayas.
,, binotatus, *D. & B.*	Peninsula of India.
,, albiventer, *Gthr.*	Ceylon.
,, signatus, *Gthr.*	Singapore.
,, cinereus ,,	Gamboja.
,, swinhonis, ,,	Amoy.
,, tæniatus ,,	Gamboja, Bangkok.
,, trilineatus, *D & B.*	
,, punctulatus, *Gray*	Himalayas.
,, labuanensis, *Gthr.*	Borneo.
,, bicatenatus, ,,	
,, albocinctus, *Cantor*	Assam.
,, fasciolatus, *Gthr.*	Pachebone.
,, cochinchinensis, *Gthr.*	Lao Mountains.
,, trinotatus, *D. & B.*	Penang, China.

VII. Colubrides.—Colubridæ.

Ablabes baliodirus, *Boie.*	Penang.

Ablabes tenuiceps, *Blyth*	Nepal, Darjeeling.
,, fuscus, *Blyth* ...	Himalayas.
,, rappii, *Gthr.* ...	Himalayas.
,, bicolor, *Blyth* ...	Khasya.
,, olivaceus, *Beddome* ...	Neilgherries.
,, sagittarius, *Cantor* ...	Penang, Bengal, Himalayas.
,, humberti, *Jan* ...	Madras, Ceylon.
,, collaris, *Gray* ...	Khasya, Nepal.
,, melanocephalus, *Gray* ...	Malacca.
Cyclophis major, *Gthr.*	China.
,, frænatus, *Gthr.* .	Afghanistan.
,, calamaria ,, ...	Ceylon, Peninsula of India.
,, nasalis, *Gthr.* ...	
,, monticola, *Cantor.*	Assam.
Odontomus nympha, *Daud* ...	Vellore.
,, semifasciatus, *Gthr.* ...	
,, gracilis, *Gthr.* ...	Madras Presidency.
Nymphophidium maculatum, *Gthr.*...	
Elachistodon westermanni, *Reinh* ..	
Coronella orientalis, *Gthr.*	
Coluber rufodorsatus, *Cantor* ...	China.
,, mandarinus, *Cantor* ...	Chusan.
,, porphyraceus, *Cantor* ...	Khasya, Assam.
Elaphis dione, *Pall* ...	Northern China.
,, sauromates, *Pall.*	Ningpo.
,, tæniurus, *Cope* ...	China, Siam.
Compsosoma radiatum, *Reinw.* ...	Eastern India.
,, melanurum, *Schleg*	Bengal, China.
,, reticulare, *Cantor*	Himalayas, Assam.
,, hodgsonii, *Gthr*...	Himalayas.
Cynophis helena, *Daud*	Ceylon, Madras.
,, malabaricus, *Jerdon* ...	Peninsula of India.
Ptyas mucosus, *L.* ...	All over the Continent, Ceylon.
,, korros, *Reinw* ...	Eastern India.
Xenelaphis hexahonotus, *Cantor* ...	Arakan, Penang, Singapore.
Zamenis diadema, *Schleg.*	Afghanistan, Sindh.
,, ventrimaculatus *Gray* ...	Western India.
,, gracilis, *Gthr.* ...	Deccan, Sindh.
,, fasciolatus, *Shaw*	Peninsula of India, Bengal, Province Wellesley.
Zaoys fuscus, *Gthr.* ...	Borneo.
,, carinatus, *Gthr*...	,,
,, dhumnades, *Cantor* ...	Chusan, Ningpo.
,, nigromarginatus, *Blyth* ...	Himalayas.
Herpetoreas sieboldii, *Gthr.* ...	Sikkim.
Tropidonotus quincunciatus, *Schleg* ...	All over India.
,, annularis, *Hallowell* ...	China.
,, trianguligerus, *Reinw.* ...	Penang.
macrophthalmus, *Gthr.* ...	Himalayas.
Tropidonotus dorsalis, *Gthr*	Chikiang.
,, macrops, *Blyth* ..	Darjiling.
,, platyceps, *Blyth*...	Himalayas.
,, subminiatus, *Reinw.*	Eastern India.
,, himalayanus, *Gthr*	Himalayas.
,, angusticeps, *Blyth*	Assam, Arakan.
,, stolatus, *L.* ...	All over the Indian Continent.
,, monticola, *Jerdon*	Anamalay Hills.
,, junceus, *Cantor*..	Penang, Chikiang.
,, ceylonensis, *Gthr.*	Ceylon.
,, beddomii, *Gthr*...	Neilgherries.
,, nigrocinctus, *Blyth.*	Pegu ? Tenasserim.
,, flavipunctatus, *Hallow*...	Hongkong.
,, zebrinus, *Blyth* ...	Mergui.
,, tigrinus, *Boie* ...	Northern China.
,, leucomelas, *Gthr.*	Penang.
,, plumbicolor, *Cantor.*	Madras Presidency.
Atretium schistosum, *Daud.*	From Ceylon to the Malayan Peninsula.
Xenochrophis cerasogaster, *Cantor.*	Malayan Peninsula, Bengal, Assam, Khasya.
Prymnomiodon chalceus, *Cope* ...	Siam.

VIII—Fresh-water Snakes—Homalopsidæ.

Fordonia unicolor, *Gray*...	Penang.
Cantorio elongata, *Gthr*..	Singapore.
Cerberus rhynchops, *Schneid* ...	From Ceylon to Siam.
Hypsirhina plumbea, *Boie.*	Eastern India.
,, enhydris, *Schneid*..	Bengal, Eastern India.
,, jagorii, *Peters* ..	Siam.
,, bennettii, *Gray* ..	China.
,, chinensis, *Gray* ..	China.
Ferania sieboldii, *Schleg.*	Bengal Province Wellesley.
Homalopsis buccata, *L* ...	Malayan Peninsula, Gamboja.
Hipistes hydrinus, *Cant*..	Penang.
Herpeton tentaculatum, *Lacep* ...	Siam.

IX. Desert Snakes—Psammophidæ.

Psammophis condanarus, *Merr.* ...	Peninsula of India.
Psammodynastes pulverulentus, *Boie* ...	Eastern India.

X. Tree Snakes—Dendrophidæ.

Gonyosoma oxycephalum, *Boie.* ...	Penang, Tenasserim.
,, gramineum, *Gthr*...	Khasya.
,, frænatum, *Gray* ..	Khasya.
Phyllophis carinata, *Gthr.*	China.
Dendrophis picta, *Gm*...	All over India.
,, caudolineata, *Gray.*	Penang, Sigapore.
Chrysopelea ornata, *Shaw.*	All over India.
,, rubescens, *Gray*...	

XI. Whip-Snakes—Dryiophidæ.

Tropidococcyx perroteti, *D. & B.* ...	North Canara.
Tragops prasinus, *Reinw.*	Eastern India.
,, dispar, *Gthr* ...	Anamallay Mountains.
,, fronticinctus, *Gthr.*	
Passerita mycterizans, *L.*	Ceylon, Peninsula of India
,, purpurascens, *Gthr.*	Ceylon.

XII. Dipsades—Dipsadidæ.

Dipsas cynodon, *Cuv* ...	Malayan Peninsula.

Dipsas, forsteni *D. & B.*	Anamallay Mountains
,, boops, *Gthr*	Bengal.
,, dendrophila *Reinw.*	Malayan Peninsula.
,, bubalina, *Klein*	Assam, China ?
,, multimaculata, *Schleg.*	Bengal, Eastern India.
,, trigonata, *Schneid.*	Peninsula of India, gal.
,, multifasciata, *Blyth.*	Subathoo.
,, gokool, *Gray.*	Penang, Bengal.
,, ceylonensis, *Gthr.*	Ceylon.

XIII. Lycodontes—Lycodontidæ.

Lycodo aulicus, *L*	Ceylon and Continent of India.
,, laoensis, *Gthr.*	Cochin-China.
,, striatus, *Shaw*	Peninsula of India.
,, anamallensis, *Gthr.*	Anamallay Mountains.
,, rufozonatus, *Cant.*	Chusan.
Tetragonosoma effrene, *Cant.*	Penang.
,, atropurpureum, *Cant.*	Mergui.
Leptorhytaon jara, *Shaw.*	Peninsula of India, Bengal, Assam.
Ophites subcinctus, *Boie.*	Penang.
,, albofuscus, *D. & B.*	Coast of Malabar.
Cercaspis carinata, *Kuhl.*	Ceylon.

XIV. Blunt-Heads—Amblycephalidæ.

Amblycephalus boa *Kuhl.*	Penang.
Pareas carinata, *Reinw.*	Cochin-China.
,, monticola, *Cant.*	Assam.
,, lævis, *Kuhl*	Cochin-China, Khasya.

XV. Rock Snakes—Pythonidæ.

Python reticulatus, *Schneid.*	Malayan Peninsula.
,, molurus, *L*	Peninsula of India, Bengal, Nepal.

XVI. Sand Snakes—Erycidæ.

Gongylophis conicus, *Schneid.*	Peninsula of India, Sikkim.
Cursoria elegans, *Gray*	Afghanistan.
Eryx johnii, *Russell.*	Peninsula of India, Punjab, Sikkim.

XVII. Wart Snakes.—Acrochordidæ.

Acrochordus javanicus, *Hornst.*	Penang, Singapore.
Chersydrus granulatus, *Schneid.*	Eastern coasts of Southern India, Malayan Peninsula.

Second Sub-order. Venemous Colubrine Snakes.

I. Terrestrial—Elapidæ.

Naja tripudians, *Merr.*	Over nearly entire India.
Ophiophagus elaps, *Schleg.*	Over nearly entire India.
Bungarus cæruleus, *Schneid.*	Peninsula of India, Bengal, Assam.
,, fasciatus, *Schneid*	Continent of India.
,, ceylonicus, *Gthr.*	Ceylon.
,, semifasciatus, *Kuhl.*	China, Formosa.
Xenurelaps bungaroides, *Cantor*	Assam.
Megærophis flaviceps, *Reinh.*	Penang.
Callophis bivirgatus, *Boie.*	Malayan Peninsula.
,, intestinalis, *Laur.*	Malayan Peninsula.
,, gracilis, *Gray*	Penang and Singapore.

Callophis macclellandii, *Reinh.*	Himalayas, Nepal, Assam.
,, annularis, *Gthr.*	
,, trimaculatus *Daud.*	Tenasserim, Bengal.
,, maculiceps, *Gthr.*	Malayan Peninsula.
,, nigrescens, *Gthr.*	Neilgherries.

II. Sea Snakes—Hydrophidæ.

Platurus scutatus, *Laur.*	Indian Ocean, Pacific.
,, fischeri, *Jan*	Indian Ocean.
Aipysurus anguillæformis, *Schmidt.*	Australia Seas.
,, lævis, *Lacep.*	Northern Australia.
,, fuscus, *Tschudi.*	Australia.
Disteria doliata, *Laceps.*	
Acalyptus superciliosus *D. & B.*	South Western Pacific.
Hydrophis Jerdonii, *Gray.*	Madras, Penang.
,, Stokesii, *Gray.*	Northern Australia.
,, major, *Shaw.*	Indian Ocean.
,, robusta, *Gth.*	Indian Ocean.
,, belcheri, *Gray.*	New Guinea.
,, cærulescens, *Shaw.*	Indian Ocean.
,, aspera, *Gray.*	Singapore.
,, spiralis, *Shaw*	Indian Ocean.
,, cyanocincta, *Daud.*	Indian Ocean.
,, melanosoma, *Gthr.*	
,, subcincta, *Gray.*	Indian Ocean.
,, nigrocincta, *Daud.*	Bengal.
,, elegans, *Gray*	Australia.
,, torquata, *Gthr*	Penang.
,, chloris, *Daud*	Madras, Bengal, Penang.
,, lindsayi, *Gray*	China, Siam, Malabar.
,, atriceps, *Gthr.*	Siam.
,, latifasciata, *Gthr.*	Mergui.
,, coronata, *Gthr.*	Bengal.
,, diadema, *Gthr.*	
,, gracilis, *Shaw.*	Madras, Java.
,, fasciata, *Schneid.*	Vizagapatam.
,, cantoris, *Gthr.*	Penang.
,, lapemoides, *Gray.*	Ceylon, Madras.
,, longiceps, *Gthr*	Indian Ocean.
,, stricticollis, *Gthr.*	Indian Ocean.
,, ornata, *Gray*	Indian Ocean.
,, ellioti, *Gthr*	Siam, Madras, Ceylon.
,, pachycercus, *Fisch.*	East Indian Archipelago.
,, viperina, *Schmidt.*	Madras, Java.
,, ocellata, *Gray.*	Australia.
,, anomala, *Schmidt.*	Samarang.
,, curta, *Shaw*	Madras.
,, hardwickii, *Gray.*	Penang.
,, loreata, *Gray*	Borneo, Philippines.
Enhydrina, bengalensis, *Gray*	Indian Ocean.
Pelamis bicolor, *Schneid.*	Indian & Pacific Ocean.

Third Sub-order. Viperine Snakes.

I. Pit-vipers—Crotalidæ.

Trimeresurus gramineus, *Shaw*	Eastern parts of the continent.
,, erythrurus, *Cant.*	China, Bengal, Siam, Java.
,, carinatus, *Gray*	Sikkim, Bengal, Rangoon.
,, purpureus, *Gray.*	Penang, Singapore.
,, anamallensis, *Gthr.*	Anamallay Hills.
,, monticola, *Gthr*	Nepal, Sikkim.
,, wagleri, *Schleg*	Malayan Peninsula.
Trimeresurus strigatus, *Gray*	Nilgherries, Deccan.
,, trigonocephalus, *Merr.*	Ceylon.

Trimeresurus mucrosquamalus, *Cant.* ..	Assam.
Peltopelor macrolepis, *Beddome* ...	Anamallay Hills.
Calloselasma rhodostoma, *Reinw.* ...	Siam.
Halys blomhoffii, *Boie* ...	Japan, Formosa.
,, pallasii, *Gthr* ...	Tartary.
,, himalayanus, *Gthr.*	Tibet.
,, ellioti, *Jerd* ...	Nilgherries.
Hypnale nepa, *Laur* ...	Ceylon, Southern India.

II. Vipers—Viperidæ.

Daboia russellii, *Shaw* ...	Ceylon, Southern India, Himalayas.
Echis carinata, *Schneid* ...	Southern India.

SECOND SUB-CLASS, BATRACHIANS.

The Order of Tailless Batrachians—Batrachia Salienta.

Oxyglossus lima, *Tschudi* ..	Siam, Gamboja, China.
Dicroglossus adolfi, *Gthr* ...	Himalayas.
Rana kuhlii, *Schleg* ...	Ceylon, Ningpo.
,, hexadactyla, *Less* ...	Ceylon, Madras.
,, cyanophlyctis, *Schneid.*	Ceylon, Southern India, Lower Bengal.
,, tigrina, *Daud.* ...	Sikkim, Nepal.
,, liebigii, *Gthr.*	All over India.
,, esculenta, *L.* ...	China.
,, silvatica, *Leconte* ...	Ningpo.
,, gracilis, *Wiegm* ...	From Madras to Southern China.
Hoplobatrachus ceylanicus, *Peters* ...	Ceylon.
Pyxicephalus breviceps, *Schneid.* ...	Southern India, Himalayas.
,, rufescens, *Jerdon* ...	Coast of Malabar.
Megalophrys montana, *Kuhl.*	Penang, Ceylon.
Xenophrys monticola, *Gthr.*	Khasya, Sikkim.
Cacopus systoma, *Schneid*..	Carnatic.
,, globulosus, *Gthr* ...	Russelconda.
Diplopelma ornatum, *D. & B.*	Southern India, Ceylon.
,, pulchrum, *Hallow* ...	Siam, China.
Bufo vulgaris, *Laur* ...	China, Himalayas.
,, calamita, *Laur* ...	Tibet.
,, kelaartii, *Gthr* ...	Southern Ceylon.
,, galeatus, *Gthr* ...	Gamboja.
,, melanostictus, *Schneid.*	All over India.
,, asper, *Schleg* ...	Mergui.
Hylorana macrodactyla, *Gthr.*	Hongkong.
,, erythræa, *Schleg* ...	Malayan Peninsula. South coast of Siam,
,, macularia, *Blyth*.. ...	Ceylon
,, malabarica, *D. & B.*...	Coast of Malabar.
,, temporalis, *Gthr* ...	Ceylon.
Polypedates maculatus, *Gray.*	All over the Continent of India and Ceylon.
,, quadrilineatus, *Wiegm.*	Penang, Singapore.
,, microtympanum, *Gthr.*	Ceylon.
,, pleurostictus, *Gthr.* ...	Madras Presidency.
,, reticulatus, *Gthr.* ...	Ceylon.
,, eques, *Gthr.* ...	Ceylon.
,, afghana, *Gthr.* ...	Afghanistan.
Ixalus variabilis, *Gthr* ...	Ceylon.
,, temporalis, *Gthr.* ...	Ceylon.
,, femoralis, *Gthr.* ...	Ceylon.
,, leucorhinus, *Martens*....	Ceylon.
Ixalus schmardanus, *Kelaart.* ...	Ceylon.
Rhacophorus maximus, *Gthr.* ...	Nepal, Sikkim, Afghanistan.
Hyla chinensis, *Gthr* ..	Southern China, Formosa.
Callula pulchra, *Gray*..	Ceylon, Eastern India, China.
,, obscura, *Gray*....	Ceylon.
Bombinator Sikkimensis, *Blyth*...	Sikkim.

The Order of Tailed Batrachians—Batrachia Gradientia

Cynops chinensis, *Grey.*	Ningpo.
Plethodon persimilis, *Gray.* ...	Siam.

The Order of Burrowing Batrachians—Batrachia Apoda.

Epicrium glutinosum, *L.*	Ceylon, Southern India, Khasya, Siam, Tenasserim.
,, monochroum, *Blkr.*	Singapore.
Cœcilia oxyura, *D. & B.*	Coast Malabar.

The Reptiles are oviparous or ovoviviparus vertebrate animals with red, cold blood, with three cavities of the heart, breathing by lungs either during the whole period or, at least, in the later stages of their growth. They are naked; but frequently the skin shows scale-like folds, or is tubercular, or forms osseous scutes.

The First Sub-class or Reptilia Proper have only one ventricle of the heart, incompletely divided; two atria. Never possessing branchiæ at any period of life. One occipital condyle. Skin with scale-like folds, or tubercular, or forming osseous scutes. This sub-class comprises the Order of Tortoises (Chelonia) that of the Lizards (Sauria) and that of the snakes (Ophidia).

The order of Tortoises, or Chelonia are Reptiles with the bones of the thorax united into a carapace.

The Land Tortoises—Testudinidæ. Only one genus is found in British India.

Testudo Elegans, or Starred Tortoise.

Testudo elegans *Schoepff,* p. 111., *tab.* 25 Young.

Testudo stellata, *Schweig Prodr.* sp. 13.

Testudo actinodes, *Bell, Zool. Journ.* iii. p. 419. iv. tab. suppl. 23 (24) and *Testud.* Pl. (gibbous variety.)

——— stellata, *Gray's Synops. Rept.* p. 12. tab. 2 (middle age).

——— geometrica, *Hutton, Journ. As. Soc. Beng.* vi. 1837, p. 689., pl. 38 (adult male).

——— megalopus, *Blyth, Journ. As. Soc. Beng.* xxii. 1853. p. 640 is, according to an oral communication by *Mr. Blyth,* identical with T. elegans.

This species is not very scarce, and is probably found in many parts of the Peninsula of Southern India Well authenticated localities are Madras, Coromandel, the low jungles of the Carnatic, Pondicherry, and Ceylon. According to Mr. Blyth, it does not inhabit Lower Bengal, and is rarely brought alive to Calcutta. The shell attains to a length of 12 inches, larger specimens being very scarce.

Testudo Horsfieldii. *Gray.* Afghan Tortoise.

Homopus burnesii, *Blyth, Journ. As. Soc. Beng.*, xxii. 1854, p. 642.

Found in Afghanistan, extends to Nepal, resembles T. græca, the habits of both probably being alike.

Testudo elongata. *Blyth, Journ. As. Soc. Beng.* xxii. 1853, p. 639. *Gray, Proc. Zool. Soc.* 1856. p. 181, pl. 9, *Ann. & Mag. Nat. Hist.* 1861, vi. p. 218.

The Burmese Tortoise, 18 in. long, of Arakan, Burmah, Tenasserim, Gamboja.

SECOND FAMILY.

The Fresh-water Tortoises—Emydidæ.

Shell sometimes convex, generally more or less depressed. Toes distinct, webbed; feet for walking and swimming; claws 5 (4)—4. Shell with horny shields; caudal shields separate.

Manouria emys. The Brown Tortoise.

Testudo emys, *Müll and Schleg. Verhand. Nat. Geschied. Rept. p.* 34, tab. 4.

Manouria fusca, *Gray, Proc. Zool. Soc.* 1852, *p.* 133, and *Shield, Rept.* p. 16, tab. 3 and *Proc. Zool. Soc.* 1860, p. 395, *Rept.* p. 31.

Testudo phayrei, *Blyth, Journ. As. Soc. Beng.* xxii, 1853, p. 639.

Teleopus luxatus, *Leconte, Proc. Acad. Nat. Sc. Philad.* 1854, p. 187.

This species grows to a rather large size, the shell of a specimen in the British Museum being 19½ inches long, 14 inches broad, and 7½ inches deep. It is found at Penang, in Arakan and the Tenasserim Provinces in Java, Sumatra and the Murray river in Australia.

Cuora Amboinensis. *Gray.* Baning or Cuoro.

Testudo amboinensis, *Daud, Rept.* ii. p. 309.

Cistudo amboinensis. *Gray. Ill. Ind. Zool.* tab.

Dum and Bibr. Erpet, gen. ii. p. 215, pl. 15, fig 2.

Terrapene bicolor, *Bell. Zool. Journ.* ii. p. 484. tab. 16.

This species attains to a length of 8 inches; it is found in nearly all the tropical parts of India, at least near the coasts of Penang, Singapore, the Tenasserim Provinces, Gamboja, Sumatra, Java, Amboyna, Gilolo, and the Philippine Islands. The Malayas of the Peninsula call it Baning. It is more terrestrial in its habits than aquatic.

Cuora flavomarginata. Black-bellied Box Tortoise.

Cystoclemys flavomarginata. *Gray,*

Its shell attains to a length of 7½ inches.

Cuora trifasciata. Chinese Box Tortoise.

Cistudo trifasciata, *Gray, Syn. Rept.* p. 19. *Illust. Ind. Zool.* tab.

Sternotherus trifasciatus, *Bell, Zool. Journ.* ii. p. 299. tab. 13.

Seems restricted to China; shell 7 in. long.

Cyclemys oldhami, *Gray,* from Mergui and Gamboja; 8 inches long. The Lao mountains in Cochin China; shell 3 to 7 in. long does not alter much with age.

Pyxidea Mouhotii, *Gray, MS.*

Cyclemys mouhotii, *Gray in Ann. and Mag. Nat. Hist.* 1862, x. p. 157.

The Lao Mountains in Cochin China; shell 3 to 7 in. long: does not alter much with age.

Notochelys platynota. *Gray, MS.* Flat-backed Emys.

Emys platynota, *Gray, Proc. Zool. Soc.* 1834, p. 54; *Illustr. Ind. Zool.* tab.

Shell 10 inches long. Singapore.

Geoemyda spinosa. *Gray.* The Spinous Tortoise.

Emys spinosa, *Gray, Illustr. Ind. Zool. Bell, Testud.* tab. (young).

Malay Peninsula, Penang, Singapore and Sumatra; habits aquatic, the hind toes webbed.

Geoemyda grandis. *Gray. Ann. & Mag. Nat. Hist.* 1861, VI. *p.* 218.

Emys siamensis (*Gray MS.*) *Gunth. Proc. Zool. Soc.* 1860, *p.* 218.

Gamboja, 17 to 18 inches long.

Emys.

Pond Tortoises. Terrapens.

The species of this genus inhabit all the temperate and tropical regions, except Australia. Formerly (between the latest geological and the historical periods) the genus had even a still greater geographical range than now, a species in a semi-fossil state being found in England and in other European countries, where it is extinct at present. The species undergo great changes in external appearance with age, and it is almost impossible to make out the whole history of the development of a species from the isolated example preserved in European collections; on the other hand, naturalists residing between the tropics frequently apply names to species for which they were never intended, thereby rendering their observations on the habits, development, and geographical range useless, or productive of numerous errors. The Terrapens abound in still waters and tanks in the southern parts of India; perfectly motionless, they rest on the water, with the shell and the snout raised above its surface, suddenly disappearing at the approach of danger, and darting away with the swiftness of a fish. Their pointed claws enable them to crawl easily over slippery and steep places, and to dig little holes for a small number of elongate ovate, hard shelled eggs, which in some species require as long a period as from eighteen to twenty months before they are hatched. They are chiefly carnivorous, and the flatter the shell, the broader the interdigital web, the more denticulated the jaws, the more aquatic and carnivorous are the habits of the Pond Tortoises. The food of the carnivorous species consists of water insects, frogs, small fishes, small aquatic birds and mammals; whilst on the other hand they are persecuted by alligators and large fishes, and the young and eggs by numerous other animals. They are not used as food by man, the flesh of most species having a very disagreeable smell, which is also perceptible when first taken out of the water in a net or by a hook baited with meat. Pegu, Sitang, Schwe Gyn, Tenasserim, 7½ inches long.

Emys ocellata. Ocellated Pond Tortoise.

Emys ocellata, *Dum. & Biber. Erpet. gen.* ii. p. 329, pl. 15, fig. 1 (not good). *Blyth, in Journ. As. Soc. Beng.* xxii. 1854, p. 645 & xxiv. p. 481.

Batagur ocellata, *Gray, Shield, Rept.* p. 36; *Proc. Zool. Soc.* 1856, p. 182. pl. 19 & 10 *a*.

Emys berdmorei, *Blyth, l. c.* 1859, p. 281.

Emys bealii. The Speckled Pond Tortoise.

Cistudo (?) bealii, *Gray, Syn. Rept.* p. 71.

Emys bealii, *Gray, Shield, Rept.* p. 21. tab. 8.

Southern China; 5½ inches long.

Emys thurgii. The Thurgi. *Gray. Syn. pp. 22 & 72, and Shield, Rept. p.* 21. *Dum. & Bibr. Erpet. gen. ii. p.* 318.

Testudo thurgii, *Gray, Illustr. Ind. Zool.*

Eyms flavo-nigra, *Less. Bull. Sc.* xxv. p. 12, and in *Bélanger, Voy. Ind. Orient., Rept.* p. 22.

Found in the Ganges, probably in the whole of Bengal also according to Cantor in Penang.

Emys mutica. The Chusan Terrapen.

Emys muticus, *Cantor, Ann. & Mag. Nat. Hist.* 1842, ix. p. 482.

Chusan.

Emys nigricans. *Gray, Proc. Zool. Soc.* 1834, p. 53, and *Shield. Rept.* p. 20. tab. 6. The Blackish Pond Tortoise. A native of China.

Emys sinensis. The Chinese Pond Tortoise.

Emys sinensis, *Gray, Proc. Zool. Soc.* 1834, p. 53, and *Shield, Rept.* p. 21. tab. 7. (half-grown).

Emys bennettii, *Gray, Shield, Rept.* p. 22. tab. 10.

Neighbourhood of Canton, is Formosa land.

Emys crassicollis. Thick-necked Pond Tortoise.

Emys crassicollis. *Gray, Syn.* p. 21. tab. 7. fig. 8; *Illustr. Ind. Zool.* tab. fig. 2; *Shield, Rept.* p. 20. *Cantor, Mal. Rept.* p. 3.

Emys nigra, *Blyth, Journ. As. Soc. Beng.* xxiv. 1855, p. 713.

7 in. long, feeds on frogs, shell fish, and animal offal. Found at Mergui and the Malayan Peninsula. Specimens of this species, or of one closely allied to it, have been brought from Gamboja, Sumatra and Java, the costal ridges of these specimens are very indistinct, and the postgular plates comparatively larger.

Emys reevesii. Reeves's Pond Tortoise.

Emys reevesii, *Gray, Syn. Rept.* p. 73. *Dum. & Bibr. Erpét. gén.* ii. p. 313.

Geoclemys reevesii, *Gray, Shield Rept.* p. 19. pl. 5.

From 3 to 4 inches long, is a native of southern China and Cochin-China.

Emys trijuga. Ceylonese Pond Tortoise.

Emys trijuga, *Schweigg. Prodr.* p. 31. *Dum. & Bibr. Erpét. gen.* ii. p. 310. *Gray, Shield Rept.* p. 20. tab. 4, and tab. 37. fig. 3. *Kelaart, Prodr. Faun. Ceylon,* p. 177.

Emys sebæ, *Gray, Syn. Rept.* p. 75.

Emys thermalis, *Reyneau, in Less. Cent. Zool.* p. 89. pl. 29 (*test Gray*).

——belangeri, *Less. in belang. Voy. Ind. Orient., Rept.* p. 291. pl. 1 (not good).

Geoclemys sebe, *Gray, Shield, Rept.* pp. 18 & 77.

Thoroughly aquatic and carnivorous, rather common in the peninsula of India and Ceylon.

Emys macrocephala. Broad-headed Terrapen.

Geoclemys macrocephala, *Gray, Proc. Zool. Soc.* 1859, p. 478. pl. 21, and 1861, p. 139.

Siam, Gamboja.

Emys hamiltonii. Yellow-spotted Emys.

Emys guttata, *Gray, Illustr. Ind. Zool.* tab.

——hamiltonii, *Gray, Syn. Rept.* pp. 21, 72.

——picquotii, *Less. in Belang. Voy. Ind. Orient., Zool. Rept.* p. 294.

Geoclemys hamiltonii, *Gray, Shield, Rept.* p. 17.

The shell of this elegant tortoise is oblong-ovate, with three longitudinal ridges, each plate of the vertebral and costal series being elevated into a nodose prominence. It is common in the lower Ganges and its vicinity. From 2 to 5½ inches long. It feeds on animal substances—in captivity on raw meat.

Pangshura, *Gray*. Thorax and sternum solid, entirely bony, united into an immoveable carapace; the upper shell is angularly elevated, compressed; the fourth and, generally, the third vertebral plates are pointed at their junction. Sternum flat in both sexes; pectoral plates sub quadrangular, forming a suture together; caudal divided into two. Feet with the toes broadly webbed. Claws of moderate size, five anteriorly and four posteriorly. This genus is confined to the Indian Continent, and in habits resemble the Emydes proper.

Pangshura tecta. The Pangshure.

Emys tecta, *Gray, Syn. Rept.* p. 23. tab. 25; *Illustr. Ind. Zool.* c. fig. *Bell, Testud.* c. tab.

E. trigibbosa, *Less. in Belang. Voy. Ind. Orient., Rept.* p. 29.

Batagur tecta, *Gray, Shield, Rept.* p. 36.

Common in the Ganges and other rivers of Bengal, may be easily distinguished by its elevated back, by the form of the first vertebral shield, and by the coloration of the sternum. The first vertebral is pentagonal, the hinder side being the shortest. The lower parts of the shell yellow, with large blackish-brown spots. Shell 5 to 6 inches long.

Pangshura tentoria. The Dura.

Emys tectum (adult), *Gray, Illustr. Ind. Zool.* figs. 3-5.

E. tentoria, *Gray, Proc. Zool. Soc.* 1834, p. 54.

Batagur tentoria, *Gray, Shield, Rept.* p. 37.

The Dura is very similar to the Pangshure, from which it may be readily distinguished by its somewhat more depressed shell, its greatest depth being less than one-half of its length. The upper shell is uniform brown; the sternal plates blackish brown with yellow margins. The Deccan, the Indus, the banks of the Kistna and its tributaries, where it is called by the natives Gudangi mek'ham.

Pangshura flaviventer is easily distinguished from the two preceding by its bell-shaped first vertebral plate and by its uniform yellowish sternum. It resembles much in form the P. tecta, but is rather more elevated, having a large impression in the middle of the second and third costal plates. The first vertebral shield is bell-shaped, longer than broad, and broadest behind.

Pangshura smithii.

Batagur smithii, *Gray*, *MS.*

The upper shell is yellowish, with a part of the vertebral keel blackish. The lower parts are blackish, each plate with yellowish margin.

Batagur, *Gray*. Thorax and sternum solid, entirely, or nearly entirely, bony in full-grown specimens, united into an immoveable carapace; shell depressed. Sternum flat in both sexes; pectoral plates subquadrangular, forming a suture together, broadly webbed toes, claws feeble. This genus is confined to the East Indies; its species grow to a considerably larger size than the Emydes proper, but have the same habits.

Batagur baska. The Batagur.

Emys batagur, *Gray*, *Syn. Rept.* p. 23, and *Illustr. Ind. Zool.* tab.

——baska, *Gray*, *Illustr. Ind. Zool.* tab.

Trionyx cuvieri, *Gray*, *Syn. Rept.* p. 50 (very young ?).

Tetraonyx longicollis, *Less. in Belang. Voy. Ind. Orient.*, *Rept.* p. 297.

——baska, *Dum. & Bibr. Erpet. gen.* ii. p. 341.

——lessonii, *Dum. & Bibr. Erpet. gen.* iii p. 338. pl. 16. fig. 1. *Blyth*, *Journ. As. Soc. Beng.* xxii. 1854, p. 645.

Batagur baska, *Gray*, *Shield*, *Rept.* p. 35, tab. 16, and tab. 36, fig. 1 (skull).

Tetraonyx affinis (part.), *Cantor*, *Catal. Mal. Rept.* p. 6.

Head covered with undivided skin; snout rather pointed, nose turned upwards; upper jaw denticulated. Tail rather shorter than the head. Colour uniform brown in preserved specimens, shell 20 inches long: it is thoroughly aquatic in its habits; is found in the Ganges and Irrawaddy, abounds at the mouth of the Hoogly, great numbers are brought to Calcutta, where they are eaten by particular castes and are even kept for sale in tanks. Dr. Cantor caught one in the sea off Penang, with a small hook baited with a shrimp.

Batagur lineatus. The Kachuga.

Emys lineata, *Gray*, *Syn. Rept.* p. 23.

Emys kachuga, *Gray*, *Illustr. Ind. Zool.* tab.

Batagur lineata, *Gray*, *Shield*, *Rept.* p. 35. tab. 17 (young).

An interrupted keel along the middle of the vertebrals, disappearing in old specimens. Uniform brown above and yellowish below.

Batagur elliotti. *Gray. Proc. Zool. Soc.* 1862, p. 264.

Penku Tambel. Obtained in the Kistna river. Uniform brownish above, yellowish below. Feet during life dotted with brown.

Batagur affinis.

? Emys trivittata, *Dum. & Bibr. Erpet. gen.* ii. p. 331. *Cantor*, *Mal. Rept.* p. 4.

Tetraonyx affinis (part.), *Cantor*, *l. c.* p. 6.

The shell of the adult 18 inches long by 13 inches broad. Nuchal plate none; the first second vertebrals broader than long. Head covered with undivided skin. Jaws not denticulated, the upper with a slight notch anteriorly. Tail shorter than the head. Feet strongly webbed; front part of the fore leg with imbricate, narrow, transverse scutes; claws feeble. Rivers and ponds of the Malayan Peninsula and of Penang, but not numerous.

Batagur dhongoka. The Dhongoka.

Emys dhongoka, *Gray*, *Illustr. Ind. Zool.* ii. tab.

——duvaucellii, *Dum & Bibr. Erpet. gen.* ii. p. 334.

Batagur dhongoka, *Gray*, *Shield Rept.* p. 36. tab. 18. (young); & tab. 36. fig. 1 (skull).

Very similar to the B. lineatus, but may be easily distinguished by a vertebral ridge and an interrupted stripe on each side of it black. A yellow line runs from the nostril to the upper part of the tympanum. The Ganges at Sultanpoor, Lahore, Nepal, and Assam. The shell 15 inches long and is entirely ossified.

Platysternum, *Gray*. Shell entirely bony, comparatively small, much depressed; sternocostal suture covered with a series of three plates. Head very large, covered with a thick, hard, horny case; jaws strong. Tail very long, covered with rings of subquadrangular shields. Head, tail, and limbs not capable of being retracted within the shell. Toes moderately webbed; claws strong five anteriorly and four posteriorly.

Platysternum megacephalum, *Muller*.

Platysternon megacephalum, *Gray*, *Proc. Zool. Soc* 1831, p. 106; *Illustr Ind. Zool.* c. tab. *Dum. & Bibr. Erpet. Gen.* ii. p. 345. tab. 16. fig. 6.

A native of China, probably of the southern parts, and extends southwards into Pegu, at Schwe-Gyen, on the Sitang river. 14 inches long, shell 5 inches in length.

THIRD FAMILY.

Trionycidæ: The Freshwater Turtles.

Shell much depressed, covered with soft skin. Feet for swimming; toes distinct, strongly webbed; claws 3—3.

Emyda, *Gray*. Shell oval, depressed, only partly ossified, covered with soft skin, a more or less broad margin remaining cartilaginous. Sternum more or less cartilaginous, the ossifications proceeding from seven centres; a broad flexible flap (valve) on each side of the posterior sternal lobe. Feet broadly webbed, with three strong claws anteriorly and posteriorly. Tail none. The East Indies, Senegambia; habits thoroughly aquatic and carnivorous; do not attain to a large size; eggs spherical. When the water dries up, they bury themselves deep in the mud.

Emyda granosa. The Bungoma.

La Chagrinee, *Lacep. Quadr. Ovip.* i. p. 171.
Testudo granosa, *Schoepff, Testud.* p. 127. tab. 30. A. B.
Emyda punctata, *Gray, Syn. Rept.* p. 50.
Trionyx punctata, *Gray, Illustr. Ind. Zool.*
——granosus, *Gray, Illustr. Ind. Zool.*
——coromendelicus, *Geoffr. Ann. Mus.* xiv. p. 16. tab. 5. fig. 1.
Cryptopus granosus, *D.&B. Erp. gen.* ii. p. 501.

Very abundant on the coast of Coromandel and in Lower Bengal; Allahabad, N. W. Hindostan, and Sikkim, length of shell 10 inches, is relished as food by particular castes.

Emyda ceylonensis.—*Gray, Shield, Rept. p.* 64. tab. 29 A.

Emyda punctata, *Kelaart, Prodr. Faun. Ceyl.* p. 179. *Bell, Testud.* c. tab. duab.

Scarcely specifically distinct from E. granosa. Generally distributed in the lower part of Ceylon found in lakes and tanks. Several were kept alive for months in a tub filled with fresh water fed freely on animal food, and also on bread and boiled rice. A large female laid three eggs, globular, about 1 inch in diameter, with a hard calcareous shell. This and Emys trijuga are put into wells to act the part of a scavenger. Shell, in fresh specimens smooth; in drying, the granular surface of the bony shell is apparent.

Emyda vittata. *Peters, Monatsber. Berl. Acad.* 1854, p. 216. Goa. Characterized by black streaks and spots on the head and the neck.

Trionyx, *Gsoffr*. Shell much depressed, only partly ossified, covered with soft skin, dilated into a broad cartilaginous margin posteriorly. Sternum more or less cartilaginous, sometimes with two pairs of externally visible osseous plates, and with the hinder lobe not dilated into lateral valves. Feet broadly webbed, with three strong claws anteriorly and posteriorly... Muzzle produced into a nasal tube; snout conically pointed.

Trionyx sinensis. *Wiegm. Nov. Act. Acad. Leop. Carol* xvii. 1835, p. 139. *Strauch. Chelonolog. Stud.* p. 177.

——tuberculatus, *Cantor, Ann. & Mag. Nat. Hist.* ix. 1842, p. 482.
Tyrse perocellata, *Gray, Catal. Tort. Brit. Mus.* p. 48.
Trionyx perocellatus, *Gray, Catal. Shield Rept.* p. 65. tab. 31.

The bony carapace rather longer than broad, with a low but very distinct vertebral ridge.

Peculiar to China; found on the island of Chusan, common in Formosa.

Trionyx gangeticus. *Cuv. Regne. Anim.*

——hurum, *Gray, Illustr. Ind. Zool.* c. tab.
——ocellatus, *Gray, Illustr. Ind. Zool.* c. tab.
Gymnopus duvaucellii, *Dum. & Bibr. Erpet. gen.* ii. p. 487.
——ocellatus, *Dum. & Bibr. l. c.* p. 489. *Jacquem. Voy. Ind., Sept.* pl. 9.
——gangeticus, *Cantor, Mal. Sept.* p. 8.

Bony carapace rather longer than broad, with a slight swelling anteriorly on the vertebral line. Found in the Ganges and its tributaries, upwards to Nepal; at Penang in rivers and on the sea-coast. It is of fierce habits, defending itself desperately by biting, and emitting when excited a low, hoarse, cackling sound. It appears to be far less numerous at Penang than T. javanicus and Chitra indica. Shell 23 inches long.

Trionyx javanicus. *Schweigg. Prodr.* p. 287. *Gray, Illustr. Ind. Zool.* c. tab.

Gymnopus javanicus, *Dum. & Bibr. Erpet. gen.* ii. p. 493.
——cartilaginea, (*Boddaert*) *Cantor, Cat. Rept.* p. 9.

Found in the Ganges and its tributaries in the Dekhan and at Penang is numerous.

Trionyx ornatus. *Gray, Proc. Zool. Soc.* 1861, p. 41. pl. 5. (young). 7 inches long Siam; Gamboja, Borneo.

Trionyx subplanus. *Schweigg. Arch. Konigsb.* i. p. 289. *Gray. Ill. Ind. Zool.* c. tab.

Gymnopus subplanus, *Dum. & Bibr. Erpet. gen.* ii. p. 496.
Trionyx frenatus, *Gray, Shield, Rept.* p. 67.
Dogania subplana, *Gray, Shield Rept.* p. 69. tab. 33 (from a Japanese specimen).

Found at Singapore, Penang, and Japan.

Trionyx guntheri.—*Muller.*

Dogania guntheri, *Gr. Pr. Zo. Soc.* 1862, p. 265.

Bony carapace as broad as long, much depressed, especially along the vertebral line.

Chitra. *Gray*. Very closely allied to Trionyx, differing only in the form of the head; the hind part of the head is more elongate, whilst the snout is short, with very thick lips and with a short, prominent nasal tube.

Chitra indica. *Gray, Shield, Rept.* p. 70.

Trionyx indicus, *Gray, Syn. Rept.* p. 47.
——ægyptiacus, var. ind. *Gr. Ill. Ind. Zo.* c. tab.
Gymnopus lineatus, *Dum. & Bibr. Erpet. gen.* ii. p. 491.
——indicus, *Cantor, Mal. Rept.* p. 10.

Grows to a very large size, and, like the Trionyx, is eaten by the natives, particularly the Chinese. Found in the Ganges and in its tributaries, upwards into Nepal; frequent in the estuaries of the Malayan Peninsula, and said to be in the Philippine Islands. Specimens weigh 240 pounds; they are very powerful and of ferocious habits. Shell measures 37 inches.

FOURTH FAMILY.

Chelonidæ. Marine Turtles.

Marine Turtles are at once distinguished by their long, compressed fin-shaped, non-retractile feet, the toes being enclosed in a common skin, out of which only one or two claws project. The carapace is broad and much depressed, so that when these animals are on shore and are turned over on their backs, they cannot regain their natural position. They are thoroughly marine animals; their pinnate feet and their light shells render them the best swimmers in the class of reptiles; they sometimes live hundreds of miles distant from shore, to which they periodically return, in order to deposit from 100 to 250 soft-shelled eggs, which are buried in the sand. The food of some species consists exclusively of algæ; others subsist upon fish and mollusca. They are found in all the intertropical seas; sometimes they travel far into the temperate regions. The flesh and eggs of all the species are edible, although the Indian turtles are much less appreciated in this respect than those of the Atlantic. At certain seasons, the flesh of *Chelonia virgata* acquires poisonous qualities, and instances of death have been ascribed to its use.

Caouana, *Gray*, has fifteen vertebral and costal shields, which are thin and not imbricate. There is a ridge or a series of prominent knobs along the rows of vertebral and costal shields in young animals. The genus is carnivorous, eating fishes, mollusca, and crustacea: comprises an Atlantic species, the Loggerhead, which does not appear to extend into the Indian Ocean, and C. olivacea confined to the East Indies.

Caouana olivacea. The Indian Loggerhead.

Chelonia olivacea, *Eschscholtz, Zool. Atl.* tab. 3. *Cantor, Catal. Mal. Rept.* p. 18.

C. dussumieri, *D. & B. Erpet. gen.* ii, p. 557.

Caouana olivacea, *Gray, Cat. Shield Rept.* p. 73.

This species is distinguished from its Atlantic congener by the presence of only a single small claw to each of its feet. It has been found in the Bay of Bengal, on the coasts of Malabar and Penang, in the seas of the Philippine Islands and of China, and is abundant at the mouth of the Hoogly. Its flesh, though relished by the Chinese is unpalatable to Europeans.

Chelonia. (*Flem.*) *Gray, Shield. Rept.* p. 74. has thirteen vertebral and costal shields, which are thin and not imbricate. Shell of young animals without, or with feeble, longitudinal ridges. Herbivorous, feeding on algæ. Species of chelonia extend over nearly all the seas between the tropics; but whether they belong to two or more species is a question which cannot be decided in the present state of our knowledge. C. midas and C. viridis are names given to specimens from the Atlantic, and India. Both names are now considered to indicate the same species, *virgata* has been applied to specimens from the Red sea, identical with others from the Indian ocean. Dumeril and Bibron apply it to Atlantic as well as to Indian specimens and Cuvier and Duméril and Bibron distinguish *Ch. maculosa* from the coast of Malabar, and *Ch. marmorata*, from the Atlantic. Gray and Agassiz, consider both of them as identical, and the former author as even synonymous to Ch. virgata. The differences consist chiefly in modifications of the colours and in the form of the shields, Agassiz has retained the name of Ch. midas for the Atlantic individuals, and of Ch. virgata for those from the Pacific. Chelonia virgata, the Indian Turtle, or Green turtle, is found on all the coasts of the East Indies. It is at all seasons plentifully taken in fishing-stakes in the Straits of Malacca; in size it equals the Atlantic Turtle, which it rivals in flavour. About December and January the female lands to deposit her eggs, in the sandy beach of some sequestered island, and then the fishermen watch during the moonlight nights to 'turn turtles.' The eggs are of a spherical shape, about 1 inch in diameter, covered by a soft semi-transparent membrane of a pale-yellow colour. The expert eye of the fisherman baffles the pains with which the turtle conceals her eggs, and prodigious numbers are disinterred. They are very rich-flavoured, like marrow, and will keep for weeks although exposed to the air. The flesh of this species is sometimes found to be poisonous.

Caretta, *Merr. Gray,*} *Shield, Rept. p.* 73. has thirteen vertebral and costal shields, which are produced behind and imbricate. Two claws to each foot. Shell of young animals with three keels.—Carnivorous.

Caretta squamata. Hawk-bill Turtle; Indian Caret.

Caretta imbricata (part), *auct.*

Testudo squamata, *Bont. Jav.* p. 82.

Eretmochelys squamata, *Agass. Nat. Hist. U. States,* i. p. 382.

Linnæus, in his 'Systema Naturæ,' enumerates the species of turtle famous by the tortoise-shell which it supplies to commerce, as Testudo imbricata, referring to it specimens from the Atlantic as well as from the Indian Ocean, and quoting the Javan *Testudo squamata* of Bontius as a synonym. All subsequent zoologists have adopted Linnæus's view, until the Indian Caret was separated from the Atlantic form by

L. Agassiz (Nat. Hist. United States, i. p. 382), under the name of *Eretmochelys squamata.* Very small horny scales are imbedded in the skin of the neck; the median keel extends generally over all the vertebral shields; other ridges diverge from the point of each vertebral shield. The costal shields also have sometimes prominent ridges, commencing at the angles they form with the marginal plates and running to the point of each costal. The Hawkbill Turtle, is so named from its rather elongate and compressed, curved upper jaw, does not attain to the same size as the other turtles: a shell 2 feet long is considered as extraordinarily large. It is found throughout the East Indian Archipelago, is plentiful only on parts of the coasts of Ceylon (Hambangtotte, Matura), of the Maldives, of Celebes, &c. As however, turtles always resort to the locality where they were born, or where they have been used to propagate their kind, and as their capture is very profitable, they become scarcer and scarcer at places where they are known to have been abundant formerly, some specimens sell in Ceylon for as much as £4, the price depending on the quality of the shell. If taken from the animal when decomposition has set in, the colour of the shell becomes clouded and milky, and hence the cruel expedient is resorted to of suspending the turtle over fire till heat makes the shields start from the bony part of the carapace, after which the creature is permitted to escape to the water, where they live; but reproduction of the epidermal shields to a great extent is improbable. At celebes, whence the finest tortoise shell is exported to China, the natives kill the turtle by blows on the head, and immerse the shell in boiling water to detach the plates: dry heat is only resorted to by the unskilful.

Dermatochelys, *Blainv.* Carapace subcordiform, covered with a coriaceous skin like the remainder of the animal. Herbivorous.

Dermatochelys coriacea.

Testudo coriacea, *L. Syst. Nat.* i. p. 350.
Sphargis mercurialis, *Merr. Tent.* p. 19. *Schleg. Faun. Japon., Rept.* p. 6, tab. 1.
——coriacea, *Gray, Syn. Rept.* p. 51. *Dum. & Bibr. Erpet. gen.* ii. p. 560. pl. 24. fig. 2. *Tickell. Journ. As. Soc. Beng.* 1862, p. 367, c. fig.

Shell above with seven longitudinal ridges, separated from one another by grooves. Skin smooth in adult specimens, tubercular in young ones. This turtle, although scarce, appears to be spread throughout almost all the seas of the tropical and temperate regions, having been found in the Mediterranean, on the south coast of England, in the West Indies, at the Cape of Good Hope, on the coasts of the United States, in Chili, in Japan and in India. A female caught on the coast of Tenasserim, of entire length 6 feet 2½ inches.

THE ORDER OF LIZARDS—SAURIA.

Anterior ribs generally joined to a sternum. Tail more or less long. Jaws toothed; the mandibles united in front by an osseous suture. Limbs generally four, sometimes rudimentary or not visible externally. Eyelids generally present. Integuments with scale-like folds or osseous scutes, or granular. The greater portion of the Saurians are easily distinguished from the other orders of reptiles by their elongate form, by their moveable thorax covered with skin, by the presence of legs, and by their general integuments, which are either folded into scales, or granular, or tubercular, or shielded. Still, there are many saurians which, at a superficial glance, might easily be taken for members of order—of snakes, and there is a gradual transition between both these orders. Many lizards have several layers of cells loaded with different pigments; the animal spreads or compresses these layers by more or less inflating its lungs, whereby the changes in the coloration are effected. Saurians are oviparous: a few ovoviviparous. They have been divided into many families;

Family of Crocodiles—Crocodilidae.

Head with the snout produced; body de-pressed, covered above and below with squa shields arranged in longitudinal and transvers series; each dorsal shield is composed of an osseous dermal scute and of a corresponding horny epidermal plate. Tail elongate, com-pressed. Feet short, more or less webbed. Teeth strong, acute conical, in a single series. Tongue short, adherent. Nostrils small, situated close together, on the top of the extre mity of the snout. Toes 5—4; only the th interior are armed with claws. Fresh-wat saurians are found between the tropics where the country is watered by sufficiently large riv or lakes. Peculiarities have induced ma zoologists to consider the Crocodilians eith as a distinct sub-order of the Saurians (L cati) or to separate them altogether as an or intermediate between the Tortoises and Liz (Emydosauri). The most conspicuous cha ters of the crocodiles refer to their thoroug aquatic life; but these characters are comb with an extremely powerful development those organs which render the crocodiles most formidable of all the carnivorous fre water animals. The back, the tail, and the are protected by a dermal armour composed quadrangular shields, which are arranged regular longitudinal and transverse series. considerable proportion of the food of crocodile is fish, the proverbial swiftness which is of little avail when pursued by reptiles; they fall an easy prey especially to the young animals, the active old animals requiring a greater quantity of food, attack every large animal which accidentally approaches them, and, in overpowering it, the whole of their powerful organization is called into requisition. Seizing the victim between their capacious jaws, and fastening their long, pointed, conical teeth into its flesh, they draw it, in one moment, by their weight and with a stroke of the tail, below the water and drown it. Their gullet, however, is much too narrow to allow of the passage of the entire body of the victim; and their teeth being adapted for seizing and holding fast only, and not for biting, they are obliged to mangle the carcase, tearing off single pieces by sudden strong jerks. This is performed chiefly by lateral motions of the head and front part of the body; and the bones of the head of the crocodile are much more firmly united with one another, and the processes of the cervical vertebræ much more developed, than in any other saurian. Indian crocodiles inhabit rivers and estuaries, also the sea-coasts, and in calm weather may be seen floating at a distance of two or three miles from shore. Those inhabiting small inland waters which are dried up during a drought are compelled to wander about in search of water, in which alone they can procure their food; they do this during the night. Some of them, however, especially large individuals, bury themselves in the mud, as many fresh-water tortoises and fish do, and remain in a state of torpor below the hard crust during the time of the drought. It is during that period, shortly after they have been released from the state of an enforced fasting, that they are most formidable. A man seized by a crocodile has only one way of saving his life, if not his limb, namely to force his fingers into the eyes of the beast, which immediately lets go its victim, a practice equally known to the Indian of South America, to the Negro of Africa, and to the Hindoo. It is not difficult to catch a single depredator by a hook baited with flesh or entrails, and made fast by a bunch of strong, thin cords, which it cannot gnaw asunder, as they sink into the spaces between the teeth. It is not easy to kill them on the spot, except by a ball sent through the eye into the brain, or through the neck to the spinal cord: of course, a severe injury to any of the vital parts will prove fatal to them, but not before days or weeks have elapsed. All the crocodiles are oviparous: the eggs have a hard shell, and resemble in size and shape those of a goose; from twenty to sixty are deposited in a hollow near the banks, and slightly covered over with mould or sand. The young crocodiles are of a rather rapid growth, one hatched at Madras in eight years increased to the length of 8 or 9 feet, and was so powerful as to destroy a full-grown buck antelope, which had come to drink water at the tank to which it usually resorted.

Crocodiles, *Cuv.* Teeth strong, very unequal in size, 18 or 19 above, and 15 below, on each side, the teeth in the upper jaw being the strongest; the fourth tooth of the lower jaw passes into a groove at the lateral edge of the upper jaw. Snout moderately long. The posterior nuchal plates are separated from the dorsal by an interspace. Alligators are found only in the new world, but the British in India, almost universally apply this name to the Indian Crocodilus. Crocodiles are found in America, Africa, Asia, and Australia.

Crocodilus palustris. *Less. in Belang. Voy. Ind. Orient., Zool. Rept. p.* 305. *Gray.*
——vulgaris, var. B, *Dum. & Bibr. Erpet. gen.* iii. p. 108. *Cantor, Mal. Rept.* p. 15.
——trigonops, *Gray, Catal. Tort. &c.*, vo, p. 62.
——bombifrons, *Gray, l. c. p.* 59. *Huxley, Proc. Linn. Soc.* 1859, pp. 13, 28.
——biporcatus, *Cautley, As. Research.* xix. tab. 3. figs. 1 and 3 (not *Cuv.*)
Bombifrons trigonops, *Gray, Ann. & Mag. Nat. Hist.* 1862, x. p. 269. Ceylon; Pen. of India; Ganges.

Upper surface of snout covered with numerous small, rounded, irregular prominences.

Crocodilus siamensis. *Schn. His. Amph. p.* 157.
——galeatus, *Cuv. Ann. Mus. Hist. Nat.* x. p. 51 pl. 1. fig. 9 (skull of an adult).
Bombifrons siamensis, *Gray, Ann. & Mag. Nat. Hist.* 1862, x. p. 269.

Upper surface of snout without prominences and almost smooth. Siam, Camboja.

Crocodilus porosus. Schneid. Amph. p. 159. *Cantor, Mal. Rept.* p. 16. *Jerd. Journ. As. Soc. Beng.* xxii. p. 466.
—— biporcatus, *Cuv. Oss. Foss.* v. pt. 2. p. 65. tab. I. figs. 4, 18, 19 (young skulls), & tab. 2. fig. 8.
Müll. & Schleg. Krokod. Ind. Archipel. tab. 3. fig. 6 (Middle aged skull) fig. 7, (aged.)
Oopholis porosus, *Gray. Ann. & Mag. Nat. Hist.* 1862, x. p. 267.

Anterior nuchal plates none, or only a pair of very small ones. E. Indies. Australia.

Crocodilus pondicerianus. *Gunther.*
Oopholis pondicherianus, *Gray, Ann. & Mag. Nat. Hist.* 1862, x. p. 268.

No anterior nuchal plates. Penin. of India.

Gavialis, *Geoffr.* Teeth slender, subequal in size, 27 or 28 above, and 25 or 26 below, on each side; the strongest teeth anteriorly in the jaws; teeth directed outwards. Snout very long and slender. Only one species is known from the Ganges,—the Borneo gavial Crocodilus schlegelii, having been referred to Rhynchosuchus.

Gavialis gangeticus. The Gavial or Nakoo.
Lacerta gangetica, *Gm. Syst. Nat.* i. p. 1057.
Crocodilus longirostris, *Schneid. Hist. Amhp.* p.

160. *Cuv. Oss. Foss.* v. pt. 2. p. 60. pl. *I.* figs. 2. 1 & 10 & pl. 2. fig. 11 (head and skull.)
——tenuirostris, *Cuv. l. c.* p. 62. pl. 1. figs. & 11, & pl. 2. fig. 12.

The length of the snout equals that of nine or ten of the dorsal shields. Old male specimens have a large cartilaginous hump on the extremity of the snout, Ælian noticed that the Ganges is inhabited by crocodiles which have a horn on the end of the snout, perforated by the nostrils and containing a small cavity for the reception of air, so that the males are enabled to remain under water for a longer time than the females. The Gavial attains to a length of 20 feet. The correct term is garial.

Family of Water Lizards.—Varanidœ.

Head with the snout produced, pyramidal, covered with small, scale-like, but not imbricate, shields. Teeth acute, compressed. Tongue elongate, slender, terminating in a long fork, retractile into a sheath at its base. Scales small, equal on the sides and on the back, arranged in cross rings; those of the belly and tail square, in cross bands. Tail long, generally compressed. Toes 5—5, armed with strong claws. This family contains the largest species of lizards; the greater part of them live in the neighbourhood of large rivers, and are excellent swimmers, their long, compressed tail serving as a propeller; they are carnivorous, feeding on all the different water-animals and on the eggs of birds, and likewise on those of other large reptiles. Their movements on land are not much less rapid than in the water. Several species climb trees; they are active during a part of the night. They are found in tropical Africa, Asia, and Australia.

Varanus. (part), *Merr. Amph. p.* 58. nostrils are an oblique slit, situated in, or nearly in, the middle between the eye and the extremity of the snout. Scales elliptic, small; those on the back and on the sides not imbricate, each being surrounded by a small, circular, granular fold. Tail with a low crest, formed by two or four series of strongly keeled scales. Throat with a transverse fold.

Varanus flavescens. Short-toed Water Lizard.

Monitor flavescens, *Gray, Ill. Ind. Zool.* c. tab.
Varanus piquotii, *D. & B. Erpét. gén.* iii. p. 485.
Empagusia flavescens, *Gray. Lizards*, p. 9.
Varanus flavescens, *Cantor, Mal. Rept.* p. 28.

This species attains to a length of from 3 to 4 feet, the tail being longer than the body. Its toes comparatively shorter than in its congeners.

Varanus dracæna. Common Indian Water Lizard.

? Lacerta dracæna, *L. Syst. Nat.* i. p. 360.
Lacerta dracæna, *Shaw. Zool.* iii. p. 218. pl. 67.
Tupinambis bengalensis, *Daud. Hist. Rept.* iii. p. 67.
Varanus guttatus, *Merr. Amph.* p. 58. *Less. in Bélang. Voy. Ind. Orient., Rept.* p. 308.
—— punctatus, *Merr. Amph.* p. 59. *Less. l. c.* p. 309.
Monitor heraldicus, *Gray, in Griff. An. Kingd.* ix. p. 25.
——bengalensis, *Gray, l. c.* p. 26.
Varanus bengalensis, *D. & B. Erpét-gen.* iii. p. 480.
—— heraldicus, *Gray, Catal. Liz.* p. 9.
Monitor dracæna, *Gray, l. c.* p. 11.
Varanus bibroni, *Blyth, Journ. As. Soc. Beng.* xi. p. 869, *Kalaart, Prodr. Faun. Ceyl. App.* p. 46.

A most common species in all British India, Bengal, Nepal, Southern India, and Ceylon, it is called in Ceylon the "Goana," is found in great abundance in all the maritime provinces, rarely in the higher Kandian districts.

Varanus lunatus. *Gray, Lizards, p.* 10. Banded Water Lizard.

Sides and legs dotted with white.

Varanus nebulosus. Clouded Water Lizard, Bengal, Siam, Penang.

Monitor nebulosus, *Gray, in Griff. An. Kingd.* ix. p. 27.
Varanus nebulosus, *Dum. & Bibr. Erpét. gén.* iii. p. 483. ? *Cantor, Cat. Mal. Rept.* p. 27.

The largest specimen seen is 3½ feet long, the tail being longer than the body; is found in Bengal and Siam, perhaps near Penang, but not in Java as stated by Bibron.

Hydrosaurus, *Wagl.* This genus differs from Varanus only in its nostrils, which are a more or less rounded opening near the extremity of the snout.

Hydrosaurus salvator. *Gray* Ocellated Water Lizard.

Stellio salvator, *Laur. Syn. Rept.* p. 56.
Tupinambis bivittatus, *Kuhl, Beitr. Zool.* p. 1
Monitor elegans, *Gray, Zool. Journ.* iii. p.
Varanus vittatus, *Less. in Bélang. Voy. Ind Orient., Rept.* p. 307.
—— bivittatus, *D. & Bibr. Erpét. gén.* iii. p.
Varanus salvator, *Cant. Cat. Mal. Rept.* p.
Monitor bivittatus, *Schleg. Abbild.* p. 76. ta 21, & tab. 22. figs. 1, 2.

An inhabitant of the Archipelago; E Indian continent; China, Siam, Ceyl it is "very numerous in hilly and mar localities of the Malayan peninsula. It is com monly, during the day, observed in the branc of trees overhanging rivers, preying upon bi and their eggs and smaller lizards, and wh disturbed, it throws itself from a consider height into the water; it will courageou defend itself with teeth and claws and by stro of the tail, low castes in India dig them out their burrows on the banks of rivers, th flesh being greatly relished. Some attain nearly 7 feet in length."

Family of Land Lizards.—Lacertidœ.

Head covered with shields, which are sym metrically arranged. Tongue slender, fre exsertile terminating in a fork. Scales on the back granular or rhombic, on the sides granular; on the belly larger, quadrangular or rounded, and arranged in cross bands. No longitudinal fold along the sides, but generally a fold across the throat. Tail very long, rounded, with the scales arranged in rings; fragile. Eyes diurnal, with eyelids; tympanum distinct. Limbs four, well developed. The species do not attain to any considerable size; most of them are found in Africa, America, and Europe. They live generally on the ground, and are not burrowing.

Tachydromus, *Daudin.*

Head elongato-pyramidal, body subcylindrical, tail very long. Nostril in a single nasal shield immediately above the labials. Dorsal scales large, strongly keeled, the keels being confluent into longitudinal ridges; all the ventral shields, or at least the lateral ones, keeled. Sides covered with granular scales. Anal shield surrounded by smaller ones; one r two inguinal pores on each side. Femoral pores none. Tail with rings of keeled, quadrilateral shields. An indistinct collar. Toes ot serrated or keeled. Tympanum distinct.

Tachydromus sexlineatus. *Daud. Rept.* iii. . 256. tab. 39. *D. & B. Erpét. gèn*, z. p. 158.
T. quadrilineatus, *Daud. l. c.* p. 252.
T. typicus, *Gr. in Mag. Nat. Hist.* i. p. 389.

This species occurs at Rangoon, Borneo. The largest is 14 inches long, of which the ail takes 11½.

Tachydromus meridionalis. Has hitherto een confounded with T. sexlineatus. It is as ender as the species from the Archipelago, ith the snout produced and with the tail xceedingly long. Back brownish olive; a rk brown band runs from the snout, through e eye, above the tympanum, to the loins; is band is separated from the colour of the ck by an iridescent lateral stripe. Found in hina, probably also in Cochin-china. Head lines, trunk 18 lines, tail 7½ inches.

Tachydromus septentrionalis. The most rthern of the Tachydromi, is more closely lied to the Japanese species than to any other. Back brownish or greenish-olive; a brown nd, darkest on its edges, runs from the stril through the eye to the tympanum, and soon lost. There is a green, iridescent, ck-edged band on each side of the back in l specimens. Lateral parts greenish, the ver yellowish specimens procured at Ningpo, d ⅔rds of an inch, trunk 2 inches, tail 7 hes.

Cabrita, *Gray.*

Nostrils on the ridge of the snout, between upper and lower nasal plate, both being rather swollen; a small hinder nasal. Eyelids present; collar none, only a small fold before each shoulder. Ventral scales four-sided, smooth, longitudinally arranged. Femoral pores. Toes 5—5, keeled beneath, not toothed on the sides.

Cabrita leschenaultii. *Gunther.*
Lacerta leschenaultii, *Milne-Edw. Ann. Sc. Nat.* xvi. pp. 80, 86. pl. 6. fig. 9 (head).
Calosaura lechenaultii, *D. & B. Erp. gén.* v. p. 282.
Cabrita brunnea, *Gray, Ann. Nat. Hist.* i, p. 282.

Two loreals; the central occipital very small; length 5½ inches, head and trunk 2 inches: said to be from the Coromandel coast, it is somewhat locally distributed, seen in Salem, Coimbatore near the banks of the Cavery. Pind Dadun Khan, in the Punjab Salt Range; and Afghanistan. It frequents bushy ground, hedges of Euphorbia and clumps of Cactus.

Ophiops, *Menetries.*

Nostrils on the ridge of the snout, between an upper and lower nasal plate, both being rather swollen; three small shields behind the nostril. Eyelids none; collar none, only a small fold before each shoulder. Ventral shields four-sided, rhombic, smooth; scales on the back rhombic, keeled, imbricate. Femoral pores. Toes 5—5, keeled beneath, not toothed on the sides.

Ophiops jerdoni (Journ. As. Soc. Beng: xxii. p. 653):—Dark bronze above, black-spotted, with two obscure broad dorsal streaks; below white throughout. Femoral pores seven or eight. Shields of head plaited longitudinally. Length of head and body 1½ inch, of tail 2½ inches, of hind limb ¾ inch. Procured at Mhow, in pasture land.

Acanthodactylus, *Fitzinger.*

Nostril between three shields, the lower of which is the first labial. Eyelids present; a scaly fold across the throat. Ventral scales four-sided, smooth. Femoral pores. Toes 5—5, keeled beneath, and toothed on the sides. The species are African; and East Indian.

Acanthodactylus neilgherrensis, Jerd. (Journ. As. Soc. Beng. xxii. p. 476):—Anterior edge of ear toothed, scaly; collar transverse; scales of back somewhat larger behind than in front; an occipital plate. Obtained near Coonoor.

Acanthodactylus Cantoris. Head of moderate length with the snout narrowed; body and root of the tail rather depressed: limbs well developed. Total length 7 inches:—head 7 lines; tail 4½ inches; fore limb 11 lines; fourth (longest) finger 3½ lines; hind limb 18 lines; third toe 3½ lines; fourth (longest) toe 6 lines; fifth toe 5 lines.

Family of Cordyles—Zonuridæ.

Head covered with regular, symmetrical,

many-sided shields. Tongue flat, nicked. Scales of the back and tail large, squarish; sides with a distinct longitudinal fold; scales of the belly square or roundish, in cross bands. Tail rounded. Ears distinct; eyes diurnal with lids. Only one species of this family is found in the East Indies.

Pseudopus.

Pseudopus et Hyalinus, *Merrem.*
Seps (part.) et Ophisaurus, *Daudin.*
Pseudopus, Ophisaurus, et Dopasia, *Gray.*
Ophiseps, *Blyth.*

Three species only of this very remarkable genus are known: one from North America, Ophisaurus ventralis, with the palatine teeth in a broad band; the second from South-Eastern Europe and Northern Asia, Pseudopus pallasii, with rudimentary hind limbs; and, finally, the Ps. gracilis from Khasya.

Pseudopus gracilis. Khasya Glass Snake. *Gray. Lizards*, p. 56.

Dopasia gracilis, *Gray, Ann. & Mag. Nat. Hist.* xii. 1853, p. 339. *Günth. Pr. Z. Soc.* 1860, p. 172.

Ophiseps tessellatus, *Blyth, J. A. S. B.* xxii. p. 655.

The typical specimen is from the Khasya Hills, 15 inches long, the tail measuring 10. Whilst in other Saurians the whole skin of the belly and of the sides is extensible, the extensibility here is limited to a separate part of the skin.

Family of Skinks—Scincidæ.

Head covered with shields, which are symmetrically arranged. Tongue slender, free, exsertile, terminating in two pointed lobes. Scales on the back rounded, quincuncial, imbricate; those on the belly similar to those on the back and on the sides. No fold across the throat or along the side; no femoral or inguinal pores. Tail generally long, rounded, fragile. Eyes and eyelids well developed. Nostrils in a separate plate, between the frontal and labial shields. Generally four limbs, moderately developed, sometimes feeble or hidden below the skin. The species of this family are exceedingly numerous, and inhabit almost every part of the tropical regions, some extending into the temperate zones. They are thoroughly land Lizards, preferring dry ground, and hiding themselves in the sand, under stones, &c..; none of them enter the water. They do not attain to any considerable size, a few West Indian and Australian species growing to the thickness of a man's wrist, and exceeding a foot in length. They deposit from eight to twelve globular eggs.

Tropidiphorus, *Dum. & Bibr.*

Each scale with a strong keel; tail longish, rounded, the keels of their scales being very prominent, forming series of spines, nostril in a single small shield. Two or three large preanal shields, limbs four, moderately developed each with five toes, only three species are known.

Tropidiphorus macrolepis, *Gunth.* Pr. Z. S. Ap. 23. 1861, p. 188. From Chartaboum on the Coast of Siam. It is 5½ in. long, tail 3½ brownish gray, slightly marbled with darker, toes and lower part of the tail dotted with brown.

Tropidiphorus Cochin-Chinensis, *Cuv. Regne Arunt D. & B. Gunth. Tr.* Montanus *Gray*, in *Gr. An. King.* iv. p. 35. Cochin-China.

Snout rather more obtuse than in Tr. Microlepis.

Aspris Berdmorei. *Bl. J. & S. Beng.* xii. p. 650. Mergui has a compressed and subacute snout.

Euprepes. *Wagler.*

Each scale with several keels. Tail longish, rounded, without spines. Nostril in a single small shield. Limbs four, each with five toes. The palatel notch is placed far backwards. This genus has nearly the same geographical distribution as Eumeces, and is also very rich in species. Those belonging to the East Indian fauna are less numerous, and may be distinguished as follows:—

Euprepes chinensis.

Ateuchosaurus chinensis, *Gray, Lizards*, p. 107.

Only one specimen is known. It is 3 inches long, of which the tail takes rather more than one-half. China.

Euprepes rufescens. Common Indian Skink.

Lacerta rufescens, *Shaw, Zool*, iii. p. 285.
Scincus multifasciatus, *Kuhl, Beitr.* p. 12.
Tiliqua rubriventries, *Gray, Ind. Zool.*, and *Ann. & Mag. Nat. Hist.* 1846, xvii. p. 430.
T. carinata, *Gray, Zool. Journ.*
T. affinis, *Gray, Ann. Nat. Hist.* ii. p. 289.
Euprepes sebæ, *D. & B. Erp. gén.* v. p. 692.
Tiliqua rufescens, *Gray, Lizards*, p. 109.
Euprepes rufescens, *Cant, Cat. Mal. Rept.* p. 44.
Plestrodon sikkimensis, *Gray, Ann. & Mag. Nat. Hist.* 1853, xli. p. 388.

The colaration varies:—

a. Specimens from Madras and from the Deccan have a very distinct yellowish band.

b. Specimens from Ceylon have the yellowish bands less distinct than the former.

c. There is no trace of a whitish band in a specimen from Afghanistan.

d. Penang, Siam, and the East Indian Archipelago are inhabited by three varieties.

This is one of the most common and most widely spread Lizards of the East Indies; it occurs in almost every part of the continent as well as of the Archipelago, from Afghanistan to China and to the Philippine Islands; it is even said to inhabit the Sandwich Islands. With regard to its altitudinal extent, it is not found beyond an elevation of 8,000 feet. Cantor says that it is exceedingly numerous in the hills and valleys of the Malayan countries. They may be seen basking in the sun, in bamboo hedges, or on trees ; and they fearlessly enter houses in pursuit of insects, in which they display great agility. The female deposits six to twelve yellowish-white, oval, cylindrical eggs, half an inch in length."

Tiliqua trivittata, *Gray. Ind. Zool. c. fig., and Jerd. Journ. As. Soc. Beng.* xxii. p. 478, appears to be a variety of this species.

Euprepes monticola. This species is found in Sikkim, at an altitude of above 8,000 feet, where it represents the E. rufescens of the lowlands, from which it may be distinguished by its scales, which have two keels only. An adult female specimen is 8½ inches long, of which the tail takes 5.

Euprepes olivaceus.
Dasia olivacea, *Gr., Mag. Nat. Hist.* ii. p. 331.
Euprepes ernestii, *Dum. & Bibr. Erpet. gén.* v. p. 696. *Cantor, Mal. Rept.* p. 47.

Upper parts brownish, with about twelve narrow, irregular, black transverse streaks, each black scale having a white spot. A whitish band along each side of the root of the tail. Lower parts greenish olive.

This species is less numerous than E. rufescens ; it has been found on the Malayan Peninsula and on Prince of Wales' Island ; a specimen in the Paris Museum is said to have been captured in Java. The largest individual is nearly 9 inches long, of which the tail takes rather more than one-half. Cantor found eleven eggs in a female, similar to those of *E. rufescens.*

Euprepes macularius, *Blyth. J. A. S. Beng.* xxii. p. 652.

Rungpore, like E. rufescens, Bronzed olive green above, pale below : length 5¼ in. tail 3½.

Euprepes trilineata, *Gray, Mag. Nat. Hist.* 1846, xvii. p. 430. *Jerdon, J. A. Soc. Beng.* xxii. p. 479.

Yellowish olive, with three yellowish-white longitudinal bands only in sandy ground near the sea in the Carnatic, concealing itself in holes and fissures, and under shrubs. It attains to a length of 7 inches, of which the tail is nearly 4.

Mabouia, *Fitzinger.*

Scales thin, smooth, polished, not keeled. Tail rather long, rounded, without any keels or spines. Nostrils in a single small shield. Limbs four, each with five toes. Palate with more or less distinct teeth, the palatal notch being placed on the level of the eye. Only two or three species are found on the East Indian continent.

Mabouia quadrilineata.
Plestiodon quadrilineatum, *Bl., J. A. S. Beng.* xx.i. 652.

Eumeces quadrivirgatus, *Hallow. Proc. Acad. Nat. Sc. Philad.* 1860, p. 502.

Upper parts black, with a pair of whitish lines along the back, the lines beginning from the nose and the superciliaries ; no median white line ; another line commences at the tympanum and runs along the middle of the side. Lower parts whitish. Hongkong, length 6 inches, head and trunk measuring 2½.

Mabouia chinensis. The Chinese Skink.
Tiliqua chinensis, *Gr, Ann. Nat. Hist.* i. p. 289.
Plestiodon sinense, *D. & B. Erpét. gén.* v. p. 704.
Tiliqua rugo-guttata, *Cant. Mag. N. H.* 1842, ix. p. 482.
Plestiodon chinensis, *Gray, Lizards*, p. 92.

Limbs well developed : the fore legs extend to the snout, the hind legs halfway or more than half way up towards the axil. The coloration changes with age. The Japanese specimens are specifically identical with those from North America, both constantly differing from the Chinese ones in having an additional small shield between first loreal and nasal.

Mabouia maculata.
Lissonota maculata, *Bl., J.A.S.Beng.* xxii. p. 653.

This species is apparently allied to Mabouia chinensis.

Eumeces, *Wiegmann.*

Scales thin, smooth, polished, not keeled. Tail more or less long, rounded, without any keels or spines. Nostril in a single small shield. Limbs four, each with five toes. Palate without any teeth, the palatal notch being placed far backwards, behind the level of the eye. The species of this genus are very numerous and spread over nearly all the different countries between, or near, the tropics.

Eumeces bilineatus. The black-striped Skink.
Mocoa bilineata, *Gray, Ann. & Mag. Nat. Hist.* 1846, xviii. p. 430. *Jerd. J. A. S. Beng.* xxii. p. 477.

Supra nasal shield none ; the lower eyelid is transparent. Brownish olive above, greenish below. Discovered by Jerdon under stones on the summit of the Neilgherries. Length 5 inches, the head and trunk measuring half of it.

Eumeces himalayanus. Supranasal shield none ; the lower eyelid is transparent, greenish line above, with interrupted whitish lines and series of blackish dots ; sides with a dark band, which has a narrow greenish-white edge above and a broad one below ; the lower parts greenish, each scale with a darker margin.

Specimens were procured in the Himalayas, Kashmir ; from Garhwal and Simla. The largest is 4 inches long, the tail measuring half.

Eumeces schlegelii.
Tiliqua schlegelii, *Günth, Pr. Z. S.* 1860, p. 253, pl. 15. fig. C.

Supranasal shield none; lower eyelid transparent.

Eumeces modestus. Supranasal shield none; the lower eyelid is transparent. Limbs rather feeble. Yellowish olive above, with indistinct and interrupted lines of black dots; upper part of the sides with an undulated brown band; lower parts whitish with some olive dots. 4 inches long, the head and trunk measuring 1½ inch.

Eumeces reevesii.
Tiliqua reevesii, *Gray, in Ann. N. Hist.* ii. p. 292.
Hinulia reevesii, *Gray, Lizards*, p. 76.

Supranasal shield none; lower eyelid transparent. Limbs rather feeble. Brownish above, yellowish below, a dark brown band running along the upper part of the side. It is a native of China.

Eumeces ladacensis. Supranasal shield none; lower eyelid transparent. Limbs well developed. Greenish above, with longitudinal series of black dots; sides with an obscure band; lower parts greenish white. Head and trunk 2 inches long.

Mocoa formosa, Blyth (Journ. As. Soc. Beng. xxii. 1854, p. 651), Blyth refers to Gray's genus Mocoa.

Eumeces indicus.
? Lygosoma dussumierii, *D & B. Erp. gèn.* v. p. 725
Hinulia indica, *Gr. Mag. N. H.* 1853, xii. p. 388.
??Mocoa sikimensis, *Bl. J. A. S. B.* xxii. 1854, p. 652.

Limbs well developed, common in Sikkim; said to come from Ningpo in China. From 8 to 10 inches long, of which the trunk takes 3 or 3½ inches.

Eumeces taprobanensis. *Kelaart, Prodr. Faun. Zeyl. Rept. p.* 21.
Lygosoma fallax, *Peters. Monatsber. Berl. Acad.* 1860, p. 184.

Limbs rather short. Ceylon, said also, to to be from Ningpo in China; found at Newera Ellia.

Eumeces chalcides.
Lacerta chalcides, *K. Syst. Nat.* i. p. 369.
L. serpens, *Bloch, in Beschæft. Berl. Gesellsch. naturf. Freund.* ii. p. 28. tab. 2.
Scincus brachypus, *Schn. Hist. Amph.* p. 193.
Lygosoma serpens, *Gray, Zool. Journ.* iii. p. 228.
L. aurata, *Gray, in Gr. An. Kingd.* ix. p. 72.
L. brachypoda, *Dum. & Bibr. Erpét. gèn.* v. p. 751.
Podophis chalcides, *Gray, Lizards*, p. 88.
Lygosoma chalcides, *Cantor, Catal.* p. 49.

Body and tail very elongate, with very short limbs, each with five minute toes. Supranasal none; the lower eyelid is scaly 8 in., head and trunk 4 in. not thicker than a goose-quill, found in Java, Penang, Siam, and near Hongkong.

Eumeces siamensis of Siam. Limbs well developed; the fore legs extend to the eye, the hindlegs not quite to the axil. Uniform greenish olive above, whitish below; a well-defined deep-black band runs from the snout along the upper part of the sides; it is not margined with white, is closely allied to the West Indian Mabouia agilis; 6 inches long, head and trunk measuring 2 inches.

Eumeces bowringii. Brownish olive above, with an indistinct dark line along each series of scales; a brown band along each side of the back; sides with interrupted series of dark-brown dots from Hongkong, 3½ inches long, head and trunk 1½ inch.

Eumeces albopunctatus. White-dotted Skink.
Riopa albo-punctata, *Gray, Ann. & Mag. Nat. Hist.* xviii. 1846, p. 430. *Jerd. Journ. As. Soc. Beng.* xxii. p. 477.
Eumeces punctatus, var., *Cant, Mal. Rept.* p. 45.
Eu. Hardwickii ant.

Back uniform olive coloured, or with a line of very small dots along each series of scales. Anterior part of the sides blackish brown, with numerous small white spots. Uniform whitish below. The largest specimen seen 4½ inches long, head and trunk measuring 2½ inches discovered in the Nellore district and Mergui.

Eumeces hardwickii. White-streaked Skink.
Riopa hardwickii, *Gray, Lizards*, p. 96. *Jerd. Journ. As. Soc. Beng.* xxii. p. 478.
Mabouia elegans, *Gray, Lizards*, p. 95.

Back brownish with four series of black dots, and with a yellowish-white band arising from the nose and from the superciliaries; a series of black dots along each edge of these bands; each scale on the sides with a black dot, the upper dots being the largest and confluent. Lower parts uniform white attains to 4 or 5 inches, head and trunk 2 inches. Jerdon mentions a specimen 9 inches long, it is common in the Carnatic, found in Ceylon, Patna, and the Neilgherries.

Eumeces punctatus. The Dotted Skink.
Lacerta punctata, *L Syst Nat.* p. 369.
L. interpunctata, *Gm. L. Syst. Nat.* i. p. 1075.
Seps scincoides, *Cuv Régne. Anim.*
Eumeces punctatus, *Wiegm. Herp. Mex.* p. 36.
Riopa punctata, *Gray, Lizards*, p. 66.

Each scale with a black dot, the dots forming longitudinal series; they are largest on the back of the tail, and sometimes entirely absent on the belly. The outer series of scales on each side of the back has very small dots found on the coasts of Malabar and Coromandel, in the neighbourhood of Madras, and in the Deccan. Kelaart (Prodr. Faun. Zeylan. p. 151) mentions it as inhabiting Ceylon, but this requires confirmation. It attains to a length of 12 inches, the head and trunk measuring 5 inches.

Eumeces isodactylus. The short-toed Skink Olive, upper parts with irregular confluent

Homonota fasciata, *Jerdon*, Journ. As. Soc. Beng. xxii, p. 468.

The Geckos do not attain to any considerable size, the largest species being from 10 to 14 inches long. They are carnivorous animals destroying insects, moths, and even the younger and weaker members of their own species; Geckos have even been seen devouring their own tail. They are of fierce habits, fighting between themselves, particularly when one has caught a larger insect than he is able to swallow at once. They make a spring at their victim. Their greediness has developed some intellectual faculties in the house Geckos: accustomed to be fed at a certain time with rice, &c., these little lizards will punctually make their appearance, and fearlessly take proffered food. Another peculiarity of the Geckos is that they are endowed with voice: in Gecko guttatus it is a shrill cry, sounding like "To-kee;" in Gecko monarchus it resembles the monosyllable "Tok," repeated six or eight times with increased celerity; in Hemidactylus frænatus it is a sharp quick call, like "chic, chic, chit," &c. They have several vernacular names in imitation of these sound as Too-kai, To-kee, Cheecha, Gokee, Keko, Gecko.

Gecko, *Gray*. Fingers and toes dilated in their whole length, with a series of undivided, imbricate, transverse plates below; only the short terminal joint is more or less compressed; four claws to each foot. Sides of the trunk without cutaneous appendage. The species of this genus are confined to the Old World; the following are found in British India:—

Gecko guttatus.

Lacerta gecko, *L. Syst. Nat.* i. p. 365.
L. teres et G. verticillatus, *Laur.* p. 44.
L. guttatus, *Daud.* iv. p. , tab. 49.
L. verus, *Merr. Amph.* p. 42. *Gr., Lizards*, p. 160.
L. annulatus, *Kuhl, Beitr Zool.* p. 131.
Platydactylus guttatus, *D. & B. Erp. gén.* iii. p. 328. Gecko reevesii, *Gray, Lizards*, p. 161.

This is one of the most common species in British India, in Siam, Cochin-china, and Southern China; it is found on numerous islands of the Archipelago, but appears to be entirely absent in Ceylon; it frequents houses, and attains to a length of 10 or 12 inches.

Gecko stentor.

Platydactylus stentor, *Cantor. Catal. Mal. Rept.* p. 18.

The typical specimen, 16 inches long, and obtained from the villa on the Pentland hills at Penang, is the only one known to have been found; it is in the British Museum. The species, therefore, appears to be very scarce.

Geko smithii. *Gray, Zool. Misc.* p. 57.

Described by Dr. J. E. Gray from a specimen in Fort Pitt Museum is said to be from Penang.

Gecko monarchus. *Gray, Lizards*, p. 161.

Platydactylus monarchus, *Dum. & Bibr. Erpét. Gén.* iii. p. 335. *Cantor. Catal. Mal. Rept.* p. 19.

This species attains to a length of 7 inches; the newly-hatched animal is 2½ inches long. It is found on the Philippine Islands, in Amboyna, Borneo, on the Malayan Peninsula, and in Ceylon. It possesses the power of changing its ground colour in a greater degree than any other Gecko. It is very numerous at Penang, swarming at night in rooms, occasionally giving out a sound resembling the monosyllable "Tok," repeated six or eight times with increased celerity. They are pugnacious among themselves, two or more sometimes fighting for an insect.

Gecko japonicus.

Platydactylus japonicus, *Dum. & Bibr. Erpét. Gén.* iii. p. 337.
P. jamori, *Schleg. Faun. Jap. Rept.* p. 103. pl. 2. figs. 1-4.
Gecko chinensis, *Gray, Zool. Misc.* p. 57.
Hemidactylus nanus, *Cantor, Ann. & Mag. Nat. Hist.* 1842, ix. p. 482.

This species attains to a length of 5 inches; it is found in Southern Japan, China, Chusan, and Formosa. It is a house Gecko.

Gecko swinhonis. A single specimen, 4½ inches long, was sent from Northern China.

Gecko subpalmatus. The single specimen observed was obtained from Chikiang (China); it is 4 inches long, the tail measuring one-half), and apparently a female.

Ptychozoon, *Kuhl*. Fingers and toes dilated, united in their whole length by a web, with a series of undivided, imbricate, transverse plates below; four claws to each foot, sides of the head, body, tail, and of the limbs with broad, wing-like expansions of the skin. Only one species is known.

Ptychozoon homalocephalum. The Flying Gecko.

Lacerta homalocephala, *Creveldt, Schrift. naturf. Frund. Berl.* iii. p. 266. tab. 8.
Gecko homalocephalus, *Tiles. Mem. Acad. Pétersb.* vii. tab. 10.
Ptychozoon homalocephalum, *Kuhl, Isis*, 1822, p. 475. *Cantor, Mal. Rept.* p. 20.
Pteropleura horsfieldii, *Gray, Philos. Mag.* ii. p. 56.
Platydactylus homalocephalus, *Dum. & Bibr.* iii. p. 339. pl. 28. fig. 6, & pl. 29. figs. 1 & 2.

This very handsome Gecko has all the general characters of the preceding genus, but its integuments are dilated into broad folds, forming wing-like expansions along the sides of the whole animal, somewhat resembling those of the Dragons in form and function. The ground-colour of the head and of the back yellowish-green olive, of the sides reddish blackish spots. Limbs feeble, with very short toes.

Senira bi-color, *Gray*, Philippine islands, Gamboja, 8 in. long, tail 4 in.

Hagria. *Gray*. Scales smooth not striated or keeled, limbs short feeble, far apart, palate out teeth.

Hagria vosmaerii. *Gray*.
Campsodactylus lamarrei, *D. and B. v. p.* 762.

Snout conical; head brown; body and tail with alternate, brown and yellow lines.

Chiamela. *Gray*. Body and tail elongate, tapering, without any keels or spines.

Chiamela lineata, *Gray, A. & H.* ii. 333.

A slow worm-like lizard, locality unknown. Brownish with black lines corresponding to the series of scales.

Anguis melanosticta, *Russell*.
Tortrixmelanosticta. *Gray*.

Ventral shields 151, sub-caudals 120. Cor. Coast.

Family Acontiadidæ or Acontiads.

Head covered with shields which are symmetrically arranged. Tongue free, exsertile, nicked at the end. Scales on the back rounded, quincuncial, imbricate; those on the belly similar to those on the back and on the sides. No fold across the throat or along the side; no femoral or inguinal pores. Tail long, rounded, fragile. Eye and lower eyelid well developed. Nostrils in the enlarged rostral plate, with a longitudinal slit behind. Limbs rudimentary or absent. The form of the body much resemblesthat of the common blind-worm of England, and they appear to have very similar habits. Their limbs, if present, are so rudimentary that they can give but little assistance in locomotion.

Acontias, *Cuvier*. Legs entirely absent. The type of this genus is a South African species; Kelaart, discovered in Ceylon a lizard which appears to belong to it.

Acontias (?) layardi, *Kelaart, Pr. Enum. Zeyl.* ii. 12.

Light olive and spotted longitudinally with brown spots, paler beneath. Length of young 4 inches. Cinnamon Gardens of Colombo.

Nessia, and Evesia, *Gray*. Four rudimentary legs. Rostral shield large, subconical, depressed, small, evidently burrowing reptiles, approaching the Rhinophides in habit and mode of life. They appear to be confined to the island of Ceylon, whilst the latter extend also over some parts of the neighbouring continent.

Nessia burtonii, *Gray, Ann. & Mag. Nat. Hist.* ii. *p.* 336. *Kelaart, Prodr. Faun. Zeyl.* ii. p. 12.

Grows to a length of 5 inches, the head and trunk 3. Ceylon, Kadugannava and Allagalla (3,000 feet), and common at Ambegammoa.

Nessia monodactyla.
Evesia monodactyla, *Gray, l. c.*
E. bellii, *Dum. & Bibr.* v. p. 783.
Tetrapedos smithii, *Jan. in Wiegm. Arch.* 1860, p. 69. tab. 2. fig. 4.

This species is similar to N. burtonii. The proportions of the body and tail are the same as in N. burtonii.

Family of Sand Lizards—Sepsidæ.

This family differs from those of the Skinks and of the Acontiads by the nostrils being in the front edge of a small shield, in a notch at the hinder side of the rostral. The species are African, extending over the warmer parts of Western Asia, one species reaches to Afghanistan.

Sphenocepha, *Blyth*. Limbs four, rudimentary, each with three toes. Ears invisible.

Sphenocephalus tridactylus, *Blyth, Journ. As. Soc. Beng.* xxii. p. 654.

A sepsoid form, affined to Sphenops, but with more slender and elongate shape, and the limbs placed more distinctly apart; the anterior minute, and fitting into a groove; the posterior as large as in Sphenops, and each having but three toes, of which the innermost and next are sub-equal, and the outer much shorter.

Family of Geckos—Geckotidæ.

Head broad triangular, more or less depressed; upper parts granular or tubercular; belly covered with small, rhombic, imbricate scales. Tongue rather thick and short, its basal portion being attached to the gullet. Eyelids generally rudimentary, and not connivent; pupil generally erect. Toes generally with an adhesive apparatus. The typical forms of this family may be recognized at first sight: the head is broad and depressed, with large eyes; the body is of moderate breadth; the tail thick at the base, tapering, generally somewhat deformed, as it easily breaks off and is as easily renewed. The limbs are stout, of moderate length, with at least four of the toes well developed. They are found in almost every part between and near the tropics, frequenting houses, rocks and trees; and some of the species are so numerous around and within human dwellings, that they are most familiar objects to the inhabitants. All the Indian species, with the exception of Eublepharis, are able to run up and along the surface of a wall or of any other perpendicular object: for this purpose the lower surface of their toes is provided with a series of moveable plates or discs, by the aid of which they adhere to the surface over which they pass. No Gecko has imbricate scales on the back, brown. Iris rich golden brown. It attains to a length of 7 inches, of which the tail takes one-half. It is found chiefly in Java and in a few other islands of the East Indian Archipelago, Penang, Singapore, and the Island of Ramree appear to be the only places where it has hitherto been found in British India. The expansions of the skin have the same purpose as the wings of the Dragons and of the Flying Squirrels in leaping; in leaping these membranes are expanded by the pressure of the air from below and act as a parachute. When the Gecko is at rest, they are kept in close contact with the body by muscles attached to their inferior surface like other Geckos, they have in some degree the power of changing the ground-colour from a darker to a lighter shade.

Hemidactylus, *Cuv.* Fingers and toes dilated, ovate, with two series of transverse, imbricate plates beneath; thumb and inner toe with the ungual phalanx compressed and clawed, the claw sometimes being minute: sides of the trunk without cutaneous appendage, tail with the lateral edge not serrated. Species of Hemidactylus occur in almost every part of the tropical regions; the following are known from British India:—

Leiurus berdmorei, *Blyth.* A Gecko from Mergui, distinguished from Hemidactylus by having the tail rounded, not depressed, and without tubercles. It agrees with Mr. Gray's definition of Leiurus, except that there is no appearance of the toes being webbed at the base.

Hemidactylus triedrus.

Gecko triedrus, *Daud. Hist. Rept.* iv. p. 155. *Wolf, Abbild. merkw. naturh. Gegenst.* tab. 20. fig. 2.

Hemidactylus triedrus, *Less. in Bèlan. Voy. Ind. Orient., Rept.* p. 311. pl. 5. fig. 1. *Dum.* & *Bibr.* iii. p. 356. *Kelaart, Prodr. Faun. Zeyl.* i. p. 157.

On rocks and trees in Madras; coast of Malabar: rare in Ceylon; a few specimens t Trincomalee, where it is found in ant-hills; Kelaart never saw it in houses or on trees; it ays from three to six eggs, and attains to a ength of 7 inches.

Hemidactylus subtriedrus, *Jerd. Calc. Journ As. Soc.* Beng. xxii. p. 467, from the Nellore istrict in the Indian Peninsula, uncertain hether distinct from, or identical with, H. iedrus.

Hemidactylus maculatus. *Dum. & Bibr.* iii. p 58. *Gray, Lizards,* p. 158. *Kelaart, Prodr. Faun. Zeyl.* i. p. 158.

Nubilia argentii, *Gray, Lizards,* p. 273.

? Hemidactylus pieresii, *Kelaart, l. c.* p. 159.

The most common species of the E. Indies; hina, Lahore, Bengal, Singapore, Ceylon, the namallay Mountains. The Philippine Islands and Mauritius. It is one of the commonhouse Geckos.

Hemidactylus sykesii. In the British Museum, is 7½ inches long, and was brought by Colonel Sykes from the Deccan.

Hemidactylus frænatus. The Cheecha of Ceylon. *Dum. & Bibr.* iii. p. 366. *Kelaart, Prodr. Faun. Zeyl.* i. p. 161.

Ceylon, Penang, Singapore, Siam, Gamboja, Bengal and Assam, and according to Bibron Southern Africa, the East Indian Archipelago, and Polynesia. It scarcely ever exceeds the length of 4 to 5 inches; and is one of the most common house Geckos, seen soon after sunset in search of prey, which consists of flies and other insects. It does not reject boiled rice and crumbs of bread always returning to the spot where it has been thus before fed. It is also frequently met with on trees and on rocks. The female lays three or four eggs, in crevices of old walls or in the hollows of trees.

Hemidactylus leschenaultii. *D. & B.* iii. 354.

? Hemidactylus leschenaultii, *Jerd. Calc. Journ. As. Soc. Beng.* xxii. p. 468.

Very similar to H. frænatus, with which it agrees in the structure, size, and number of the scales and tubercles.

Hemidactylus punctatus, *Jerd. Calc. Journ. As. Soc. Beng.* xxii. p. 467. Back with some larger conical scales, and subcaudal scutes very large. Tellicherry.

Hemidactylus coctæi. *Dum. & Bibr.* iii. (1836) p. 365. *Cantor, Mal. Rept.* p. 23.

Boltalia sublævis. *Gray, Zool. Misc.* 1842, p. 58, *Kelaart. Prodr. Faun. Zeyl.* ii. p. 18.

Patna, Penang, Ceylon. Length 6 or 7 inches Living on trees and on roofs of houses Kelaart (Prodr. Faun. Zeyl. i. p. 160) mentions a Hemidactylus coctæi as a species distinct from Boltalia sublævis; Gunther has not been able to indentify this H. coctæi of Kelaart.

Peripia, *Gray.* Fingers and toes dilated, ovate, with two series of transverse, imbricate plates beneath; thumb and inner toe without ungual phalanx; clawless: claws 4—4. Sides of the trunk, without cutaneous appendage.

Peripia peronii.

Hemidactylus peronii, *Dum. & Bibr.* iii. p. 351. pl. 30. fig. 2. *Cantor, Catal. Mal. Rept.* p. 22. *Kelaart, Prodr. Faun. Zeyl.* i. p. 187.

Back uniform granular, without any tubercles. This species, which attains to a length of from 4 to 5 inches, was first described from specimens from the Isle of France, and has been found by Cantor in houses in the valley of Penang, and by Kelaart at Kaduganava, Ceylon, where it frequents trees.

Peripia cantoris.
Platydactylus lugubris, *Cantor, Mal. Rept.* p. 16 (not *Dum. & Bibr.*)
Hemidactylus peronii, *D. & B. of Cantor.*

Back uniform granular, without any tubercles from Penang. It is 3 inches long.

Nycteridium, the Platyurus of *Gray*. Fingers and toes dilated, ovate, with two series of transverse, imbricate plates beneath; thumb and inner toe with a compressed ungual phalanx and with a claw. Sides of the trunk with a cutaneous expansion. Tail flattened, serrated on the sides. It is a modified form of Hemidactylus, to which it stands in the same relation as Ptychozoon to Gecko. Only one species is known.

Nycteridium schneideri.
Stellio platyurus, *Schneid. Denkschr. Acad. Wiss. Munch.* 1811, tab. 1. fig. 3.
Lacerta schneideriana, *Shaw, Zool.* iii. p. 278.
Hemidactylus platyurus, *Wiegm. Act. Ac. Leop. Carol. Nat. Cur.* xvii. p. 288.
H. marginatus, *Wiegm. Amph.* p. 145. *Dum. & Bibr.* iii. p. 370. pl. 30. fig. 2 (not good).
Platyurus schneiderianus, *Gray, Lizards*, p. 157.

This species is found throughout the East Indian Archipelago, in Assam and Bengal; it is common in Siam and at Penang. Kelaart has sent two specimens from Ceylon. It attains to a length of $4\frac{1}{2}$ inches.

Phelsuma, *Gray*. Fingers and toes free, rather elongate, with the base rather slender and with the extremity dilated, ovate below, provided with undivided, imbricate, transverse plates; claws none.

Phelsuma andamanense. *Blyth, Journ. As. Soc. Beng.* xxix. p. 108. Andaman Islands. Head and body 2 inches, tail (renewed) $1\frac{5}{8}$ inch.

Gymnodactylus, Spix. Each finger and toe is composed of two portions; a basal portion, depressed, and provided with a series of transverse plates beneath; and a terminal portion formed by two compressed, more or less slender phalanges; claws five to each foot, free, without sheath. Tail cylindrical, tapering.

Gymnodactylus triedrus. Ceylon. Nearly 4 inches long.

Gymnodactylus pulchellus. *Wagl. Amph.* p. 144. *Cantor, Catal. Mal. Rept.* p. 25.
Cyrtodactylus pulchellus, *Gray, Phil. Mag.* ii. p. 56, and *Ind. Zool., Rept.* tab.

Found in elevated parts near Penang and Singapore, and attains to a length of 10 inches. Its habits are similar to those of other Geckos; it bites fiercely in defence; in captivity it refuses insects. The integuments, when about being renewed, are torn off piecemeal by the teeth and devoured; egg of a spherical form about half an inch in diameter, of a whitish-yellow colour.

Gymnodactylus frænatus. A fine species found in Ceylon; it attains to a length of 7 inches.

Gymnodactylus kandianus. *Kelaart, Prodr. Faun. Zeyl.* i. p. 52. A small diurnal species, 3 inches long, and very abundant on every house in Kandy and Kaduganava.

Gymnodactylus mysoriensis. *Jerdon, Journ. As. Soc. Beng.* xxii. p. 469.

Bangalore, frequenting rocks and also entering out-houses.

Gymnodactylus indicus. *Gray, Ann. & Mag. Nat. Hist.* 1846, xviii. p. 429. *Jerdon, Journ. As. Soc. Beng.* xxii. p. 469. A small species from the Neilgherries, three inches long. It conceals itself under stones in the day time; yet it has the pupil of the eye round. He procured it on the top of Dodabetta, the highest mountain of the group, and has also found it in Coorg. Its colours, when fresh, are of a mottled brown, or greenish brown, with a row of yellow spots along the back, edged with darker, and a series of similarly coloured spots on each side.

a. G. malabaricus, *Jerd.* l. c. p. 469.—Dark brown above, marbled with black spots, and a white spot on the nape. $2\frac{1}{2}$ inches long. Forest of Malabar.

b. G. littoralis, *Jerd*, l. c.—Very slender; pale brown, with a series of paler marks along the back tail; a black spot on the nape. $2\frac{1}{4}$ inches long. Sea-coast of Malabar.

Gymnodactylus deccanensis, *Sykes*, a pretty species of the Deccan.

Pentadactylus duvaucelii. *Dum. & Bibr.* iii. p. 312. *Gray, Lizards*, p. 160.

Described by Bibron said to have been brought from Bengal. 10 inches long, the tail measuring $5\frac{1}{2}$ inches.

Puellula, *Blyth*. Toes not dilated, but distinctly ribbed, except on the ungual phalanges. A distinct rudimentary dorsal crest. No femoral or præanal pores, but a large, raised glandular space at the base of the thighs underneath divided by a slight median groove on the anterior half, which deepens to form a large glandular cavity on the posterior half. This structure is less developed in the female.

Puellula rubida, *Blyth, Journ. As. Soc. Beng.* xxix. p. 109. Length about 5 inches, of which the tail is half. A common species at Port Blair Andaman Islands.

Eublepharis, *Gray*. Fingers and toes not dilated or depressed, rather short, all clawed, and with a single series of simple, transverse, narrow scales below. The upper eyelid broad, prominent, the lower well developed. Tail cylindrical, tapering.

Eublepharis hardwickii, *Gray, Zool. Journ.* iii. p. 323. This attains to a length of from 8 to 9 inches. Chittagong, Russelconda, Anamally Mountains, also found at Waltair, suburb of Vizagapatam.

Family of Agames.—Agamidæ.

Head covered with numerous, very small flattish or convex shields. Tongue thick, attached to the gullet along its whole base, not or but slightly, notched in front Scales of the back, sides, and belly imbricate, generally rhombic. Tail long, tapering, not fragile. Eye and eyelids well developed ; pupil round. Nostrils in a separate plate. Teeth implanted on the edge of the bones of the jaws ; generally a pair of canine teeth in front of each jaw. Limbs well developed. The Agames are Land Lizards spread over almost every part of the Old World and of Australia, being much less numerous in the temperate parts than in the tropical—some, with a compressed body and with a long, more or less compressed tail, live on trees or bushes, whilst others, with a depressed body and with a shorter tail, inhabit rocks or plains. The most slender and the most gaily-coloured forms belong to the former division, the heavier ones with duller colours to the latter. They do not attain to any considerable size, and none of the Indian species exceed a foot in length, the tail not included. The greater part are insectivorous, but many feed on vegetables (seeds, fruits, leaves) as well as on animals. All are oviparous. The species of the E. Indies belong to the following genera.

Draco, *Linn.* A semi-circular membrane, upported by the five or six posterior (false) ibs, which are much prolonged, forms a sort f wing or parachute on each side of the body. vertical appendage is suspended from the iddle of the throat ; a smaller horizontal fold f the skin on each side of the gular appendage. he Dragons are entirely confined to the ast Indies ; they are more numerous in the rchipelago than on the continent, they ave not yet been found in Ceylon. The haracter by which they are at once recognized the peculiar additional apparatus for locootion formed by the much-prolonged five or ix hind ribs, which are connected by a broad tpansible fold of the skin, the whole forming sub-semicircular wing on each side of the dy. The Dragons are Tree Lizards, and, mping from branch to branch, they are suprted in the air by their expanded parachutes, hich are laid backwards at the sides of the imal while it is sitting or merely running. the hind extremities of a Dragon were off, it would lie helpless on the ground ; it would still move with great velocity if it were merely deprived of its wings. The locomotion of the Dragons is a series of leaps, and not a continuous running ; they are the Anoles of the Old World. The transcendent beauty of their colours baffles description. As the lizard lies in shade along the trunk of a tree, its colours, at a distance, appear like a mixture of brown and grey, and render it scarcely distinguishable from the bark. Thus it remains with no signs of life except the restless eyes. watching passing insects, which, suddenly expanding its wings, it seizes with a sometimes considerable unerring leap. The lizard itself appears to possess no power of changing its colours. Almost all the species attain to the same length, viz. 7—8 inches, of which the tail takes one-half or rather more than one-half. D. quinquefasciatus appears to be somewhat larger than the others.

Draco volans et præpos, *L. Syst. Nat.* xii. p 358.

D. viridis et fuscus, *Daud. Rept.* iii. pp. 301, 307.
D. daudinii, *Dum. & Bibr.* iv. p 451.
D. viridis, *Schleg. Abbild.* p. 89. tab. 24. fig. 1.
D. volans, *Cantor, Mal. Rept.* p. 37.

Throat and sides of the gular appendage with numerous brown dots. The colours vary much, not only according to the localities, but also individually ; the brown or black dots on the throat appear to be constant. Head metallic brown or green, with a black spot between the eyes. This species is found in Java, Sumatra, Borneo, Penang and Singapore.

Draco reticulatus (n. sp.) from the Philippine Islands, and Draco cornutus (n. sp.) from Borneo, are allied to D. volans.

Draco maculatus. *Cantor, Mal. Rept.* p. 39.
Dracunculus maculatus, *Gray, Lizards,* p. 236.

Found in different parts of the coast of Siam, at Penang, and in Tenasserim.

Draco dussumieri, *Dum. & Bibr.* iv. p. 459. *Jerdon, J. As. Soc. Beng.* xxii. p. 474.

Found in the neighbourhood of forests of the west coast of the Peninsula of India, frequenting the cocoanut and betel-nut plantations in their vicinity. It is tolerably common in all Malabar, Cochin, and Travancore, but not known farther north than Malabar, being either unknown or very rare in Canara.

Draco quinquefasciatus, *Gray, Zool. Journ.* 1827, p. 289 ; *Ind. Zool.* c. fig. It is said to be from Penang, 8 inches long, the tail measuring 4.

Draco tœniopterus, *Gunth. Proc. Zool. Soc.* 1861. *April* 23, p. 187. Chartaboum, on the coast of Siam ; the coast of Tenasserim.

Draco bimaculatus.—Philippine Islands.
Draco rostratus.—Probably from Borneo.

Otocryptis, *Wiegm.* Tympanum hidden. Back and sides covered with small scales, which are regularly arranged; a few large ones scattered over the sides. Male with a low nuchal crest and with a large gular sac; no dorsal crest. Head without any prominent spines or appendages. Limbs exceedingly long; hind limb longer than the body. Scales on the lower part of the tail not elongate. Only one species is known.

Otocryptis bivittata, *Wiegm. Isis,* 1832, p. 291. The limbs are exceedingly long, the hind limb extending far beyond the extremity of the snout, if laid forwards; the fourth hind toe is nearly twice as long as the third. Brownish olive; male generally with a whitish band along each side of the back; six or seven brown cross bars on the middle of the back between the bands; legs and tail with brownish transverse bands. Though local, does not appear to be scarce in Ceylon. At Trincomalee, Hinida, Ratnapura, and on Adam's Peak. An adult male measures 10 inches, the tail measuring 7; the length of its hind leg is 3½ inches.

Lyriocephalus, *Merr.* Tympanum hidden. Back and sides covered with minute scales; several distant series of large scales along the trunk; a crest runs along the whole vertebral line; superciliary margins pointed behind. Gular appendage moderately developed. The adult with a globular hump on the nose. Only one species is known.

Lyriocephalus scutatus. *Walg. Amph.* p. 150. *Kelaart. Faun. Prodr. Zeyl.* i p. 166.
Lacerta scutata, *L. Syst. Nat.* i. p. 360.
Lyriocephalus margaritaceus, *Merr. Amph.* p. 49.
L. macgregorii, *Gray, Ind. Zool.* c. fig.

Nearly uniform dark green above, paler below. This species is a native of Ceylon. It attains to the length of 15 inches, of which the tail takes one-half. The female lays from three to four hard shelled eggs of about the size of sparrows' eggs.

Ceratophora, *Gray.* Tympanum hidden. Scales of the upper parts of the trunk unequal in size; anterior part of the back with a rudimentary, or without any crest; superciliary margins not pointed behind. Gular sac not developed or absent. A pointed or scaly appendage on the nose, at least in the male sex. The Lyriocephalus and Ceratophora lizards come from the interior of Ceylon and the two genera should perhaps be united.

Ceratophona stoddartii, *Gray, Ind. Zool.* c. fig. *Kelaart, Prodr. Faun. Zeyl.* i. p. 165. Dark green, with dark-brown cross bands across the back, tail, and limbs; generally a whitish streak behind the orbit. The horn on the snout is more developed in the adult males than in the females and in the young; it is half an inch long in the former, whilst it is reduced to half that length in the females.

Ceratophora tennentii, *Gunth. in Tennent, Nat. His. Ceyl.* p. 281. The appendage on the nose is fleshy. Green, irregularly marbled with brownish. An inhabitant of Ceylon.

Ceratophora aspera. Brownish, marbled with darker; a rhombic light colour spot on the satoral region.

Cophotis, *Peters.* Tympanum hidden. Back and sides covered with very large, imbricate, irregular scales subequal in size. A nuchal and dorsal crest. A small gular sac in both sexes. Male with only a very small tubercle behind the rostral shield. One Ceylon species.

Cophotis ceylanica, *Peters, Monatsber. Acad.* Dec. 1861, p. 1103. Very locally distributed in Ceylon, evidently a tree Lizard.

Japalura et Biancia, *Gray.* Tympanum hidden. The upper parts covered with small, imbricate, keeled scales between which larger ones are intermixed; dorsal crest low. Tail slightly compressed at its base. Throat with a small pouch in the male, and with a transverse fold. No rostril appendage. Ventral scales of moderate size, keeled; scales below the tail as broad as long. Found in the Himalaya, a second on the island of Formosa, and a third in one of the Loochoo Islands.

Japalura variegata. *Gray.*
Biancia niger, *Gray, in Ann. & Mag. Nat. His.* xii. 1853, p. 387.

Sikkim; the colours vary to a considerable extent. A large female is almost wholly black above, variegated with yellow, all the larger scales being of the latter colour. The characteristic bands on the head and side of the neck are present; it attains to a length of 12 inches, the tail taking two-thirds of it.

Japalura swinhonis. Formosa, 8 inches long, the tail 5¾ inches.

Japalura polygonata.
Diploderma polygonatum, *Hallowell, Proc. Acad. Nat. Sc. Philad.* 1860, p. 490.

Amakarima Island (Loochoo); uniform greenish olive above; eight dark-coloured bands on the tail; seven upper labials; no fold across the chest; neck slightly folded, it is 7 inches lines long, the tail measuring 5½ inches.

Sitana, *Cuv.* Limbs long, with five toes in front and with only four behind. Scales regularly arranged, keeled. Tympanum visible. Scarcely any crest on the neck; male with a very large gular appendage which can be folded up like a fan. Femoral pores none, an easily distinguished genus, having only four toes behind. Sitana is confined to Western India and to Ceylon; only two species are known.

Sitana ponticeriana, *Cuv. Régne, Anim. Dum. & Bibr*. iv. p. 437.

Gular appendage tri-coloured—blue, black, and red, length 8 inches, of which the tail 6 inches, inhabits northern parts of India.

Sitana minor.

Sitana ponticeriana, *Jerd. Journ. As. Soc. Beng.* xxii. p. 473 (not *Cuv.*)

Readily distinguished by its proportionally much longer limbs; found in the neighbourhood of Madras, where it appears to be common in fields and low copses, avoiding wooded districts. The gular appendage is equally developed in both species. The splendid colours of this appendage are only exhibited during the pairing season. It is the common prey of many raptorial birds.

Sitana pondicerianus. *Kelaart, Prodrom. Faun. Zeyl*. p. 164. Ceylon; probably identical with the Madras species.

Dilophyrus, *Gray*. Tympanum naked. Back and sides covered with equally minute granular scales; a very high nuchal and dorsal crest, the lobes of the crest being united by a membrane. Gular sac small. Tail compressed.

Dilophyrus grandis. *Gray, Lizards*, p. 230. *Cantor, Mal. Rept*. p. 34, pl. 20. Rangoon, Penang. 22½ inches long, tail 16 inches, one was captured by Sir William Norris on the Penang hills, on the bank of a mountain stream, at an elevation of 2,000 feet. It appeared slow in its movements and of general sluggish habits.

Bronchocela, *Kaup*. Tympanum naked. Back and sides covered with scales equal in size and regularly arranged, the tips of those on the sides being directed backwards and downwards. Head without appendages or prominent spines. Dorsal crest present, formed by non-united spines. Gular sac but slightly developed. Tail not compressed, the scales on its lower side being as broad as long. Femoral pores none. The species are true tree Lizards, of a more or less pure green colour; they are found chiefly in the Archipelago, but extend to the southern coasts of the continent, and several of the species are the most common lizard of the East Indies: they are not found in Ceylon. Three species are known to occur on the Indian continent:—

Bronchocela cristatella. The Gruning.

Agama cristatella, *Kuhl, Beitr. Zool*. p. 30.

A. gutturosa, *Merr. Amph*. p. 51.

A. moluccana, *Less. Voy. Coqu. Rept*. pl. 1. fig. 2.

Bronchocela cristatella, *Dum. & Bibr*. iv. p. 95. *Cantor, Mal. Rept*. p. 30.

Very common in the Malayan countries and n the Eastern Archipelago, Sumatra, Java, Amboyna, Celebes, Borneo, Booroo, Philippines, &c. It moves and leaps with great quickness among the branches of trees. The colours change suddenly to grey, brownish or blackish, sometimes with orange spots or with indistinct black network; large, isolated, round black spots appeared on the head or back or round the tympanum. It attains to a length of 20 inches, the tail measuring 16 inches.

Bronchocela smaragdina. Above uniform beautiful emerald-green, below greenish white; both colours are separated by a yellow band, running along each side of the belly, extending over the hind part of the femur, and lost behind the root of the tail. Gamboja; 16⅔ inches long, the tail measuring 13 inches.

Bronchocela jubata. *Dum. & Bibr*. iv. p. 397.

B. gutturosa, *Gray, Lizards*, p. 241 (not *Merr.*)

Common in Java; occurs also in Pondicherry. It attains to a length of 21 inches, the tail measuring 16 inches.

Calotes, sp., *Cuvier*. Tympanum naked. Back and sides covered with scales equal in size and regularly arranged, the tips of those on the sides being directed backwards and upwards. Dorsal crest present, formed by non-united spines. Gular sac but slightly developed. Subcaudal scales as broad as long. Femoral pores none.

The species of Calotes are closely allied to Bronchocela; but whilst the latter are almost entirely confined to the Archipelago, the Calotes are found only on the continent, including Ceylon. As far as our present knowledge extends, the coast of Siam is the only country where both genera intermingle with each other. The chief structural difference between both is in the direction of the scales. They are true tree Lizards, some having the tail rather compressed at the base. They feed on insects, on tender leaves, and on berries.

Calotes versicolor. The blood sucker.

Agama versicolor, *Daud. Rept*. iii. p. 395. t. 44.

A. tiedemanni, *Kuhl. Beitr. Zool*. p. 109. *Kaup. Isis*, 1827, p. 619. t. 8.

A. vultuosa, *Harl. Journ. Acad. Nat. Sc. Philad*. iv. p. 296. t. 19.

Calotes versicolor, *Dum. & Bibr*. iv. p. 405. *Gray, Lizards*, p. 243. *Kelaart, Prodr. Faun. Zeyl*. i. p. 170. *Blyth, Journ. As. Soc. Beng*., xxii. p. 649. *Jerdon, ibid*, p. 470.

C. viridis, *Gray, Ann. & Mag. Nat. Hist*. 1846, xviii. p. 429 (not *Jerdon* or *Blyth*).

C. rouxi, *Blyth, l. c*. xxi. p. 354, not *D. & B.*

The ground-colour is generally a light brownish olive, but the lizard can change it to bright red, to black, and to a mixture of both. This change is sometimes confined to the head, at other times diffused over the whole body and tail. The bright changeable colours are peculiar to the male during the breeding-season, in the months of May and June, and it then may be seen seated on a hedge or bush, with the tail and limbs black, head and neck yellow picked out with red, and the rest of the body red.

This is one of the most common lizards, extending from Afghanistan over the whole continent of India to China; it is very common in Ceylon, not extending into the temperate zone of the Himalaya. Ceylonese specimens are generally somewhat larger; one of them measured 16 inches, the tail taking 11 inches. It is found in hedges and trees; the origin of the name of "bloodsucker," cannot be traced; in the opinion of Kelaart the name was given from the occasional reddish hue of the throat and neck. It frequently raises and lowers its body and head, from which mahomedans hate it, as they say it imitates their attitudes in prayer.

Calotes nemoricola, *Jerd. J. B. S.* xxii. p. 471. Green obtained near the foot of the Coonoor ghat of the Neilgherries. 18 inches long.

Calotes mystaceus, *Dum. & Bibr.* iv. p. 408, *Blyth in Kelaart, Prodr. Zeyl.* i. App. p. 47. Green, clouded with yellowish; a series of large round purplish-brown spots along each side of the back. Burmah, Pegu, Siam, Mergui, Gamboja and Ceylon. An old male measures nearly 24 inches, the tail taking 19 inches.

Calotes rouxii, *Dum. & Bibr.* iv. p. 407. C. Ellioti, *Gunth.* Brownish, uniform or spotted with black. Mr. Blyth has a C. rouxi from Burmah and Ceylon; but this determination and that by Mr. Jerdon are incorrect. The lizard in question having a row of three or four spines above the tympanum. See C. nigrilabris.

Calotes ophiomachus.

Lacerta calotes, *L. Syst. Nat.* i. p. 367.

Agama ophiomachus, *Mirr. Amph.* p. 51.

Calotes ophiomachus, *Gray, Syn. Rept. in Griff. Anim. Kingd.* ix. p. 55. *Dum. & Bibr.* iv. p. 402. 402. *Kelaart, Prodr. Faun. Zeyl.* i. p. 169. *Tennent, Nat. Hist. Ceyl.* p. 276.

? Calotes viridis, *Kelaart, l. c.* p. 171 (not *Gray.*)

Ceylon and the neighbouring parts of Southern India, also found in the Nicobar Islands. It attains to a length of 26 inches, the tail being four times as long as the body.

Calotes platyceps, *Blyth in Kelaart; Prodr. Faun. Zeyl.* i. *Apped.* p. 56.—No black stripe through the eye.—Cherra Punji.

Calotes nigrilabris. *Peters, in Monatsber. Acad.* 1260, p. 133.

Calotes rouxii, *Blyth. in Journ. As. Soc. Beng.* xxii. p. 647, (not *Dum. & Bibr.*)

The ground-colour is beautiful green, but the ornamental colours vary,—not very rare in Ceylon; it is found in the environs of Newera Ellia. Blyth gave a good description of varieties *a* and *b*, but mistook it for C. rouxii.

Calotes emma, *Gray, Lizards,* p. 244. *Blyth. Journ. As. Soc, Beng.* xxii. p. 647. Mergui, Schwe-Gyen on the Sitang river, in Pegu, ranging northwards perhaps to the Khasya Hills; Afghanistan? Length 11 inches, the tail 8 inches.

Calotesmaria, *Gray, Lizards,* p. 248.

? Calotes tricarinatus, *Blyth, Journ. As. Soc. Beng.* xxii. p. 650.

Specimens from Khasya Hills from Jamu, Himalaya, where it is found at an elevation of about 3,000 feet. Afghanistan doubtful. Length 16 inches, the tail 12.

Salea, *Gray.* Tympanum naked. Back and sides covered with strongly keeled scales of moderate size; several larger scales are intermixed with the others on the side; the scales from longitudinal series, and their tips are directed backwards; head without any spines. A crest on the back; gular sac none. Tail slightly compressed at the base, with keeled scales below, which are almost as broad as long Only one species is known.

Salea horsfieldii, *Gray, Lizards,* p. 242. (female.)

S. jerdonii, *Gray, Ann. & Mag. Nat. Hist.* xviii. 1846, p. 429 (male.) *Jerdon, Journ. As. Soc. Beng.* xxii. p. 473. *Kelaart, Prodr. Faun. Zeyl.* p. 167.

Mecolepsis trispinosus, *Duméril, Arch. Mus. Hist. Nat.* viii. 1856, p. 564. pl. 24. fig. 1. (adult male= *S.* jerdonii, *Gray*).

M. hirsutus, *Duméril, l. c.* fig. 2 (immature male)

M. sulcatus, *Duméril, l. c.* fig. (female = S. horsfield).

The coloration appears to be very variable: Jerdon describes it as a bright grass-green marbled with brown, with some red marks on the head and nape and with a few white scales on the sides. The colours become darker at a lower temperature, as is the case with many tropical lizards. This is the only species known, the S. gularis of Blyth evidently belonging to a different genus. It is found in the Neilgherries and at Newera Ellia in Ceylon, where it frequents bushes and hedges.

Oriocalotes. Tympanum naked. Back and sides covered with scales of moderate size between which larger ones are intermixed; their tips are directed backwards and upwards; a spine behind the superciliary edge. Dorsal crest present, formed by non-united spines, less distinct in the female than in the male. Gular sac none. Tail rounded, with keeled scales below, which are as broad as long. Only one species is known.

Orioclates minor. *Gray.* Calotes minor, *Gray.* Greyish olive, marbled with brown, the brown spots being sometimes bandlike between the eyes, on the limbs, and across the base of the tail. Brown streaks radiate from the orbit. Afghanistan? Khasya, Sikkim. Length 7 inches, the tail taking 4½ inches.

Acanthosaura, *Gray*. Tympanum naked. Back and side covered with very small scales, between which, generally, larger keeled ones are scattered ; a free spine behind the superciliary edge. Dorsal crest present, formed by non-united spines. Gular sac none. Tail slightly compressed at the base, with keeled scales below, which are longer than broad.

Acanthosaura armata, *Gray*, *Lizards*, p. 240.
Agama armata, *Gray*, *Zool. Journ*. 1837, iii. p. 216.
Liphrus armatus, *Dum. & Bibr*. iv. p. 418. *Cantor, Mal. Rept*. p. 32.

Singapore, Penang, on the coasts of Tenasserim and Siam (Chartaboum), and in Cochin-China, numerous. 12¼ inches long, the tail taking 7. Very active and fierce, possess in a slight degree the power of changing the ground-colour. In a female were found thirteen eggs, of an oval shape, ⅔rds of an inch long. The stomach contained fragments of leaves and twigs.

Acanthosaura capra, *Gunth. Proc. Zool. Soc*. 1861, April 23, p. 188. Chartaboum, on the coast of Siam ; the larger is 13 inches long, the tail measuring 8 ; the other is only half that size, and has the postorbital spine and the nuchal crest well developed, though comparatively lower.

Acanthosaura coronata, *Gunth. Proc. Zool. Soc*. 1861, April 23, p. 187. Chartaboum together with A. armata and A. capra. An adult pregnant female is 7 inches long, of which one-half is taken by the tail.

Oriotiaris—Tympanum naked. Back and sides covered with very small scales, between which larger keeled ones are scattered ; a tubercle behind the superciliary edge. Dorsal crest very low, formed by a series of larger, keeled, not prominent scales. Gular sac none. Tail not compressed, with keeled scales below, which are almost as broad as long. Only one species is known.

Oriotiaris elliotti, *Gunth. Proc. Zool. Soc*. 1860, p. 151, pl. 25. fig. B.

The ground-colour of the upper parts is brownish ; uniform in the females, variegated with darker in the males. Some of the large scales of the back appear to have been iridescent during life. The lower parts are uniform dull yellowish. Length nearly 7 inches, the tail 4½. Sikkim parts of the Himalaya, its up to 9,200 feet.

TIARIS.

Tiaris, *D. & B. Gray Lizards*, p. 230.

Tympanum naked. Back and sides covered with small imbricate scales with scattered larger ones : no spine behind the superciliary margin. Dorsal crest present, formed by non-united spines ; gular sac present, at least in the males. A fold before the shoulder. Femoral pores none.

Tiara subscristata, *Blyth*, *J. A. S. Beng*. xxix. p. 100. Colours various ; length 8¼ inches. Port Blair, other species occur in N. Guinea and the Philippine Islands.

Physignathus. Tympanum naked ; the upper parts covered with minute granular scales of equal size, arranged in transverse series ; throat tubercular ; ventral scales smooth ; head without any spines. A crest on the back and tail ; a fold across the throat. Tail compressed, covered with keeled scales, those at its lower side rather broader than long, strongly keeled. A series of pores on the inner side of the femur. The species of this genus attain to a larger size than the other Indian *Agamidæ*, and approach the *Iguanidæ* in general habit. Nothing is known of their habits. Only two species are known:—

Physignathus cochin chinensis. *Cuv. Régne Anim*.
Lophura cuvieri, *Gray, in Griff. Anim. Kingd*. ix. *Syn. Rept*. p, 60.
L. concinna, *Gray, l. c*. p. 61.
Istiurus physignathus, *Dum. & Bibr*. iv. *p*. 387.

Greenish olive: tail with brown cross bands. from Cochin china. 28 inches long, tail above 17 inches.

Physignathus mentager.
Dilophyrus mentager, *Günth. Proc. Zool. Soc*. 1861, p. 188.

Green: tail with brown cross bands from Chartaboum, on the coast of Siam ; it is stuffed, 30 inches long, the tail measuring 21 inches.

Liolepis, *Cuv*. Tympanum naked ; the upper parts covered with minute granular scales of equal size ; tail depressed, with very small, square, keeled scales arranged in transverse series ; throat with two transverse folds ; no dorsal crest ; ventral scales small, smooth. Femoral pores. Skin of the sides of the trunk very lax, capable of being expanded into a sort of wing, supported by the very long anterior spurious ribs. Only one species is known.

Liolepis guttatus. *Cuv. Regne Anim. Dum. & Bibr*. iv. p. 465. pl. 43. fig. 1.
Uromastix bellians, *Gray, Ind. Zool. c. fig*.
Leiolepis reevesii, *Gray, Lizards*, p. 263. *Cantor, Mal. Rept* p. 44.
L. bellii, *Gray, Lizards*, p. 263. *Cantor, Mal. Rept*. p. 41.

Blackish grey above, with series of yellow, black-edged spots ; some of the spots are confluent, entirely black, forming irregular longitudinal bands : in Chinese specimens the spots are not confluent, forming regular ocelli (*L, reevesii*). Throat pale azure ; belly pale orange, reticulated with blue ; lower eyelid pure white. It has an expansible wing membrane, which in a state of repose appears like a longitudinal loose fold; expanded, the external margin becomes arched, the trunk and the membranes forming a greatly flattened oval disk, resembling the hood of *Naja*. Malayan Peninsula, Mergui, Gamboja, and China. 19 inches, tail 13 inches.

Uromastix, *Merrem*. Tympanum naked; the upper parts covered with minute granular scales of equal size; tail depressed, surrounded by rings of spinous tubercles, not extending on its lower side; throat with a transverse fold; no dorsal crest; ventral scales small, smooth. Femoral and præanal pores. One species is known from India.

Uromastix hardwickii. *Gray, Zool. Journ.* iii. p. 219; *Illustr. Ind. Zool. c. tab.*

U. reticulatus, *Cuv. Regne Anim.*

Saara hardwickii, *Gray, Lizards*, p. 262.

Lighter or darker yellowish grey, or greyish olive, uniform, or clouded, or with waved blackish transverse lines; sometimes a large black spot on the inner side of the femur. The plains of Hindostan; Kanouj, Kurrachee, Goojerat: not found in Bengal. Length 13 inches, the tail 5¾ inches.

Charasia, *Gray*. Tympanum naked. Body depressed, covered with small, imbricate, keeled scales equal in size, and regularly arranged in transverse series: tail slightly compressed, with cross rows of small, keeled scales; those at its lower side small, truncated. Throat with a cross fold; no gular sac; a low dorsal crest; ventral scales small, smooth. Femoral or præanal pores none.

Charasia dorsalis. *Gray, Syn. Rept. in Griff. Anim. Kingd.* p. 56. *Dum. & Bibr.* iv. p. 486. *Jerdon. Journ. As. Soc. Beng.* xxii. p. 475. *Gray. Lizards*, p. 246.

The colour is brownish yellow or dusky grey on the back; a black band commences behind the eye, and another bebehind the angle of the mouth; the former is continued on, and spreads over the sides of the body; legs dotted with black. The male is sometimes of a brighter colour—red or yellow on the back, black on the sides and on the belly. This rock lizard, is partially distributed in Southern India, and only found at some elevation above the sea. It is most abundant in Mysore, and especially in the neighbourhood of Bangalore, where it may be seen on every bare rock.

It is not uncommon also on the edges of the Neilgherries up to the height of nearly 6,000 feet. Specimens from Pind Dadun Khan. Length from 15 to 16 inches, of which the tail takes 11 inches.

Stellio, *Daud*. Tympanum naked. Body depressed, covered above and laterally with scales unequal in size and shape: tail rounded-tapering, surrounded by rings of more or less prominent spinous scales. Throat with a cross fold; no gular sac; nuchal crest none or rudimentary; ventral scales small, smooth; femoral and præanal pores none. The Stellio lizards have no true præanal pores; but the epidermis of all the scales in the præanal region becomes thickened, callous, and of a brown colour in the males during the breeding season. Only one species is known.

Stellio tuberculatus.

Agama tuberculata, *Gray, Ill. Ind. Zool. Dum. & Bibr.* iv. p. 488.

Laudakia tuberculata, *Gray, Lizards*, p. 254.

? Stellio indicus, *Blyth, Journ. As. Soc. Beng.* xxii. p. 646.

Barycephalus sykesii, *Gunth. Proc. Zool. Soc.* 1860, p. 150. pl, 25. fig. A.

Rostral shield is low, twice as broad as high: twelve upper labials. Ground-colour of the upper part is a dusky brown, the back being irregularly speckled with black; two of the specimens exhibit also some lighter indistinct spots; the lower parts are whitish; the throat is reticulated, with greenish; one specimen has the breast dotted with bluish green.

Simla, Tibet, to an elevation of 15,000 feet, Upper Hindostan Mirzapore, Wuzeerabad. Length 11 or 12 inches, the tail 7 or 8 inches.

Trapelus. *(Cuv.) Gray, Lizards, p.* 258. Tympanum naked. Body depressed, covered with irregular scales unequal in size; tail rounded, tapering, covered with imbricate keeled scales, not arranged in rings; head and neck without spines. Throat with a cross fold; nuchal crest none, or rudimentary; a series of anal pores in the male. This North-African genus, extending into Western Asia.

Trapelus megalonyx. Greyish, marbled with brown; a series of six ocellated white spots, edged with blackish, along the vertebral line. 5½ inches long, the tail measuring 3 inches. Afghanistan, and not from Khasya.

Phrynocephalus. *Kaup*. Head very short, depressed, closely rounded in front: tympanum hidden: no dorsal crest whatever.

Phrynocephalus tickelli, *Gray. Ph. Olivieri D. & B.*

Afghanistan, length 4 inches, tail 2¼ inches, tail with alternate broad whitish and blackish rings.

Phrynocephalus candivolvulus, *Wagler, Ercht. D. & B.*

Phryn. tichellii. *Gunth.*

Lacerta candivolvula. *Pall. Z. R.*
Agama and Cellata. *L. in Evers. Rees.*

Tibet : Tartary, Central Asia. Length 4 in. tail 2⅛ inch. Greyish olive marbled with blackish spots on each side of tail.

Brachysaura ornata, *Blyth. J. S. Beng.* xxv. 1856, p. 448. Sauger, an enormous head, short and thick body olive colour ; a conspicuous oblique white band passing from beneath the eye, to the angle of the mouth.

Family of Chameleons—Chamæleonidæ.

Head large, angular, covered with numerous very small, flattish or convex shields ; body compressed, covered with granular scales above and below ; tail long and prehensile. Tongue exceedingly long, worm-like, club-shaped and viscous in front, very extensile. Eyes globular, very mobile, covered with a circular lid which is pierced with a small central hole. Tympanum hidden. Legs thin, each with five toes, formed into two grasping opposable groups. Africa, is inhabited by numerous species ; they extend to the northern shores of the Mediterranean and into South-western Asia, into Hindostan and Northern Ceylon. The inflexibility of the neck is compensated by the wonderful structure of the eyes, which are so prominent that more than one half of the ball stands out of the head ; and not only can they be moved in any direction, but each has an action independent of the other : one eye may be looking forward, whilst an object behind the animal is examined with the other. The faculty of changing colour possessed by the Chameleons, although common to numerous other lizards, has become proverbial, and is so much developed that one side may assume a colour different from that of the other. They are oviparous, depositing, under leaves, from ten to twelve oval eggs with calcareous shells. The species have been left together in one genus : only one species is found in British India.

Chamæleo vulgaris.—The common Chameleon.

Lacerta chamæleo, *L. Syst. Nat.* p. 364.
Chamæleo ceylanicus, *Laur. Rept.* p. 46. *Jerdon, Journ. As. Soc. Beng.* xxii. p. 466.
L. vulgaris. *Daud. Rept.* iv. p. 181.

Most of the Indian specimens are of a green colour, uniform, or irregularly spotted and banded with dark green or brown ; whilst in African specimens the ground-colour is greyish, olive, yellowish or brownish. This, however, does not appear to amount to a specific difference. Peninsula of India and in the northern parts of Ceylon, it attains to a length of 10 inches, the tail taking more than one-half.

A second species of Chameleon in India (*Ch. pumilus.* Latr.) is mentioned by Jerdon (*l. c.*), but is extremely doubtful.

The Order of Snakes—Ophidia.

Body exceedingly elongate, without limbs, or with merely rudiments of limbs, scarcely visible from without ; the ribs are articulated moveably with the vertebral column ; no sternum ; generally both jaws and the palate toothed ; the mandibles united in front by an elastic ligament, and generally very extensible. Eyelids none. Integuments with numerous scale-like folds, rarely tubercular. There is no sharp boundary-line between the order of Saurians and that of Snakes. Certain Ophidians remind us, by several characters, of the Saurian type ; such as the snakes forming the first four families (*Typhlopidæ, Tortricidæ, Xenopeltidæ, Uropeltidæ,*), which are distinguished by polished, closely adherent, rounded, subequal scales, much resembling the smooth scales of some Scincoids. A peculiar mobility of the jaw-bones enables snakes to extend the gape in an extraordinary degree, and to work their prey down through the collapsed pharynx. The *Pythonidæ* and *Erycidæ*, have rudiments of hind limbs. Generally the snakes are provided with numerous teeth, which are elongate, conical, thin and pointed like a needle, and more or less bent backwards. In the *first sub-order*, that of *non-venomous snakes*, the teeth are either entirely smooth, or only the last of the maxillary series is provided with a faint longitudinal groove, which is not intended to convey a poisonous saliva into a wound, as the saliva of these snakes has never been proved to be poisonous ; the groove appears to increase the strength of the tooth. The *poisonous* snakes are armed with a long canaliculated tooth in front of the upper jaw ; the channel terminates in a small slit at the extremity of the tooth, and is in connexion with a duct which carries the poisonous fluid from a large gland to the tooth. At the moment the snake opens its mouth to bite, these muscles compress the gland, and force its contents through the excretory duct into the channel of the venom-tooth, whence it is injected into the wound. The structure of the venom-tooth is not the same in all poisonous snakes : in some it is fixed to the maxillary bone, which is as long, or nearly as long, as in the non-venomous snakes, and generally bears one or more ordinary teeth, on its hinder portion. The poisonous snakes with such a dentition have externally a more or less striking resemblance to the non-venomous serpents ; and on this account they are designated as *venomous colubrine snakes*, forming the *second sub-order* of snakes (Cobra, Bungarum, Sea-snakes, &c.) In the other venomous snakes, the *third sub-order*, the maxillary bone is extremely short, and does not bear any teeth except an exceedingly long fang, with a perfectly closed, externally invisible channel in its interior. Although this tooth also is fixed to the bone, the bone itself is very mobile, so that the tooth, which is laid backwards when at rest, can be erected the moment the animal prepares to strike. This tooth, like all the other teeth, is not only occasionally lost, but appears to be shed at regular intervals. The greater part of the snakes are oviparous, the eggs having an oblong form, and a soft, leathery shell. The Pythons alone incubate their eggs, whilst all the other oviparous snakes leave them to the heat of the place where they have been deposited. Other snakes (the freshwater and poisonous species) are viviparous, the embryos being developed in the oviduct of the mother. There may be distinguished.

1. *Burrowing Snakes*, living under ground only occasionally appearing above the surface.
2. *Ground Snakes*, live above ground, and only occasionally climb bushes or enter the water.
3. *Tree Snakes*, or species passing the greater part of their life on bushes and trees, which they climb with the greatest facility.
4. *Freshwater Snakes*, distinguished by the position of the nostrils, which are placed on the top of the snout, and by a tapering tail. They inhabit fresh waters, and are, therefore, excellent swimmers and divers.
5. *Sea Snakes*, distinguished by a strongly compressed tail, and by the position of the nostrils, which are placed as in the last group. They live in the sea only, occasionally approaching the land, feed on marine fish, are viviparous, and venomous.

Tropical India surpasses every other part of the globe in the number of Ophidian forms, and almost every investigation of a limited but previously unexplored district is sure to add largely to the knowledge of them.

The degree of danger from a bite by a poisonous Snake depends but little on the species which has inflicted the wound, but rather on the bulk of the individual, on the quantity of its poison, on the temperature, and on the place of the wound. If a large blood vessel be pierced by the fang, the poison is carried instantaneously into the mass of the blood, and sudden death is almost always the result. Although it is always possible to recognize the venomous nature of a snake from external characters only, yet this requires such a knowledge of snakes as can be attained only by a special study of them. The wound itself speaks for or against the venomous nature of a snake which has bitten. When there are numerous punctured wounds disposed in two lines, the snake is not poisonous. If the wound is on some part of the hand, arm, or foot, one or two ligatures should be made as tightly as possible at a short distance above the wound to prevent the absorption of the poison. The ligature is left until the proper means are taken to destroy the virus in the wound and until medicine is taken internally, or until great pain or swelling necessitate its removal. Punctured wounds should be enlarged by incisions at least as deep as the wounds, to cause a free efflux of the poisoned blood, and to facilitate its removal by sucking. The wounds should be sucked either by the patient himself or by another person whose mouth is free from any solution of continuity; cupping-glasses answer the same purpose in cases where they can be applied. The wound should be washed with ammonia, and its vicinity rubbed with it. Cauterisation with a red-hot iron, or with sulphuric acid, butter of antimony, nitrate of silver, &c., are of great advantage, if done before the virus has spread far beyond the place of the bite. Internally, ammonia should be taken in large doses—one, two, or three wine-glasses of the eau-de-luce. Where this is not at hand, from one to six glasses of brandy may be taken at short intervals. Dr. Short believes that ammonia is useless and has strong faith in Liquor Potassæ. To prevent a complete collapse, it is necessary to use these strong excitants, and to repeat them until the alarming symptoms are allayed. It would be a great risk in such a case to trust to the remedies of a snake charmer.

First Sub-Order.

Ophidii Colubriformes—Innocuous Snakes.

Snakes without grooved or perforated fang-like teeth in front.

Family of Blind Snakes.—Typhlopidæ.

Body cylindrical, with very short head not distinct from neck, and with a very short tail. The body and tail are covered with rounded, polished, imbricate scales, equal in size and form above and below; fore part of the head covered with large shields, upper labials four. Eye rudimentary, covered by, and more or less transparent from below, the shields; cleft of the mouth inferior, very short and narrow; jaws scarcely dilatable. A few teeth in the upper jaw only, none in the lower or on the palate; maxillaries very short, mandible feeble; no longitudinal fold at the chin. This family contains forms which are most remote from the true Ophidian type. They live under ground, their rigid body and short curved tail being adapted for burrowing.

Typhlina, *Wagler*. Snout covered with large shields; rostral shield large, rounded in front; præocular none; nostril inferior; nasal and fronto-nasal simple. Lower jaw without teeth. Only one species is known.

Typhlina lineata. *Gunther.*

Typhlops lineatus, *Boie, Isis,* 1827, p. 563. *Schleg. Abbild.* p. 39. tab. 32. figs, 32-34 (incorrect).

Pilidion lineatum, *Dum. & Bibr.* vi. p. 259.

Typhlinalis lineatum, *Gray, Lizards,* p. 134.

Reddish olive above, with brown lines running along the joining edges of the longitudinal series of scales; these lines are either straight or in a short zigzag. Snout and belly yellow; tail either uniform yellow or with a yellow band across its back. Java, Sumatra, Penang, Hongkong; length 18 inches.

Typhlops (*sp. Schneid.*) *Dum. & Bibr.* Snout covered with large shields; rostral large, rounded in front; præocular present; nostril laterally in front of the snout.

Typhlops nigro-albus. *Dum. & Bibr.* vi. p. 295. *Cantor, Mal. Rept.* p. 51.

Argyrophis bicolor, *Gray, Lizards,* p. 136.

The back (eleven dorsal series of scales) is bluish black, the belly yellowish, both colours being well defined. This is found at Penang, Singapore, and in Sumatra, length 14 inches.

Typhlops horsfieldii.

Typhlops diardii, *Schleg, Abbild,* p. 39. *Dum. & Bibr.* vi. p. 300.

Argyrophis horsfieldii, *Gray, Lizards,* p. 137.

Blackish olive above, this colour gradually passing into the dull yellowish of the belly. Found in Khasya Assam, on the Tenasserim coast, and in Cochin China; length 17 inches.

Typhlops bothriorhynchus. *Gunth.*

Uniform brownish olive above and below.

Typhlops striolatus, *Peters, Monatsber. Perl, Acad.* 1861, *p.* 922.—Olive brown above the darker terminal part of each scale separated from the lighter base by a yellow posteriorly black edged transverse, streak paler below. Length 12½ inches. Banks of the Ganges.

Typhlops siamensis. Closely allied to *T. horsfieldii.* Upper and lateral parts uniform greyish olive, the lower yellowish. This species, 8½ inches long; collected in Siam.

Typhlops braminus.

Rondoo Talooloo, *Russell. Ind. Serp.* i. 48. pl. 43.

Eryx braminus, *Daud, Rept.* vii. p. 379.

Tortrix russellii, *Merr. Tent.* p. 84.

Typhlops braminus, *Cuv. Régne Anim. Dum. & Bibr.* vi. p. 309. *Cantor, Mal Rept.* p. 52.

T. russellii, *Schleg. Abbild,* p. 39.

Uniform brown, paler beneath; the upper shields of the head with a faint, crenulated, whitish marginal line. This is the most common species of Indian *Typhlopidæ,* and almost generally distributed throughout the Indian continent and archipelago; it is common in Ceylon as well as in China and Nepal. It does not attain to any large size, the largest seen measuring 8 inches.

Typhlops tenuis. A single specimen, 5 inches long, has been received from Madras.

Typhlops mirus, *Jan. Archiv. Zoolog.* i. p. 185, uniformly coloured, like *T. braminus;* snout yellow. It is peculiar to Ceylon, where it appears to be rather local, being confined to the interior of the island. The longest specimen 5 inches long.

Onychocephalus, *Dum. & Bibr.* Snout covered with large shields; rostral with a trenchant anterior edge; præocular present; nostril at the lower side of the snout. Only one species is found in British India.

Onychocephalus acutus, *Dum. & Bibr.* vi. p. 333.

Typhlops russellii. *Gray, Lizards,* p. 132.

Onychocephlaus westermanni, *Lütken, in Natur: Hist. Foren. Vidensk. Meddel.* 1862, Nov. 29, tab. 1, fig. 5.

Light bronze-coloured, each scale on the back lighter in the centre; below uniform yellowish. This is one of the best-marked Blindworms in Madras, the Anamallay mountains, and the Deccan. Length 16 inches.

Family of Short-Tails—Tortricidæ.

Body cylindrical, with a depressed, rounded head not distinct from neck; tail extremely short, conical, with its extremity smooth. Rudiments of hind limbs are hidden in a small groove on each side of the vent. The body is covered with rounded, polished, imbricate scales of moderate size, those in the ventral series being but little larger than the rest. Only one pair of frontals; six upper labials. Eye small. Cleft of the mouth of moderate width; teeth of the jaws in small number, rather stout, subequal in size; palatine teeth present. A longitudinal fold at the chin.

Cylindrophis, *Wagler.* Nostrils in a large undivided plate which forms a suture with the other nasal behind the rostral. Occipitals small. Eye small, with round pupil, surrounded by a supraorbital, a postocular, two labials, and the frontal; only one pair of frontals. No intermaxillary teeth. Two of the three species known are inhabitants of British India, the third (*C. Melanonotus*) being, apparently, peculiar to the island of Timor. The Cylindrophides are burrowing animals, only occasionally found above ground; they feed on insects, worms, & small mammals living in earth-holes.

Cylindrophis rufus, *Gray, Zool. Misc.* p. 46, *Cantor, Mal. Rept.* p. 53.

Anguis rufa, *Laur. Syn. Rept. p.* 71.

Schilay Pamboo, *Russell, Ind. Scrp.* ii. pl. 28.

Anguis scytale, *Russell,* ii. pl. 27.

Cylindrophis resplendens, *Wagl. Ic. Amph.* tab. 5. fig. 1.

Tortrix rufa, *Schleg. Phys. Serp.* p. 12, pl. 1. fig. 1-3.

Brown or black: belly with irregular white cross bands, extending more or less up the sides; sometimes a white spot on each frontal. This spot, the collar, and the lower part of the tail are bright vermilion during life. Length 30 inches, found in many islands of the East Indian Archipelago (Java, Borneo), in Gamboja, at Singapore, and on the coast of Tranquebar.

Cylindrophis maculatus. *Wagl. Syst. Amph.* p. 195.

Anguis maculatus, *L. Syst. Nat.* i. p. 391. *Russell, Ind. Serp.* ii. p. 33. pl. 29.

Tortrix maculata, *Oppel, Rept.* p. 56. *Schleg, Phys. Serp.* ii. p. 12. pl. 1, figs. 6 & 7.

An oblique white band descends from the occipital to the throat. It attains rarely to the length of 2 feet, and is found only in Ceylon.

Family of Xenopeltides—Xenopeltidæ.

Body cylindrical, with a depressed, rounded head not distinct from neck; tail short, tapering; no rudiments of hind limbs. Scales rounded, polished, rather large; ventral shields well developed. Two pairs of frontals: occiput covered by five shields. Eye small, with subvertical pupil. Cleft of the mouth of moderate width. Teeth numerous in the jaws and on the palate, no longer tooth; a longitudinal fold at the chin. Only one genus.

Xenopeltis, *Reinwardt.* Upper labials eight; præocular large, replacing the loreal; occiput covered by five shields; scales in fifteen rows; anal and subcaudals bifid. Only one species.

Xenopeltis unicolor, concolor, et leucocephalus, *Reinw. Isis,* 1827, p. 564.

Tortrix xenopeltis, *Schleg. Phys. Serp.* ii. p. 20. pl. 1. figs. 8-10.

Xenopeltis unicolor, *Cantor, Mal. Rept.* p. 54.

Old specimens are uniform brown or blackish above, and white below; young individuals have a white head, and this part is frequently of a lighter coloration even in older examples. This snake attains to a length of 3-4 feet; Penang, Singapore, Gamboja, Sumatra, Java, Celebes, and Borneo.

Family of Rough-tails—Uropeltidæ.

Body cylindrical, with a short, narrow head not distinct from neck; tail extremely short, truncated or scarcely tapering, generally terminating in a rough, naked disk, or covered with keeled scales (see *Melanophidium*). The body is covered with rounded, polished, imbricate scales, those in the ventral series being always somewhat larger than the rest. Only one pair of frontals; four upper labials. Eye very small. Cleft of the mouth of moderate width; teeth in small number, small, subequal in size, in the maxillary and mandibulary bones, none on the palate. There is no longitudinal fold at the chin, except in *Melanophidium*. No rudiments of hinder extremities. The species do not attain to a considerable size, and hitherto they have been found only in Ceylon and in the Peninsula of India. They are by no means scarce, but escape observation from their peculiar mode of life. In order to collect them, it is necessary to dig for them to a depth of 4 feet. According to Peters they are viviparous (*Rh. melanogaster*). They live on insects and worms.

Rhinophis, *Hemprich.*

Tail cylindrical, covered with smooth scales, terminating in a convex, scaleless, rough shield. Head conical: nasal shields separated from each other by the rostral, which is produced backwards; supraorbital and postocular confluent into one shield. Tail of the male longer than of the female. Ceylon only.

Rhinophis oxyrhynchus, *Hempr. Grundris Nasurgesh.*, p. 119. *Dum. & Bibr.* vii. p. 154 *Peters, Uropet,* p. 9. tab. 2, fig. 1.

Typhlops oxyrhynchus, *Schneid. Hist. Ampl.* ii. p. 341.

Dapatnaya lankadivana, *Kelaart, Prodr.* ii. p. M

Mytilia unimaculata, *Gray, Proc. Zool. Soc.* 1858, p. 264.

Brownish, each scale with a lighter margin; anal shields, and sometimes a spot on the upper or lower part of the tail, white; caudal shields brown. 15 inches long. circumference of the thickest (anterior) part of the trunk being one-thirteenth or one-fourteenth of the total length. A native of Ceylon, common at Tri comalee and in the Kandyan Province, at three feet under ground in ant-hills.

Rhinophis punctatus, *Muller, Trevera. Zeitschr. Physiol.* iv. p 248. *Dum. & Bibr.* vii. p. 157. *Peters, Uropelt.* p. 12. tab. 2. fig. 3.

Pseudotyphlops oxyrhynchus, *Schleg. Ab* p. 43. tab. 12.

Yellowish, each scale with a black or bro central spot; the scales in the series adjoin the vertebral series without spot. Length 1 inches, appears to be one of the scarcest Ce lonese snakes.

Rhinophis philippinus. *Mull. Trevi Zeitschr. Physiol,* iv. p. 249. *Dum. & B* vii. p. 154. tab. 50. fig. 1. *Peters, Uro* p. 15.

Typhlops philippinus, *Cuv. Règne, Anim.*

Snout acutely pointed; the length of the rostral shields is much less than one-half that blackish olive, each scale with a lig margin; præanal scales white; someti some white blotches on the front part of trunk, up to 16½ inches long. Found Ceylon, and not in the Philippine Islands stated by the French zoologists.

Rhinophis trevelyanus.

Dapatnaya trevelyana, *Kelaart, Prodr.* ii. p. 17

Mitylia gerrardi, *Gray, Proc. Zool. Soc.* 18 pp. 58, 263. tab. 13.

Rhinophis homolepis, (*Hemprich*) *Peters, Uropelt*, p. 14. tab. 2. fig. 2.

Upper parts black, the lower parts white, each scale with a black central spot; a series of triangular white spots along each side of the body; extremity of the tail white or whitish. Largest specimen, 11 inches long, the circumference of the thickest (auterior) part of the trunk being one-twelfth or one-thirteenth of the total length. A native of Ceylon, found on the Kandyan Hills, three or four feet under ground.

Rhinophis sanguineus, *Beddome, Proc. Zool. Soc.* 1863, p. 227.

R. microlepis, *Beddome, l. c.* pl. 26. fig. 2.

Caudal shields black, with a yellow median streak and with red outer margin. A large black spot on the lower side of the extremity of the tail. Numerous at Cherambady in the Wynad, at an elevation of 3,500 feet; all dug up in one spot; 18 inches long.

Rhinophis blythii, *Kelaart, Prodr.* ii. p. 14. *Peters, Uropelt*, p. 17.

Mytilia templetonii, *Gray, Proc. Zool. Soc.* 1858, p. 263 (old age).

M. melanogaster, *Gray, l. c.* p. 264 (male, not full-grown).

Plectrurus ceylonicus, *Peters, Monatsber. Berl. Acad.* 1859, p. 388.

Rhinophis melanogaster, *Peters, Uropelt.* p. 18. tab. 2. fig. 4.

Brownish above; belly sometimes paler, sometimes blackish; a series of five or six triangular yellowish spots. This is the most common species of Ceylon.

Rhinophis pulneyensis.

Plectrurus pulneyensis, *Beddome, Proc. Zool. oc.* 1863, p. 228. pl. 25. fig. 2.

A yellow band along each of the tail, aching across the vent. It is very abundant n the Pulney Hills, at elevations of from ,000 to 8,000 feet. 8½ inches long, egg 9 ines long.

Uropeltis (part.), *Cuvier.* Tail cylindrical, bliquely truncated as if severed by a knife; he truncated portion flat, scaleless, rough. ead conical: nasal shields forming a suture gether behind the rostral; supraorbital and stocular confluent into one shield. Ceylon. nly one species is known.

Uropeltis grandis.

Uropeltis philippinus, *Cuv. Regne Anim. Dum. Bibr.* vii. p. 161. pl. 59, fig. 2. *Peters, Uropelt,* 20 *Tennent, Nat. Hist. Ceyl.* p. 322.

U. saffragamus, grandis, et pardalis, *Kelaart, odr.* ii pp. 15 & 16.

The adult is uniform brown above. Found ar Adam's Peak and Matura, and is rare; ngth 20 inches, being the largest species of is family.

Silybura, *Peters, Gray.* Siluboura. *Gray.* Tail bcylindrical, the scales on its upper posterior side being shield-like and provided with one or several keels, forming together a flattish disk which terminates in a horny, bispinous, horizontal scale. Head more or less conical; nasal shields forming a suture together behind the rostral supraorbital and postocular confluent into one shield. Peninsula of India.

Silybura macrolepis, *Peters, Monatsber. Berl. Acad.* 1861, p. 904.

Black, a broad, irregular, yellowish band along each side of the front part of the trunk; traces of a similar narrow band are visible along the sides of the body; a yellow band along each side of the lower part of the tail. A female, 10½ inches long, probably a native of the peninsula of India.

Silybura beddomii, *Gunth. Ann. & Mag. Nat. Hist* 1862, *January*, p. 56.

Brown: each scale on the sides with a pair of whitish dots; each ventral shield with a small whitish spot. A yellowish line along the side of the neck, commencing behind the angle of the mouth; vent and tip of the tail yellow. Discovered in the Anamallay Hills and Neilgherries, at elevations of from 3,000 to 4,500 feet; 11 inches long.

Silybura ocellata, *Beddome, Proc. Zool. Soc.* 1863, p. 226. A series of irregular, transverse, yellow, black-edged spots along each side of the belly corresponds to these bands. Belly brownish. On the western slope of the Neilgherries, at an elevation of 3,500 feet, in dense moist forests. 14½ inches long.

Silybura elliotti, *Gray, Proc. Zool. Soc.* 1858, p. 262.

Uropeltis ceylanicus, *Cuv. Règne, Anim.*

Siluboura ceylanica, *Gray, Lizards*, p. 142.

Coloburus ceylanicus, *Dum. & Bibr.* vii. p. 164. tab. 59. fig. 3.

Silybura ceylanica, *Pet. Mo. Berl. Ac.* 1861, p. 903.

S. nilgherriensis, *Beddome, Proc. Zool. Soc.* 1863. p. 226. pl. 26, fig 1.

Blackish brown above and below; a narrow yellowish streak runs from the angle of the mouth along each side of the neck; sometimes there are irregular small yellowish spots along the sides and on the back; the lower part of the tail is completely encircled by a yellow band. Length 11 inches. The neighbourhood of Madras and the Deccan, none from Ceylon.

Silybura bicatenata. Lower parts entirely black. This beautiful species is 9½ inches long. Deccan.

Silybura shorttii, *Beddome, Proc. Zool. Soc.* 1863, p. 225. Black: numerous irregularly disposed scales are white; an irregular white band from the angle of the mouth along each side of the front part of the trunk; a yellowish band along each side of the tail, not joined over the vent. Shevaroy Hills, at an elevation of 4,500 feet; 8 inches long.

Silybura brevis, *Gunth. Ann. & Mag. Nat.* Brown above; the lower part of the sides and the belly yellowish, densely marbled with brown; sides of the throat yellowish, immaculate; the lower part of the tail black, with a broad white band on each side.

Plectrurus, *Dum. & Bibr.*
Maudia, *Gray, Proc. Zool. Soc.* 1858, p. 261.
Posterior part of the tail compressed, covered with obtusely keeled scales, and terminating in a horny bicuspid scale, the two points being placed one above the other. Head conical; the nasals form a suture together behind the rostral; supraorbital and postocular distinct. Peninsula of India.

Plectrurus perrotetii. *Dum. & Bibr.* vii. p. 167. Uniform brownish or blackish. Common in the Madras Presidency and on the Neilgherries, from 7,000 to 8,000 feet. Length 14 inches. Frequently dug up in gardens or taken from under turf and stones.

Plectrurus guntheri, *Beddome, Proc. Zool. Soc.* 1865, p. 228. Beautful purple above, each scale with a lighter margin; belly yellow, the yellow colour rising up on the sides in triangular markings, which are alternate with similar markings of the colour of the back, the purple spots sometimes joining those of the other side by narrow stripes crossing the belly. The moist forests at the western slopes of the Neilgherries (3,500 feet); 14 inches long.

Melanophidium, *Gthr.* Tail slightly compressed, covered with smooth scales, and terminating in a very small, smooth, horny point slightly turned upwards. Snout rather obtuse; nasal shields forming a suture together behind the rostral; supraorbital and postocular confluent into one shield. A median groove along the chin. Only one species is known.

Melanophidium Wynandense.
Plectrurus Wynandensis. *Bedomme.*
Snout obtuse. Black, posterior 2-3rds of the belly irregularly white and black.

Family of Dwarf Snakes.—Calamaridæ.
Body cylindrical, rigid, with a short head which is not distinct from the neck, tail more or less short, tapering Indian species have the maxillary teeth of equal size.

Calamaria, *Boie.* S. scales smooth, rounded, polished in 13 series; anal entire; sub-caudals 2 rowed teeth equal in size and structure.

Calamaria catenata. *Blyth, Journ. As. Soc. Beng.* 1854, p. 287. An imperfect whitish-buff collar, and similar marks before and behind the eye. Length 17 inches, the tail 2¼ inches in Assam.

Calamaria reticulata, *Blyth, Journ. As. Soc. Beng.* 1854, p. 287. 12 inches, of which the tail is $2\frac{5}{8}$ inches. Assam.

Calamaria siamensis. Ventrals and subcaudals whitish, densely punctulated with only brown, the hind margins of the shields remaining immaculate.

Calamaria quadrimaculata. *Dum. & Bibr.* vii. p. 73. Lower parts uniform white; a faint blackish sub-caudal line. Upper part of the tail with two pairs of white spots, one at its base, and the other on its extremity. Found in Java.

Calamaria albiventer, *Gth. Colubr. Sn.* p 4.
Changulia albiventer, *Gray. Ind. Zool.*
Calamaria linnei, var., *Cantor, Mal. Rept.* p. 62.
Belly carmine, the brown coloration of the side just touching the margin of the ventral shields. A black serrated line along the middle of the subcaudals. Penang. Length 11 inches.

Calamaria nigro-alba.
Calamaria lumbricoidea, var., *Cantor, Mal. Rept.* p. 61 (not *Boie*).
Upper parts blackish, head somewhat lighter, all the lower parts and the outer series of scales whitish, immaculate, both colours being well defined; a faint blackish subcaudal line. Penang. Length 12-13 inches.

C. lumbricoidea, from Java, differs in the arrangement of the labial shields. *C. modesta,* from Java.

Calamaria leucocephala, *Dum. & Bibr.* vii. p. 83. Black above; head, neck, thet two outer series of scales, and the lower parts white. 9 inches long. Probably from British India.

Macrocalamus, *Gthr.* Body cylindrical, stout; head of moderate length, slightly depressed, not distinct from neck; eye of moderate size, with rounded pupil; tail short. Only one pair of frontals; nasal simple, nostril between nasal and first labial; loreal none, united with frontal; one anterior and one posterior ocular; eight upper labials. Scales smooth, rounded, polished, in thirteen series; anal entire; subcaudals two rowed. Teeth equal. East Indies.

Macrocalamus lateralis. Brown: a dark-brown band, enclosing a regular series of whitish dots, runs along the side, bordering the belly; back with two series of indistinct brownish-black spots; an irregular series of very small black dots along each side of the belly, which is whitish; a blackish sub-caudal band. Total length 12 inches; head $\frac{1}{2}$ inch, tail $1\frac{1}{3}$ inch, circumference of the body $1\frac{1}{8}$ inch, probably from the continent.

Oxycalamus, *Gthr*. Body cylindrical moderately stout; head narrow, pointed, not distinct from neck; eye of moderate size, with round pupil; tail rather short. Rostral very small; two pairs of frontal shields; two (?) very small nasals, nostril between; loreal none, replaced by the posterior frontal; one præanal, one post-ocular; five upper labials, the last in contact with the occipital. Scales smooth, in fifteen rows; anal entire; sub-caudals two-rowed. Teeth equal. Only one species.

Oxycalamus longiceps.
Calamaria longiceps, *Cantor, Mal. Rept.* p. 63.
Uniform brownish black, captured on the Great Hill of Penang, is $6\frac{1}{8}$ inches long, head measuring $\frac{3}{8}$ inch, and tail $\frac{5}{8}$ inch. Circumference of body $\frac{5}{16}$ inch.

Geophis, *Wagler*. Body cylindrical, stout or slender; head short, not distinct from neck; eye rather small, with round pupil; tail short or of moderate length. Two pairs of frontal shields; two small nasals, nostril between; loreal and præocular united into one elongate shield; one or two posterior oculars; rostral small. Scales smooth, rounded, without apical groove, in thriteen, fifteen, or seventeen series; anal entire; sub-caudals two-rowed. Teeth equal. Species of this genus are found in tropical America and in the East Indies. One or two occur in British India.

Geophis microcephalus.
Rhabdosoma microcephalum, *Günth. Col. Sn*, p. 12.
Brown; back with three more or less distinct series of small dark spots. Found near Madras, and attains to a length of 17 inches. Dumeril and Bibron describe a small snake from the Neilgherries under the name of Platypteryx perroteti which is evidently very similar to this species; Geophis microcephalus and Platypteryx perroteti cannot be referred to two different genera.

Aspidura, *Wagler*. Body rather stout or moderately slender; head more or less narrow, not distinct from neck; eye small, with round pupil; tail rather short; a single anterior frontal, two posterior; two very small nasals; loreal none, united with the frontal; one anterior ocular, sometimes united with frontal, two postoculars; six (five) labials. Scales smooth, in fifteen or seventeen series, those near the vent sometimes keeled or tubercular; anal and sub-caudals entire. Teeth equal. The snakes of this genus are peculiar to Ceylon, and may be readily distinguished by their smooth scales, single anterior frontal, and entire subcaudal shields.

Aspidura brachyorrhos, *Wagl. S. Amph.* p. 191.
Scytale brachyorrhos, *Boie, Isis*, 1827, p. 517.
Calamaria scytale, *Schleg. Phys. Serp.* ii. p. 42.
Yellowish olive, with four indistinct darker longitudinal bands and with a vertebral series of black dots; an oblique black band on each side of the neck; belly uniform white. Rather common; 14-15 inches long.

Aspidura copii. A black, transverse spot behind the angle of the mouth; each labial with a black margin behind. Belly white, marbled with black, an adult male, $16\frac{1}{2}$ inches long.

Aspidura trachyprocta, *Cope, Proc. Acad. Nat. Sc. Philad.* 1860, p. 75. Nearly as common in Ceylon as *A. brachyorrhos*, and attains to a length of 15 inches.

Haplocercus, *Gthr*. Body very slender; head narrow, not distinct from neck; eye of moderate size, with round pupil; tail rather short, tapering; a single anterior frontal, two posterior; two very small nasals; loreal none, united with the frontal; one anterior ocular, two posterior; seven upper labials; scales keeled, lanceolate, in seventeen series; anal and subcaudals entire. Teeth equal. Ceylon.

Haplocercus Ceylonensis, *Günth. Colubr. Snakes*, 1858, p. 15.
Aspidura carinata, *Jon. Arch. Zool. Anat.* ii. 1862, p. 30.
Above uniform blackish, or light brown, with a narrow black vertebral line. Lower parts dull yellowish, immaculate. Length 19 inches.

Family of Oligodontes—Oligodontidæ.
Body cylindrical or slightly compressed, rather rigid, with a short, subconical head, which is not distinct from neck; tail of moderate length, tapering. Body and tail covered with rounded, smooth scales, in fifteen, seventeen, nineteen, or twenty-one series. Belly rounded or slightly angulated; subcaudals two-rowed. Cleft of the mouth rather short; nostril lateral; eye of moderate size, with round pupil. Shields of the head normal (except in *Oligodon brevicauda*): rostral more or less enlarged, flat in front, but more or less produced far backwards. Maxillary teeth few in number, the last being the longest, not grooved. Head nearly always with symmetrical arrow-shaped markings. Small snakes, peculiar to the East Indies.

Oligodon, *Boie*. Rostral shield more or less enlarged, or produced backwards; two pairs of frontals, in one species confluent into a single pair; nostril between two partly confluent nasals; one præocular, one or two postoculars. Scales smooth, in fifteen or seventeen rows. Teeth in the maxillaries few in number, the last larger than the others; no teeth on the palate. The snakes of this genus are small, and confined to the peninsula of Southern India, Ceylon, and a few of the larger islands of the western part of the East Indian archipelago. Very little is known of the habits of these snakes. Their dentition is strong enough to enable them to seize other small snakes or lizards.

Oligodon sub-griseus.

Oligodon sub-griseum, *Dum. & Bibr.* vii. p. 59.

Belly uniform white; some specimens have a minute black dot and the lateral edge of every second or third abdominal shield. Inhabits the southern parts of the peninsula of India. The Anamallay Mountains; 19 inches long.

Oligodon spilonotus. This species is from the Madras Presidency. The largest of three specimens is 15 inches long.

Oligodon elliotti, from Madras, 10½ inches long.

Oligodon subpunctatum, *Dum. & Bibr.* vii. p. 58. Coast of Malabar.

Oligodon spinæpunctatus, *Jan. Arch. Zool. Anat.* ii. p. 40. Resembles *O. subpunctatus* in coloration, but has no spots on the belly.

Oligodon fasciatus. Belly whitish, with small brown spots, more numerous on the sides than in the middle. Deccan, total length 14 inches, of which the tail takes 2 inches.

Oligodon sublineatus, *Dum. & Bibr.* vii. p. 59. A small species, 10 inches long, common in and peculiar to Ceylon.

Oligodon affinis, *Gunth. Ann. & Mag. Nat. Hist.* Jan. 1862, p. 58. Anamallay Hills; a specimen measures 10½ inches, of which the tail takes 1½ inch.

Oligodon templetonii, *Gunth. Ann. & Mag. Nat. Hist.* Jan. 1862, p. 57. Belly white, with square black spots, both colours being distributed in nearly equal proportion. Ceylon; 10½ inches long, tail measuring 1½ inch.

Oligodon modestus. Philippine Islands? Ceylon? Adult male, 13 inches long, tail measuring 2 inches.

Oligodon dorsalis, *Gunth. Colubr. Snakes*, p. 22.

Elaps dorsalis, *Gray, Ind. Zool.*

Belly white, with quadrangular black spots, which are sometimes so numerous and so frequently confluent as nearly entirely to suppress the ground-colour. The middle of the lower surface of the tail always remains white. Probably Afghanistan; total length 16 inches; tail 3 inches.

Oligodon brevicauda, *Gunth. Ann. & Mag. Nat. Hist. Jan.* 1862, p. 58. A blackish longitudinal streak on each side, along the third outer series of scales. Ground-colour of the belly the same as of the upper parts, with black quadrangular spots; subcaudals whitish.

Oligodon dorsale of Bengal. Anamallay Mountains. Female, 15 inches long, the tail measuring 1 inch and 7 lines.

Simotes, *Dum. & Bibr.* Rostral shield more or less enlarged, truncated, bent and produced backwards; anterior frontals narrow, transverse; nostril between two nasals. Scales smooth, in seventeen, nineteen, or twenty-one rows. Teeth in the maxillaries few in number, the last longer than the others; palatine teeth. These snakes are of rather fierce habits, but perfectly harmless.

Xenodon venustus, *Gray.*

Xenodon vennustum, *Jerd. J. A. S. Beng.* xxii. 528.

Belly white, with quadrangular black spots, both colours being distributed in equal proportions. This species is rare on the west coast of the peninsula of India; it attains to a length of 16 inches, the tail measuring 2½ inches.

Simotes russelii, *D. & B.* vii. p. 628.

Russell, Ind. Serp. i. tab. 35 & 38.

Coluber arnensis, *Shaw, Gen. Zool.* iii. p. 526.

C. russellii, *Daud, Rept.* vi. p. 395.

C. monticolus (*Hodgson*), *C. P. Z. S.* 1839, p. 51.

Coronella russelii, *Schleg. Phys. Serp.* ii. p. 78.

Brownish olive, with the bands on the head very distinct; body with well-defined black, white-edged cross bands; belly uniform white. Anamallay Mountains, Madras, Nepal, Sikkim, Dukhun, Ceylon. Common in the peninsula of India, extending northwards into Nepal, and the Himalaya, where it reaches an altitude of 4,100 feet above the level of the sea; in Ceylon, it does not appear to be common. 25 inches long, tail 5 inches.

Simotes binotatus, *D. & B.* vii. p. 630.

Xenodon dubium, *Jer. J. A. S. Beng.* 1853, p. 528.

Lower parts uniform white. Coast of Malabar; North Canara.

Simotes albiventer.

Simotes purpurascens, var, *F. Gunth. Col. Sn.*

Uniform greyish brown above, whitish below; a dark spot below the eye. Ceylon. Total length 24 inches; tail 3½ inches.

Simotes signatus.

Simotes purpurascens, var. F. *Gunth. Colubr. Snakes*, p. 26.

Brown, with reddish-white cross bands edged with darker. Belly whitish, with a few small brown lateral spots anteriorly. 21 inches long; tail 5 inches. 15 inches long; tail 3 inches, said to be from Singapore.

Simotes cinereus. Uniform brownish grey

above, white below; a very indistinct spot below the eye. From Gamboja; it is 17 inches long without the tail.

Simotes swinhonis. Reddish olive above, with numerous indistinct reticulated cross bands, produced by the blackish edges of some of the scales. Head with scarcely any trace of markings. Lower parts pure white.

Simotes taeniatus, *Günth. Proc. Zool. Soc.* 1861, p. 189. Body brownish olive, belly white, with quadrangular black spots, two large blackish spots on the back of the tail—one at its root, the other near its extremity. Gamboja and neighbourhood of Bangkok, length 15 inches, tail 2 inches.

Simotes trilineatus, *Dum. & Bibr.* vii. p. 636. Indian continent, place not known.

Simotes punctulatus.

? Coronella violacea, *Cant. P. Z. S.* 1839, p. 50.
C. punctiulatus, *Gray, Ann. & Mag. Nat. Hist.* 1853, xii. p. 389.
Simotes purpurascens, var. D. & E. *Gunth. Colubr. Snakes*, p. 25.

Belly with more or less confluent square black spots. Khasya, Nepal, Sikkim, a mountain species, found in different parts of the Himalaya, where it ascends into the temperate zone to above 4.000 feet above the level of the sea. Although living at a higher altitude than most of its congeners, it attains to the large size of from 2½ to 3 feet. Simotes labuanensis. A species from Labuan, very similar to S. punctulatus, but distinguished by a greater number of temporals, viz. 2+3. Ventrals 172-187; subcaudals 60.

Simotes bicatenatus. Belly yellowish, 21½ in. long, tail 3½ inches; probably a native of the continent of India. *Coronella cyclura*, Cantor, Indian Snakes, Proc. Zool. Soc. 1839, p. 51.

Simotes albocinctus, *D. & Bibr.* vii. p. 633.
Coronella albocincta, *Cant. P. Z. S.* 1839, p. 50.

Brownish, with about eighteen white, dark-edged cross bands. Assam Cherra-Punji.

Simotes fasciolatus.
Simotes trinotatus, var. *G. P. Z. S.* 1860, p. 114.

Yellowish olive above; fronto-labial band distinct. A broad lighter band runs along each side of the back; tail with a median whitish longitudinal band. Lower parts pure white, Pachebone. 19 inches long, tail 3 inches.

Simotes cochin-chinensis. Greyish olive, with twelve black cross bands on the trunk, and three on the tail. Markings of the head deep black; lower parts pure white; one young specimen of this species, which was found by M. Mouhot in the Lao Mountains; it is 7 inches long, the tail measuring 1 inch.

Simotes trinotatus, *Dum. & Bibr.* vii. p. 631.

Xenodon purpurascens, *Cantor, Mal. Rept.* p. 67, (not Schleg.)

Yellowish brown, with a triple series of darker, black-edged spots. China.

Family of Colubrides—Colubridae.

This family comprises the greater part of the non venomous snakes, namely all those which do not present any striking character either in their general habit, in the shields of the head, in the dentition, or in any other part of their organization: we therefore describe the body as of moderate length compared with its circumference, flexible in every single part; the head is well-proportioned in every dimension, and distinct from neck; the eye of moderate size, the nostril lateral; the cleft of the mouth in accordance with the length of the head. They have numerous teeth in the jaws and on the palate, but no fangs in front or in the middle of the maxillary. The subcaudals are two-rowed; and the chin-shields symmetrically arranged, separated by a longitudinal mental groove. These snakes are found in every part of the temperate and tropical regions, but are only scantily represented in Australia and in the islands of the Pacific.

Group of ground colubrides—*Coronellina*.

Group of true colubrides—*Colubrina*.

Group of bush colubrides—*Dryadina*.

Group of freshwater colubrides—*Natricina*.

Ablabes, sp., *Dum. & Bibr.* Body cylindrical, not compressed, rather slender; head of moderate length, rather depressed, with flat crown, more or less distinct from neck; tail of moderate length or rather long; eye of moderate size, with round pupil. Rostral shield not produced backwards; two nasals; one loreal; one or two anterior and one or two posterior oculars. Scales smooth, in thirteen, fifteen, or seventeen rows; ventrals not angulated; anal bifid; subcaudals two-rowed. Teeth in the jaws and on the palate numerous, small, and of equal size. The snakes of this genus are small, living on the ground, and are found in North America and in the East Indies.

Ablabes baliodeirus, *Dum. & Bibr.* vii. p. 313. *Gunth. Colubr. Snakes*, p. 29.
Coronella baliodeira (*Boie*), *Schleg. Phys. Serp.* ii. p. 64. pl. 2. figs. 9, 10. *Cantor. Mal. Rept*, p. 66.

Above brownish or black, yellowish on the head; uniform pearl-coloured below; Borneo, Java, and at Penang. Longest specimen 14 inches, tail 3⅔ inches.

Ablabes tenuiceps.
Calamaria tenuiceps, *Blyth. Journ. As. Soc. Beng.* xxiii. p. 288.

Above uniform blackish ash; below whitish, Nepal; Darjiling, 14 in. long, tail 2 inches.

Ablabes fuscus.

Calamaria fusca, *Blyth, Journ. As. Soc. Beng.* xxiii. 1854, p. 288.
? Calamaria obscurp-striata, *Blyth, l. c.*
Trachischium rugosum, *Gunth. Colubr. Snakes*, pp. 30, 245.
T. fuscum, *Gunth. Proc. Zool. Soc.* 1860, p. 161.
T. obscuro-striatum, *Gunth. l. c.*

Uniform black above, whitish below. Found in Nepal and Sikkim, and reaching an altitude of 8,500 feet. Largest specimen, 19 in. long, tail 2½ inches.

Ablabes rappii, *Gunth. Proc. Zool. Soc.* 1860, p. 154.
Ablabes owenii, *Gunth. l. c.* p. 155.

Uniform blackish above, whitish below. From Sikkim, at altitudes of 5,340 and 10,200 feet also from Nepal. Length 16½ inches, tail 3½ inches.

Ablabes bicolor.

Calamaria bicolor, *Blyth, Journ. As. Soc. Beng.* xxiii. 1854, p. 289.

Uniform greyish brown above, whitish below; was 19½ inches long (tail 4⅜), either from Khasya or from Assam.

Ablabes olivaceus, *Beddome, Madr. Quart. Journ. Med. Sc.* vol. v. Dark greenish olive, paler below; this species was discovered by Neilgherries, Manantoddy; 20½ inches long, tail 4 inches.

Ablabes sagittarius.

Calamaria sagittaria, *Cantor, Proc. Zool. Soc* 1839, p. 49; and *Mal. Rept.* p. 64.
Enicognathus grayi, *Jan. Arch. per la Zool.* ii. p. 274.

Reddish or greyish olive; head brown above; belly white, found at Penang, and at Tirhoot in Bengal, and Kangra (Himalayas).

Ablabes humberti.

Calamaria sagittaria, *Jerdon, Journ. As. Soc. Beng.* xxii. 1853, p. 528 (not Cantor).
Enicognathus humberti, *Jan, Arch. Per la Zool.* ii. p. 275.

Reddish olive, darker on the sides, belly white, Madras Presidency, Ceylon. 17½ inches long, tail 4 inches.

Ablabes collaris, *Günth. Col. Snakes*, p. 28.
Psammophis collaris, *Gray, Ann. & Mag. Nat. Hist.* 1858, p. 390.

Greyish brown above; lower parts white; Khasya and Nepal, length 32 inches, tail 10 inches.

Ablabes melanocephalus, *Gunth. Col. S.* p. 28.
Lycodon melanocephalus, *Grey. Ind. Zool.* c. fig.
Herpetodryas prionotus, *Cantor, Proc. Zool. Soc.* 1839, p. 52.

Light brown above, with two white longitudinal bands, commencing from a broad black collar, and becoming indistinct towards the hinder parts of the body; each band is interrupted by a series of quadrangular, equidistant black spots; head brown above; lips yellow, with a black band running from the eye to the angle of the mouth. Lower parts whitish, each ventral with a black spot on each side. Malacca, length 22 in.; tail 8 inches.

Cyclophis, *Gthr.* Body or tail or both rather slender; belly rounded; head of moderate length, rather distinct from neck. Shields of the head regular; loreal present, or confluent with the nasal; only one nasal, pierced by the nostril; one (two) anterior and two posterior oculars. Scales smooth, in fifteen rows. Eye of moderate size, or rather large, with round pupil. All the teeth of equal size, none grooved. The snakes of this genus are small intermediate forms between the *Coronellina* and the *Dryadina*; like the former, they appear to be ground snakes, frequenting grassy plains rather than dry places; therefore their predominant colours are green or olive. One species is known from North America; the others are from the Indian continent and from Ceylon.

Cyclophis major, *Gunth. Col. Snakes*, p. 120.
Herpetodryas chloris, *Hallow. Proc. Acad. Nat. Sc. Philad.* 1860, p. 503.

Uniform green above, paler beneath. Ningpo and Hongkong. 37½ inches long, the tail measuring 9 inches; another is 30½ inches long, tail 7 inches.

Cyclophis frenatus, *Gunth. Colubr. Snakes*, p. 120. Crown of the head, back and posterior part of the body; uniform olive; uniform yellowish below. Afghanistan, Mesopotamia. 27 inches long, the tail measuring 8 inches.

Cyclophis calamaria, *Gunth. Colubr. Snakes*, p. 250. Greyish or brownish grey above; not uncommon in Ceylon, but scarcer in the peninsula of India, and attains to a length of 13—14 inches, the tail measuring 4 inches.

Cyclophis nasalis. Greyish olive above; belly uniform whitish. British India, 16 inches long, the tail measuring 4 inches.

Cyclophis monticola.

Calamaria monticola, *Cant. Pr. Z. S.* 1839, p. 54.

Dark olive-brown, with a bright yellow collar and with a whitish dorsal line; beneath of a citrine colour, only 50 lines long, the tail measuring 9 lines. This species inhabits the Naga Hills in Assam.

Odontomus, *Dum. & Bibr.* Body and tail slender, strongly compressed; head of moderate size and width, depressed, distinct from neck; ventrals more than 200 in number, angularly bent on the sides. Scales in thirteen or fifteen rows, smooth. Shields of the head regular; nostril in a nasal shield which is divided into two by more or less distinct suture. Two præoculars, the lower of which is sometimes united with the loreal. Maxillary and palatine teeth subequal in length, none grooved ; the anterior mandibulary teeth but little larger than the following. Eye of moderate size, with round pupil.

Odontomus nympha, *D.* & *B.* vii, p. 450. *Russell, Ind. Serp.* ii. tab. 36, 37.

Coluber nympha, *Daud. Rept.* vi. p. 244.

Lycodon nympha, *Boie, Isis.* 1827, p. 522. *Schleg. Phys. Serp.* ii. p. 120.

White, with about thirty-eight rounded, broad brown bands. The head appears to be sometimes entirely yellowish. Russell obtained them from Vellore ; the largest is 17 inches long, tail 3½ inches.

Odontomus semifasciatus.

Hydrophobus semifasciatus, *Gunth, Ann.& Mag. Nat Hist.* 1862, Febr. p. 127.

White, with fifty rounded, dark-brown bands.

Odontomus gracilis. White, with about thirty-eight broad, round, dark-brown cross bands. Lower parts uniform white. Anamalay Mountains, Waltair : it is 21 inches long, the tail measuring 4 inches.

Nymphophidium, *Gthr.* This genus agrees with *Odontomus* in every respect but the dentition, the three posterior maxillary teeth being very strong and trenchant ; neither the palatine nor the mandibulary teeth are enlarged.

Nymphophidium maculatum. Light brownish, lower parts uniform whitish.

Coronella, sp., *Laurenti.* Body cylindrical, not compressed in the middle, stout ; head of moderate length, rather flat, and distinct from neck, with the snout rounded ; tail of moderate length ; eye moderately large, with round pupil. Rostral shield of normal size and form ; two pairs of frontals ; nostril between two nasals ; one loreal ; one anterior and two or three posterior oculars. Scales smooth, in (fifteen) seventeen to twenty-three rows ; subcaudals two-rowed. Posterior maxillary tooth longest, smooth, and in a continuous series with the anterior ones, or grooved.

Coronella orientalis. Above greyish brown. Belly white, with subquadrangular blackish spots.

Coluber, sp., *Linn.* Body rounded above generally of moderate length ; tail one-fifth or less than one-fifth of the total length ; eye of moderate size, with round pupil ; nostril lateral, between two plates. Shield of the head regular ; one præocular. Scales smooth or with feeble keels, in nineteen to twenty-seven rows ; ventrals not keeled ; anal bifid. Teeth in the jaws of equal size. Numerous species of this genus are found in North America, Europe, and Asia ; those in British India belong to the northern parts of this region, scarcely extending southwards into the tropical region.

Coluber rufo-dorsatus, *Gunth. Col. Sn*, p. 89.

Tropidonotus rufo-dorsatus, *Cantor, Ann. & Mag. Nat. Hist.* 1842, ix. p. 483.

Ablabes sex-lineatus, *Dum. & Bibr*, vii. p. 324.

Upper parts brownish grey, with four series of oblong, irregular, brown, black-edged spots. A series of black spots along the edge of the abdomen ; belly with more or less numerous and confluent subquadrangular black spots. China, (Ningpo, Chikiang) and in the islands of Chusan and Formosa. 19 inches, tail being 3 inches. A frog was found in the stomach of one.

Coluber mandarinus, *Cantor, Ann. & Mag. Nat. Hist.* 1842, ix. p. 483. Scarlet above with a dorsal series of about forty-four lozenge, shaped black spots, an inhabitant of Chusan ; the largest 28 inches long, the tail measuring 5 inches.

Coluber porphyraceus, *Cantor, Proc. Zool. Soc.* 1839, p. 51.

Psammophis nigrofasciatus, *Cantor. l.* c. p. 35.

Coronella callicephalus, *Gray, Ann. & Mag. Nat. Hist.* 1853, xii. p. 390. *Blyth, Journ. As. Soc. Beng.* xxiii. 1855, p. 289.

Coluber callicephalus, *Gunth. Col. Snakes*, p. 92.

Brownish olive above. Belly uniform whitish. Appears to be confined to Khasya and Assam ; largest specimen is 29 inches long, the tail measuring 5½ inches.

Elaphis, sp., *Aldrovandi.* Body and tail generally elongate and compressed ; ventral shields 200 or more in number ; head distinct from neck ; the length of the tail is less than one-fourth of the total ; eye of moderate size, with round pupil ; nostril lateral, between two shields ; shields of the head regular ; two præoculars, the lower small. Scales keeled ; ventrals with a slight, or without any, keel ; anal bifid. Maxillary teeth in size.

Elaphis dione, *Dum. & Bibr.* vii. p. 248. *Gunth. Colubr. Snakes*, p. 92.

Coluber dione. *Pall. Zoogr. Ross. As.* iii. pp. 39, 40.

Cœlopeltis dione, *Eichw. Nouv. Mem. Nat. Mosc.* 1842, vii. p. 151. tab. 28.

Upper parts brownish or yellowish olive, minutely speckled with red. Belly white with black spots. From the western parts of Asia, through entire Central Asia to China, (at Pekin) longest specimen, a male, 39 inches long, the tail measuring 8½ inches.

Elaphis sauromates, *Dum. & Bibr.* vii. p. 288. *Gunth. Colubr. Snakes*, p. 98.

Coluber sauromates, *Pall. Zoogr. Ross.-As.* iii. p. 42. *Nordm. in. Demid. Voy. Russ. Merid. Rept.* pl. 7.

Elaphis pareyssii, (*Fitz.*) *Wagl Icon.* tab. 25.

Tropidonotus sauromates, *Eichw. Faun. Casp. Caucas.* pl. 25. fig. 1 & 2.

Anterior part of the trunk with broad black cross bands, separated from each other by narrow yellow interspaces, and more or less confluent on the hinder part of the trunk. Belly yellow; in the Chinese specimen marbled with black, and entirely black posteriorly. This species appears to have the same geographical range as *E. dione*, viz. from the shores of the Caspian Sea to the most eastern parts of China.

Elaphis tæniurus, *Cope Pr. Ac. Nat. So. Phil.* 1860.

E. virgatus, *var.* (species) *Gunth. Col. Sn.* p. 95.

Back greenish olive; numerous black streaks across the anterior part of the trunk. Chikiang, Ningpo, China.

Composoma, *Dum. & Bibr.* Body elongate compressed ventral shields more than 108 in number.

Composoma radiatum, *Russ. In. Serp.* ii. tab. 42.

Coluber radiatus *Reinw. Schleg.*

C. quadri-fasciatus, *Cantor.*

Tropidinotus quinque-fasciatus, *Cantor.*

Light yellowish-bay above and behind, paler on the sides. Lower parts uniform yellow; a series of black longitudinal streaks along the edges of the anterior third of the abdomen. This fine species is peculiar to the western parts of India; it is found in Java and Sumatra, in the Malayan peninsula, on the coast of Tenasserim, in Assam and Cochin-China, and, finally, in the Khasya Mountains and Sikkim. It attains to a length of 6 feet, the tail being rather more than one-sixth; it not only inhabits bushes, but, at Penang, it is also numerous in marshes and paddy-fields. It is equally nocturnal and diurnal, preying on rats, birds, lizards, and frogs. Cantor found in a female twenty-three eggs.

Compsosoma melanurum, *D. &B.* vii, p. 299.

Coluber melanurus, *Schleg Phys. Serp.* ii. p. 141. pl. 5. figs. 11, 12; and *Abbild.* taf. 5.

Spilotes melanurus, *Gunth. Col. Snakes*, p. 97.

Ground-colour of the anterior parts brownish, gradually passing into black posteriorly. The lower parts uniform yellow, black posteriorly. This species is found in Bengal, China, Sumatra, Java, Celebes, and other islands of the East Indian archipelago. 65 inches long, the tail measuring 14½ inches.

Compsosoma reticulare.

Spilotes reticularis, *Gunth. Colubr. Snakes*, p. 98.

Coluber reticularis, *Cant. P. Z. S.* 1839, p. 51.

Blackish brown; behind black, with numerous narrow whitish cross bands. Belly yellowish, spotted or marbled with black, sometimes uniform black. It is numerous in different parts of the Himalayas—Nepal, Sikkim, Khasya: Chirra Punji. The largest specimen 46 inches long, the tail measuring 9 inches.

Compsosoma hodgsonii.

Spilotes hodgsonii. *Gunth. Proc. Zool. Soc.* 1860, p. 156, pl. 27.

This species appears to be rather scarce; specimens from Nepal Ladak, Tibet, stated to have been captured at an altitude of 15,000 feet. 51 inches long, the tail measuring 11 inches.

Cynophis, *Gray*. Body rather slender and compressed; head narrow; tail one-fifth of the total length; trunk with more than 200 short ventral shields; eye of moderate size, with round pupil; nostril lateral, between two plates. Shields of the head regular; one præocular. Scales slightly keeled or with a pair of apical grooves, in from twenty-five to twenty-seven series. Anal entire. Teeth numerous in the jaws and on the palate, subequal in size.

Cynophis helena, *Gunth. Col. Snakes.* p. 95. *Russell, Ind. Serp.* i. tab. 32.

Coluber helena, *Daud. Rept.* vi. p. 277.

Herpetodryas helena, *Sch. Phys. Serp.* ii. p. 192.

Cynophis bistrigatus, *Gray. Ann. & Mag. Nat. Hist.* 1849, iv. p. 246.

Plagiodon helena, *Dum. & Bibr.* vii. p. 170.

Reddish olive, with numerous more or less distinct, reticulated, black transverse bands across the anterior part of the back, each of which encloses two white ocelli on either side of the body, one above the other. Lower parts uniform white. Not uncommon in Ceylon, but rarer in the Madras Presidency. The largest specimen observed measures 42 inches, the tail being 8 inches. It feeds on field mice and rats.

Cynophis malabaricus.

Herpetodryas malabaricus, *Jerdon, Journ. As. Soc. Beng.* xxii. 1854, p. 530.

Light brownish olive. This beautiful species is not very rare in Malabar; specimens from the Anamallay Mountains, through Captain Beddome: the largest is 15 inches long, the tail measuring 3 inches; it had swallowed a mouse.

Ptyas, *Fitzinger*. Body elongate, more or less compressed; tail one-third or rather more than one-third of the total length; head distinct from neck; eye rather large; nostril lateral, between two plates. Shields of the head regular; two præoculars; two or three loreals. Scales smooth or feebly keeled, in fifteen or seventeen rows; ventrals without keel; anal bifid. Maxillary teeth gradually increasing in length posteriorly.

Ptyas mucosus, *Cope, ibid.* p. 563.

Coluber mucosus, *L. Mus. Ad. Fried.* t. 13. fig. 2. t. 23. fig. 2. *Russell, Ind. Serp.* i. pl. 34; ii. pl. 18. f. 2 (young).

Coluber blumenbachii, *Merr. Tent.* p. 119; *Schleg. Phys. Serp.* ii. p. 137. pl. 5. figs. 7 & 8.

C. dhumna, *Cantor, Proc. Zool. Soc.* 1839. p. 51.

Leptophis trifrenatus. *Hallowell, Proc. Acad. Nat. Sc. Philad.* 1860, p. 503.

The Indian rat-snake. It is light brownish olive, scales with darker margins is one of the most common species on the continent and in Ceylon, and appears to occur everywhere; it is scarce in the archipelago, as its occurrence has been recorded in Java only; on the other hand, it is not rare in Chusan and Formosa. In the Himalaya it ascends to only 5,240 feet above the level of the sea. It is a powerful snake, attaining to a length of 7 feet, the tail being one-third or rather more. Its food consists of mammals, birds, and frogs; it frequently enters the dwellings of man in search of mice, rats, and young fowls. It is of fierce habits, always ready to bite, and old examples bought to Europe never become tame. Cantor says that it utters, when irritated, a peculiar diminuendo sound, not unlike that produced by a gently struck tuning-fork.

Ptyas korros, *Cope. Proc. Acad. Nat. Sc. Philad.* 1860, p. 563.

Coluber korros, (*Reinw.*), *Schleg. Phys. Serp.* ii. p. 189, and *Abbild.* p. 99. pl. 27, & pl. 28. figs. 1-6. *Cantor. Mal. Rept.* p. 74.

Light or dark brownish-green above. Lower parts uniform yellowish. *Pt korros* has a more limited range than *Pt. mucosus*; it is found in Java and Sumatra, Siam, the Malayan peninsula, Arakan, Tenasserim, and southern China. Its habits are similar to those of *Pt. mucosus*; but a specimen more than 69 inches long, never seen, the tail measuring 24 inches.

Xenelaphis, *Gthr.* Body elongate, not compressed; tail more than one-third of the total length; head rather short; eye of moderate size, with round pupil, nostril lateral, between two plates. Shields of the head regular; two praeoculars; one loreal. Scales smooth, without apical groove, in seventeen rows, those of the vertebral series enlarged, six-sided; ventrals not keeled; anal bifid. Jaws with numerous teeth subequal in size. Only one species is known.

Xenelaphis hexahonotus.

Coluber hexahonotus, *Cantor. Mal. Rept.* p. 74.

Coryphodon hexahonotus, *Gunth. Co. Sn.* p. 110.

Brown, with black cross bands in immature specimens. Lower parts uniform yellowish. This species is scarce; it is found in Arakan, Penang, Singapore and Borneo. It attains to a length of 62 inches, the tail measuring 25 inches, the head only 1⅓ inch.

Zamenis, *Wagler*. Body and tail elongate; trunk with 200 or more ventral shields; head distinct from neck, flat; eye of moderate size, with round pupil; nostril lateral, between two plates. The shields of the head have a tendency to divide in two or more pieces; loreal, present; generally two anterior and two posterior oculars; eye sometimes surrounded by seperate pieces of the upper labials. Scales smooth or slightly keeled; ventrals rounded or with a very indistinct lateral keel; anal bifid; subcaudals two-rowed. Teeth numerous in the jaws and on the palate; the last maxillary tooth is generally the largest, and separated from the others by a short interspace. This genus of Colubrine snakes is confined to the countries round the shores of the Mediterranean, extending eastwards through South-western Asia to the peninsula of Southern India.

Zamenis diadema.

Russell, ii. p. 34. pl. 30.

Coluber diadema, *Schleg. Phys. Serp.*. ii. p.148. (not *Blyth*).

Ground-colour yellowish olive, with a dorsal series of round brown spots; two series of short brown longitudinal streaks run along each side of the body. It is found in Afghanistan, Sindh, Kurrachee, Bombay.

Zamenis ventrimaculatus, var. A. *Gunth. Colubr. Snakes*, p. 106.

Coluber ventrimaculatus, *Gray. Ind. Zool.* c. fig.

C. diadema, *Blyth, Journ. As. Soc. Beng.* xxiii, (1855) p. 291 (not *Schleg.*).

Yellowish olive, with numerous very distinct narrow black cross bars on the back. A black cross band between the eyes. The coloration here described is peculiar to the Indian variety of a species which extends throughout the whole of South-western Asia to Egypt, and the Egyptian variety of which is known by different names—Z. *florulentus*, &c. The typical specimens of Z. *ventrimaculatus* are said to be from Bengal, but it is more probable that they came from the western parts of the Indian region. A specimen which was received from Mesopotamia agrees completely with the types: the largest of the latter is a mature female, 35 inches long, the tail measuring 9 inches; examples seen were about 4 feet long.

Zamenis gracilis, *Gunth. Ann. & Mag. Nat. Hist.* 1862, February, p. 125. Yellowish olive, with a single series of large round brown spots edged with black, along the anterior half of the trunk. An irregular series of black spots on each side of the belly, which is uniform yellow.

Zamenis fasciolatus. *Rus. Ind. Serp.* i.

Coluber fasciolatus, *Shaw, Zool.* iii. p. 528. *Cantor. Mal. Rept.* p. 72.

C. hebe, *Daud. Rept.* vi. p. 385.

C. curvirostris, *Cantor. Proc. Zool. Soc.* 1839. p. 51.

Coryphodon fasciolatus, *Gunth. Colubr. Snakes*, p. 109.

Tyris fasciolata, *Cope, Proc. Acad. Nat. Sc. Philad.* 1862, p. 338.

Yellowish or brownish olive above, with narrow, equidistant, white, brown and black variegated cross bands, lower parts uniform yellowish, not uncommon in the peninsula of India; it appears to be scarce in Bengal; a single specimen was found in the Province Wellesley by Dr. Cantor. It attains to a length of 41 inches, the tail measuring 9 inches.

Zaocys, *Cope*. Body elongate and compressed; ventral shields about 200; tail elongate, its length being one-fourth or more than one-fourth of the total. Head distinct from neck of moderate length, rather elevated; eye large, with round pupil. Shields of the head regular; superciliaries large, convex; two præoculars, the upper of which is large, not reaching the vertical, the lower small; two postoculars. Scales in fourteen or sixteen rows, those of the median series generally keeled. Anal bifid. Teeth in the jaws subequal in size; those of the maxillaries in a continuous series, rather larger behind.

Zaocys dhumnades, *Cope. Proc. Acad. Nat. Sc. Philad.* 1860, p. 563.

Coluber dhumnades. *Cantor. Ann. Mag. Nat. Hist.* 1842, ix. p. 483 and *Mal. Rept* p. 74.

Ablabes vittatus, *Dum. & Bibr.* vii. p 320.

Coryphodon carinatus, var. *Gunth. Col. Sn.* p. 112.

Greenish anteriorly. Tail and posterior half of the trunk entirely black. Island of Chusan, Ningpo. The longest specimen measures 70 inches, the tail being 20 inches.

Zaocys carinatus.

Coryphodon carinatus, spec. *a*, *Gunth. Colubr. Snakes*, p. 112.

Brownish olive anteriorly, with reticulated white cross bands: belly and lower part of the tail with series of round white spots: 10 feet long, the tail being one-fourth Borneo.

Zaocys nigromarginatus. *Gunth.*

Coluber nigromarginatus, *Blyth, Journ. As. Soc. Beng.* xxiii. p. 290.

Coryphodon carinatus, var., *Gunth. Colubr. Snakes*, p. 113, and *Proc. Zool. Soc.* 1860, p. 167.

Nepal, Sikkim, and Khasya; it belongs to the fauna of the temperate zone of the Himalayas, reaching an altitude of 7,100 feet above the sea; largest specimen is seen 8 feet long, the tail measuring 27 inches.

Herpetoreas, *Gthr*. Body and tail slender, compressed; trunk with more than 200 ventral shields; head somewhat elongate, rounded in front, flat above; eye of moderate size with round pupil; nostril lateral, between two shields. Shields of the head regular: loreal present; one anterior, two posterior oculars. Scales moderately elongate, slightly keeled, in nineteen rows; ventrals strongly bent up the sides; anal bifid. The posterior maxillary tooth is the longest, in a continuous series with the anterior ones. Only one species is known.

Herpetoreas sieboldii, *Gunth. Proc. Zool. Soc.* 1860, p. 156. The upper parts are uniform greenish brown, the lower parts yellowish; the ventrals have an elongate spot on each side, procured by Messrs. von Schlagintweit in Sikkim, at 7500 feet, above the level of the sea. Total length 3 feet 1 inch: length of the head 10 lines, of the tail 9 inches.

Coluber prasinus, (Blyth, Journ. As. Soc. Beng. xxiii. p. 291. from Assam and Tenasserim, is perhaps the same snake.

Tropidonotus, *Kuhl*. Body cylindrical; head distinct from neck, flat, cleft of the mouth wide; eye of moderate size, or rather large, with round pupil; nostril lateral, between two plates. Shields of the head regular; loreal always present. Scales keeled; ventrals rounded, considerably less than 200 in number; anal bifid; subcaudals two-rowed. Teeth numerous in the jaws and on the palate: the anterior in the jaws are always shortest; the posterior lengthened, but not grooved. The *Tropidonoti* are found in North America, Europe, Asia, the East Indian Archipelago and North-western Australia; a single species has lately been received from tropical Africa.

Tropidonotus quincunciatus et umbratus, *Schleg. Phys. Serp.* ii. pp. 307, 309. *Russell, Ind. Serp.* i.

Hydrus piscator et palustris, *Schneid. Amph.* pp. 247, 249.

Coluber anastomosatus, braminus, et umbratus, *Daud. Rept.* pp. 140, 144, & 176.

C. rectangulus, *Gray. Ind. Zool.*

C. hippus, *Reuss. Mus. Senckenb.* i. p. 150. pl. 9. fig. 2.

T. umbratus, *Cantor, Mal. Rept.* p. 39.

T. quincunciatus, *Dum. & Bibr.* vii. p. 592. *Gunth. Colubr. Snakes*, p. 64.

The coloration varies exceedingly; but there are generally two oblique black streaks behind the eye; the belly is white each ventral having a more or less distinct blackish anterior margin. The ground-colour of the upper parts is generally greyish or brownish olive. This is one of the most widely spread species of the East Indies, ranging from Mesopotamia into the southern parts of China, and inhabiting most of the islands of the western half of the Archipelago. It abounds near rivers and pools, feeding on frogs and fishes; it attains to a length of 3 feet, and is of fierce habits.

Tropidonotus annularis, *Hallowell. Proc. Acad. Nat. Sc. Philad.* 1856, p. 151. *Gunth. Colubr. Snakes*, p. 67.

T. chinensis, (*Jan.*) *Berth, Gott. Nachr.* 1859, p. [illegible]

Back uniform lead-coloured; belly [illegible] (white in spirits), with black cross bands each occupying one or two ventral or subcaudal shields, frequently interrupted in the middle. Found in Ningpo, and Chikiang in China and on the island of Formosa ; length more than 80 inches.

Tropidonotus trianguligerus, *Reinw. Boie, Isis*, 1827, p. 535. *Schleg. Phys. Serp.* ii. p. 311. Upper parts uniform blackish brown, sides lighter, and on the anterior part of the body yellowish (probably red during life). Found in Java, Sumatra, Borneo and Penang. Length about 30 inches.

Tropidonotus macrophthalmus.
Xenodon macrophthalmus, *Gunth. Col. Snakes*, p. 58.

Brown or blackish brown above, uniform or with a dorsal series of reddish-brown spots; neck with an indistinct arrow-shaped mark. Anterior part of the belly with large quadrangular blackish-brown spots, posterior part and lower side of the tail more or less clouded with brown. This species may be at once distinguished by its large eye and by its dilatable neck, the scales of which show an arrangement very similar to that of a cobra, for which it is frequently taken. Found in Khasya and Sikkim—in the latter country at an elevation of 4,000 feet. Attains to 39 inches, the tail measuring 7 inches.

Tropidonotus dorsalis.
Xenodon macrophthalmus, spec. *f. Gunth. Colubr Snakes*, p. 58.

Brownish grey, with a vertebral series of about twenty-five rhombic reddish spots, each occupying about four scales ; belly with subquadrangular blackish spots anteriorly, and punctulated with brown posteriorly. From Chikiang ; 24½ inches long, tail 4½ inches.

Tropidonotus macrops, *Blyth, Journ. As. Soc. Beng.* 1855, xxiii. p. 296. Darjeling, Sikkim and Nepal, 31 inches long, tail 6½ in.

Tropidonotus platyceps, *Blyth. J. A. S. B.* 855, xxiii. p. 297. *Gunth. Pr. Z. S.* 1860, . 162. Nepal, Sikkim, Khassya, at 4,000 to ,000 feet : 30 in. tail 8½ in. A coral red streak long the edges of the ventral shields.

Tropidonotus sub-miniatus. *Sch. Ph. Serp. Blyth. J. A. S. B.* 1855, xxiii p. 246.
Amphiesma sub-miniatum *D. and B.* vii p. 724.

Indian continent, Khassya, Sikkim, Tenasserim, Siam, Cochin-China, Java, length 2 in. tail 10½ in. Belly white with an irregular series of black dots on each side.

Tropidonotus himalayanus, chin and throat uniform yellow length 31 in. tail 8 in. Sikkim, epal.

Tropidonotus angusticeps, *Blyth. Journ. As. Soc. Beng.* 1855, xxiii. p. 295. Colour (in spirits) plumbeous above, uniformly spotted with black throughout. Length of an adult 41 inches, tail 8½ inches. Assam and Arakan.

Tropidonotus stolatus, *Boie, Isis*, 1827, p. 535. *Schleg. Phys. Serp.* p. 317, *Cantor, Mal. Rept.* p. 90.

Coluber stolatus *Linn. Syst. Nat.* i. p. 379.
Amphiesma stolatum, *Dum. & Bibr.* vii. p. 727, *Russell, Ind. Serp.* B. young.

Greenish or brownish olive, with numerous narrow, serrated or reticulated cross bars, intersected by two yellow or white longitudinal dorsal bands ; Lower parts white. A male in the breeding-season, from Madras, is figured by Mr. Walter Elliott with the throat yellow, and with the ground-colour of the anterior part of the body red. This is perhaps the most common species of snake on the East Indian continent, ranging from Ceylon through the Peninsula along the southern slope of the Himalayas to southern China (Formosa) ; it is scarcer in the Malayan peninsula and the northern parts of Siam, and appears to be entirely absent in the Archipelago. It is of very gentle habits, feeding on small frogs ; it attains to a length of 2 feet, but generally smaller.

Tropidonotus monticola

T. Monticolus, *Jerdon, Journ. As. Soc. Beng.* xxii. p 520. Common in the Wynaad, Animalay ?

Tropidonotus junceus. *Cant. Mal. Rept.* p. 93.

T. dipsas, *Blyth, J. A. S. Beng.* 1855, xxiii. p. 297 & xxiv. p. 716.

Greenish olive above, with a series of well-defined rounded whitish spots along each side of the back ; belly whitish, a black dot on each side of each ventral and subcaudal shield. Lips and throat gamboge ; a gamboge band ascends obliquely from the angle of the mouth to the neck, joining its fellow at an acute angle ; this band is less distinct in adult specimens than in young ones. Is of fierce habits and very ready to bite. Darjiling. Pinang hill, Chikiang.

Tropidonotus ceylonensis.

Tr. chrysargus, var. ceylonensis, *Gun. Cl. Sn.* p. 71.

Brownish-olive above ; a series of about twenty yellow ocelli, edged with black, along each side of the body ; the black edges are dilated into cross bands extending downwards to the side of the belly and upwards to the ocelli of the other side. 11 in. tail 2½ Ceylon.

Tropidonotus beddomii
Spilotes vittatus, *Beddome, Med. Quart. Journ. Med. Sc.* vol. v.

Brown above ; belly whitish, sides and the subcaudals dotted with brown. Neilgherries.

Tropidonotus nigrocinctus, *Blyth, Journ. As. Soc. Beng.* 1856, xxiv. p. 717. Olive-grey above, passing into bright green towards the head, and conspicuously marked throughout with a series of about fifty narrow transverse black bands. Lower parts white. Length 26½ inches, of which the tail 6½ inches. Appears to inhabit either Pegu or Tenasserim.

Tropidonotus flavipunctatus.

Amphiesma flavipunctatum, *Hallowell, Proc. Acad. Nat. Sc. Philad.* 1860, p. 503.

Hongkong, Canton River Length 21⅔ inches, of which the tail is 6⅓ inches.

Tropidonotus zebrinus, *Blyth, Journ. As. Soc. Beng.* 1855, xxiii. p. 295. Upper parts (in spirits) deep plumbeous obscurely spotted with black. Length of young specimen 10¾ inches, of which the tail measures 8¼ inches. Mergui.

Tropidonotus tigrinus. *Boie, Isis,* 1826, p. 206. *Schleg. Phys. Serp.* ii. p. 315, and *Faun, Japon, Ophid.*

Amphiesma tigrinum, *Dum. & Bibr.* vii. p. 732.
Tr. lateralis, *Berthold, Gott. Nachr.* 1859, p. 180.
T. orientalis, *Gunth. A. & M. Nat. Hist.* Jany. 1862.

Greenish or brownish olive. Belly with a series of rounded small black spots anteriorly, nearly entirely black posteriorly; neck with an oblique black spot on each side. A black spot below the eye, on the suture between the fourth and fifth labials; a black blotch on the temple descending obliquely to the angle of the mouth. This is the representative of the European T. natrix in Japan and Northern China, and attains to the same size.

Tropidonotus leucomelas. Black above, with twenty-three very narrow white rings round the trunk; head uniform greenish olive; 8 inches long, the tail measuring 1¾ inch. It is said to be from Pinang.

Tropidonotus plumbicolor. *Cantor, Proc. Zool. Soc.* 1839. p. 54.

Xenodon viridis, *Dum. & Bibr.* vii. p. 73. *Günth, Colubr. Snakes,* p. 57.

Dirty greenish: the upper parts being uniform dirty green, the lower whitish. Not uncommon in the Madras Presidency, and frequently enters houses; it attains to a length of 25 inches, the tail measuring 3 inches.

Atretium, *Cope, Proc. Acad. Nat. Sc. Philad.* 1861, p. 299. Body cylindrical, rather stout; head narrow; eye of moderate size, with round pupil. The anterior frontals are united into one triangular transverse shield, which is in contact with the rostral. The other shields of the head are regular. Two nasals; the nostril is in the upper part of the suture between them, but on the side of the head. Scales rather short, rhombic, keeled, in nineteen rows. Ventrals broad, rounded; anal bifid; subcaudals two-rowed. Teeth numerous, those of the maxillaries increasing in length posteriorly, forming a continuous series. Only one species is known, forming the transition from Tropidonotus to the true freshwater snakes.

Atretium schistosum.

Chittee, *Russell, Ind. Serp.* ii.
Coluber schistosus, *Daud. Rept.* vii. p. 132.
Tropidonotus schistosus, *Schleg. Phys. Serp.* ii. p. 319. *Cantor, Mal. Rept.* p. 91. *Dum. & Bibr.* vii. p. 596.
T. mœstus et surgens, *Cantor, P. Z. S.* 1839, p. 54.
Tropidophis schistosus, *Gray, Viper. Snakes,* p 69.

Upper parts uniform blackish olive; length more than 2 feet; Ceylon Southern India, Bengal Malay peninsula, Philippine Islands and Madagascar. Cantor says, that it is very fierce, and prepares to attack by raising the head 3 or 4 inches vertically from the ground, and that it has the power of flattening and laterally expanding the skin of the anterior part of the body, like Naja, but in a much slighter degree. Frogs and fishes form its food.

Xenochrophis, *Gthr.* Body cylindrical, rather stout; head narrow, elongate; eye with the pupil round. Nostril lateral, situated in the upper part of a single plate. Shields of the head regular. Scales keeled, in nineteen rows; ventrals rounded, anal bifid; subcaudals two-rowed. No conspicuously longer teeth; they are widely set, those in the middle of the maxillary series and those in front of the mandible being rather larger than the others. Only one species is known.

Xenochrophis cerasogaster.

Psammophis cerasogaster, *Cantor, Proc. Zool. Soc.* 1859, p. 52.
Tropidonotus cerasogaster. *Cantor, Mal. Rept.* p. 92. *Günth. Colubr. Snakes,* p. 79.

Brown above, sometimes uniform, with pair of lighter dorsal bands, sometimes indistinct quadrangular dark spots. Mal peninsula, Bengal, Assam, and Khasya, leng above 2 feet, the tail measuring one-fourt Not numerous. Very fierce, and attacks in vertical attitude, but without expanding anterior part of the body. It feeds on and fishes.

Prymnomiodon, *Cope.* Form slender, moderately distinct. Shields of the head mal; two nasals, a loreal one, præocu Scales keeled in nineteen series. Vent not angulated, about 150 in number, entire; Pupil round. Palatine teeth little longer than pterygoids; maxillary minute posteriorly, becoming much longer a teriorly; none grooved. Only one species known.

Prymnomiodon chalceus. *Cope. Proc. Acad. Nat. Soc. Philad.* 1860, p. 588. 12⅜ inches long, without tail, said to be from Siam. Olivaceous above, shading into leek-green upon the flanks, and greenish white upon the belly.

Family of Fresh Water Snakes—Homalopsidæ.

Body of moderate length, cylindrical or slightly compressed; head rather thick, broad, not very distinct from neck; tail strong, of moderate length, tapering, more or less prehensile and compressed at its root, especially in the males. Scales subequal in size, not much imbricate; ventrals rather narrow, sometimes bicarinate; anal bifid; subcaudals two-rowed. Eye small. The nostrils are situated anteriorly on the upper surface of the head, small, provided with a valvule; the nasals are much developed, so as considerably to reduce the anterior frontals in size, which, frequently, are confluent into a small single shield, or, if double, are very small, triangular. The other shields of the head also frequently deviate from the arrangement typical in the Colubrine snakes. Cleft of the mouth of moderate width. All the Indian freshwater snakes of this family have a grooved fang at the hinder extremity of the maxillary bone. They are thoroughly aquatic, and are only occasionally found on the beach; several of them even enter the sea, and in several points of their organization approach the truly marine snakes, with which they have been associated in Gray's system. They may easily be recognized by the position of the nostrils on the top of the snout, which enables them to breathe by raising but a very small part of their head out of the water; it is the same arrangement as that in the Crocodiles, Sea snakes, and other aquatic animals. Many have a distinctly prehensile tail, by means of which they hold on to projecting objects. Their food consists entirely of fish, and, in a few species of crustacea also. All of them appear to be viviparous, and the act of parturition is performed in the water. They do not grow to any considerable size, are of a gentle disposition, and their bite would be by no means dangerous. They will not feed in captivity, and therefore die after a short time.

Fordonia, *Gray*. Head depressed, short, broad, scarcely distinct from neck; body stout, cylindrical; tail rather short, tapering, longer in males than in females, thick and strongly compressed in the former. Cleft of the mouth of moderate width, not angularly bent behind. Eye small, with vertical pupil. The whole upper surface of the head is shielded. Nostril directed upwards, in the middle of a simple nasal shield. Anterior frontal single, small, in contact with the rostral. Five upper labials; scales smooth, without apical groove in from twenty-five to twenty-nine series, those of the outer series with truncated apex in adult specimens. Ventrals rather narrow, the two or three last bifid; subcaudals two-rowed. Maxillary short, with three or four small teeth and with a longer grooved tooth behind; mandibulary teeth very short. Viviparous. Only one or two species are known.

Fordonia unicolor. *Gray, Vip. Sn.* p. 77.
? Homalopsis leucobalia, *Schleg. Phys. Serp.* ii. p. 345. *Schleg. & Müll. Verhand. Nat. Gesch. Nederl. Overz. Bezitt., Rept.* p. 61.
Hom. leucobalia, var., *Cantor, Mal. Rept.* p. 102.

Uniform blackish ash above, the lower parts and the three outer series of scales whitish. Borneo, Ceram, and Pinang, common in fresh waters as well as for some distance out at sea. length 25 in. the tail measuring 3 in.; it is of sluggish, not fierce, habits. Feeds on crustacea. Fordonia leucobalia, *Schleg.*; from Timor, appears to differ in its coloration only, having white spots across the back.

Cantoria, *Girard*. Body subcylindrical, deeper than broad, and very much elongated. Tail moderate, thick at its base and conical posteriorly. Head depressed, continuous with the body; mouth moderate; eye very small. Anterior frontal single, in contact with the rostral. One loreal. Orbital plates constituting a complete circle around the eye. Scales moderate, smooth, shining, disposed in nineteen longitudinal series.

Cantoria elongata.
Cantoria violacea, *Girard, in U. S. Exp. Herpet.* xx. p. 156. (*not* Coronella violacea, *Cantor*).

Reddish violet above, with transverse bands of small whitish dots, indistinct towards the tail; neighbourhood of Singapore: 50 in. long, tail measuring 6 in. Coronella violacea *Cantor* is a Simotes its ventral shields nearly a hundred less in number.

Cerberus, *Cuvier*, Head rather high, of moderate length and width; body cylindrical, its hinder part and the tail rather compressed. Cleft of the mouth wide, turned upwards behind. Eye small, with vertical pupil. Snout covered with shields, occiput with scales. Nostril situated on the upper side of the head between two nasals, the anterior of which is the larger, forming a suture with the corresponding nasal of the other side; two small triangular anterior frontals; eye surrounded by a ring of small orbitals, the superciliary being well developed; posterior upper labials divided transversely into two. Scales keeled, in from twenty-one to twenty-five rows; ventrals of moderate width ; anal bifid ; subcaudals two-rowed. Maxillary teeth in a continuous series, slightly increasing in length posteriorly, the last being grooved. Mandibulary teeth longest in front, decreasing in strength and more closely set behind. Viviparous. This genus extends through the whole of India, from Ceylon to the north coast of Australia. Only one species occurs in British India.

Cerberus rhynchops. *Russell, Ind. Serp.* ii. p. 40.

Hydrus rhynchops, *Schneid. Hist. Amph.* i. p. 246.
Elaps boæformis, *Schneid. Hist. Amph.* p. 301.
Hurria schneideriana, *Daud. Rept.* v. p. 281.
Cerberus obtusatus, *Cuv. Règne Anim.*
C. cinereus, *Gray, Zool. Misc.* p. 64, and *Viper. Snakes*, p. 64. *Cantor, Proc. Zool. Soc.* 1839, p. 54.
Homalopsis schneideri, *Sch. Phs. Serp.* ii p. 341.
H. rhynchops, *Cantor, Mal. Rept.* p. 94.
Cerberus boæformis, *D. & B.* vii. p. 978.

Upper parts blackish ash, with irregular, more or less distinct black cross bars ; the two or three outer series of scales yellowish. Lower parts whitish it inhabits the large islands of the East Indian Archipelago, Ceylon, the peninsula of India, Bengal, the Malayan peninsula, and Siam ; it is numerous in the Malayan rivers and estuaries, and occasionally along the sea-coast. Its usual size is between 2 and 3 feet, the tail being one-fifth of the total length ; but it attains to nearly 4 feet. The female brings forth eight living young, 7-7 ½ inches in length.

Hypsirhina, *Wagler*. Head rather depressed ; tail of moderate length, distinctly compressed at its root in the males. Cleft of the mouth of moderate width ; eye small. The whole upper surface of the head is shielded. Nostril on the upper surface of the head, in a large nasal shield, the outer part of which is divided into two by a groove running outwards from the nostril ; the nasals of both sides form a broad suture together behind the rostral ; only a single anterior frontal ; two posterior frontals. Scales smooth, without apical groove, in from nineteen to twenty-three series. Ventrals rather narrow ; and bifid ; subcaudals two-rowed. Maxillary with a grooved tooth behind. Viviparous.

Hypsirhina plumbea. *Wagh. Syst. Amph. p.* 170. *Gray. Zool. Misc. p.* 66.

Homalopsis plumbea. *Boie. Isis.* 1827, xx, p. 550. *Schelg. Phys. Serp.* ii. p. 346. *Cantor, Mal. Rept.* p. 101.
Coluber plumbeus, *Eyd. and Gerv., Voy. Favor,* v. p. 73.
Hypsirhina hardwickii, *Gray. Ind. Zool. Mis.* p. 67.

Brownish or greyish-olive above, uniform or with an irregular dorsal series of small black spots. This species is not common, but widely spread, inhabiting Java, Borneo, Celebes, Formosa, the southern parts of China, Pachebone, and the Malayan Peninsula. It attains to a length of 21 inches, the tail measuring 2¾ inches.

Hypsirhina enhydris, *D. & B.* vii. p. 946.
Mutta Pam, Ally Pam, *Russ., Ind. Serp.* i. p. 31.
Hydrus enhydris, *Schneid. Hist. Amph.* p. 245.
Homalopsis aer, *Boie, Isis*, 1827, p. 550. *Schleg. Phys. Serp.* ii. p. 347.
Hypsirhina aer, *Wagler. Syst. Amph.* p. 170. *Gray, Viper, Snakes*, p. 72.
Coluber aer, *Eydoux & Gerv, Voy, Favor.* v. p. 74.
Hypsirhina trilineata, bilineata, et furcata, *Gray, Zool. Misc.* p. 66.
Homalopsis olivaceus, *Cant, Pr. Zo. Soc.* 1839, p. 39.
Homalopsis enhydris, *Cantor, Mal. Rept.* p. 99.

Brownish olive above, the three outer series of scales and the belly whitish ; a blackish line along each margin of the belly. This species is found in most parts of the East Indies, in Java, Borneo, the Malayan Peninsula, on the coast of Tenasserim, in Siam, Bengal, China, and according to Jerdon, in Southern India ; it attains to a length of 28 inches, the tail measuring 5½ inches. Cantor says " Numbers may be seen in rivers, as well as in irrigated fields and estuaries preying upon fishes, which, however, it refuses in a state of captivity.

Hypsirhina jagorii. *Peters, in Monatsber, Berl. Acad.* 1863, p. 245. Brownish grey above, many isolated scales black ; many scales of the outermost series and the middle of the ventrals white. From Siam, it is 12½ inches long, without the tail.

Hypsirhina bennettii, *Gray, Zool. Misc.* p. 67.

Hyp. maculata, *Dum. & Bibr. Erpét. gén.* vii. p. 950.

Appears to be peculiar to China, and attains to a length of 21 inches, the tail measuring 3¾ inches.

Hypsirhina chinensis. *Gray, Zool. Misc.* p. 73. From China. Blackish ash above, with irregular series of small black spots ; belly whitish, clouded with blackish. Larger specimens 16½ in. long, tail measuring 2½ inches.

Ferania, *Gray*. Head short, thick ; b stout, compressed ; tail of moderate length cleft of the mouth of moderate width ; small, with vertical pupil. The whole u surface of the head is shielded. Nostril on upper surface of the head, in a large n shield, the outer part of which is divided i two by a groove running outwards from nostril. The nasals of both sides form broad suture together, behind the rostral ; t very small anterior frontals. Scales smoo without apical groove, in twenty-seven seri Ventrals rather narrow anal bifid ; subcaud two-rowed. Maxillary with a grooved to behind.

Ferania Sieboldii.
Homalopsis sieboldii, *Schleg. Phys. Serp.* p. 349, *Cant. Mal. Rept.* p. 98.
Trigonurus sieboldii, *Dum. & Bibr.* vii. p. 960.

White, with about thirty-two very large, rounded, brown, black-edged spots, the interspaces between them being narrow. Old examples have the head uniform brown. A rare species, from Bengal and from the Province Wellesley. It attains to a length of 25 inches, the tail measuring 4 inches.

Homalopsis. *Kuhl.* Head rather depressed, flat, triangular, distinct from neck; body stout, cylindrical; tail of moderate length, tapering. Cleft of the mouth wide, turned upwards behind. Eye small, with vertical pupil. The whole upper surface of the head shielded. Nostril situated on the upper surface of the head, in a single nasal shield, the outer part of which, however, is divided in two by a groove commencing from the nostril and running outwards. The two nasals form a broad suture together behind the rostral; anterior frontal single, small (exceptionally divided); eye surrounded by a ring of small orbitals, the superciliary being well developed. Posterior upper labials transversely divided in two or three. Scales striated and keeled, in from thirty-seven to forty-seven series; ventrals rather narrow; anal bifid; subcaudals two-rowed. Maxillary teeth sub-equal in size, the last being grooved; mandibulary teeth longest in front, decreasing in strength and more closely set behind. Viviparous. Only one species is found in British India.

Homalopsis buccata, *Kuhl. Schleg. Phys. Serp.* ii. p. 337. *Gray. Viper. Snakes.* p. 67. *Dum.* & *Bibr.*p vii. 968.*Cant. Mal. Rept.* p.96.
Coluber buccatus, *L. Syst. Nat.* i. p. 377. *Russell,* ii. p. 39.
H. hardwickii, *Gray, Viper. Snakes,* p. 67.
H. semizonata, *Bly. J.A.S.B.* 1856, xxiv. p. 187.
Pythonia (!) semizonata, *Bl. l. c.* xxviii. p. 297.

Brownish olive, with narrow, rather irregular, greyish, black-edged cross bands. Found n Java, the Malayan Peninsula, and Gamboja; ength 42 inches, tail 10 inches. They are sluggish in their movements, and on dry land very wkward; the young ones are very gentle, and he old but seldom bite. The female brings orth six or eight living young at a time, each etween 7 and 8 inches in length.

Hipistes, *Gray.* Head short, depressed, istinct from neck; rather slender; body of oderate length; tail stout, compressed, pering. Cleft of the mouth of moderate idth, somewhat turned upwards behind; eye ry small, directed upwards, with vertical upil. The whole upper surface of the head shielded: nostril on the upper surface of the ead, in a single nasal shield, the outer part of which, however, is divided into two by a groove running outwards from the nostril. The nasals are separated from each other by a single narrow anterior frontal shield, which forms a suture with the rostral; two posterior frontals. Scales smooth, in thirty-nine series. Ventrals rather narrow, divided into three portions by a pair of sharp lateral ridges, the central portion being much the largest; anal bifid; subcaudals two-rowed. Maxillary with a grooved tooth behind; two or three strong teeth in the palatine series. Only one species is known, viz.

Hipistes hydrinus.
Homalopsis hydrinus, *Cantor, Mal. Rept.* p. 104.
Hipistes fasciatus, *Gray. Viper. Snakes,* p. 78.
Bitia hydroides, *Gray, l. c.* p. 68.

Pale-ash-coloured above, with a few blackish specks on the neck, and with about forty-eight black cross bars on the back of the trunk and tail, each about half as wide as the interspaces of the ground-colour. Lower parts white. This appears to be a semipelagic species, resembling a true Hydrophis in general appearance and colours; two were captured in fishing-stakes placed in the sea off the shores of Kedah; a third was washed on shore by the waves on the coast at Pinang. The largest male was 19⅝ inches long, the tail measuring 2⅝ inches. It moved actively and without difficulty on the sand, and did not offer to bite. In one examined the stomach contained remains of two small pelagic fishes. It appears to be a scarce snake.

Herpeton, Erpeton, *Lacépedè,* Head depressed, of moderate length, distinct from neck; snout terminating in two flexible, cylindrical, scaly tentacles; body and tail rather stout, rounded. Cleft of the mouth of moderate width, turned upwards behind. Eye small, with vertical pupil. Head shielded above, with the occipitals well developed. Nostril on the upper side of the head, in the middle of a large nasal, the outer portion of which is divided by a groove running outwards from the nostril. The nasals form a broad suture together; two small triangular anterior frontals; lateral shields of the head very small; eye surrounded by a ring of small orbitals, the superciliary being well developed; upper labials small; chin-shields small, narrow, oblique. Scales strongly keeled, in thirty-seven series; ventrals very narrow, each with two keels; anal bifid; subcaudals not differing from scales. Maxillary with the last tooth grooved.

Herpeton tentaculatum, *Günth, Pr. Z. Soc.* 1860, p. 114. *A. & M. N. Hist.* 1861, viii. p. 266.
Erpéton tentaculé, *Lacep. Bull. Sci. Soc. Philom.* 1800, ii. p. 169.
Erp. tentaculatus, *Latr. Hist. Rept.* v. p. 190,

Homalopsis herpeton, *Schleg. Abbild.* p. 50.

The ground-colour of the broad back is brown or olive-brown, bordered on each side by a black line, which becomes indistinct posteriorly, and is more conspicuous in young specimens; found hitherto in the southern parts of Siam only, and it appears to be a local species even there. It is an aquatic snake; and its tentacles are probably employed as organs of touch, under water, perhaps to discern its food, the nature of which is not known. The largest specimen known is 25 inches long, the tail measuring 6 inches.

Family of Desert Snakes.—*Psammophidæ.*

Body and tail generally elongate, sometimes stout-rounded; head very distinct from neck, narrow or thick, with the loreal region very concave. Scales smooth, in fifteen, seventeen, or nineteen rows; subcaudals two rowed. Cleft of the mouth wide; nostril lateral; eye of moderate size, with round or vertical pupil. Shields of the head normal: posterior frontals rounded or angular behind; vertical narrow, superciliaries prominent; loreal present; one præ, two post-oculars. One of the four or five anterior maxillary teeth is longer than the others, and the last is grooved. Most of the species of this family belong to the fauna of tropical Africa, which also produces a slender form *Psammophis elegans.*

Psammophis, *Boie.* Body and tail elongate; head with a rather long and pointed snout; loreal region concave, superciliaries prominent; Shields of the head regular: vertical long and narrow; loreal elongate. Scales lanceolate, smooth, flat, in from fifteen to nineteen rows. Anal bifid; pupil round. Maxillary with the fourth or fifth tooth elongate, and with the last tooth grooved; front teeth of the lower jaw long. One species of this African genus is found in British India.

Psammophis condanarus, *Blyth, Journ. As. Soc. Beng.* 1855, xxiii. p. 293.

Condanarouse, *Russell, Ind. Serp.* i. p. 32.

Coluber condanarus *Merr. Tentam,* p 108.

Psammophis tæniata, *Gunth. Ann. & Mag. Nat. Hist.* 1862, ix. p. 126.

Leptophis? bellii?? *Jerdon Journ. As. Soc. Beng.* xxiii. p. 529.

Psammophis indicus, *Beddome, Madr. Quart. Journ. Med. Sci.* vol. v.

Back brown, with a black edge along each side. Belly yellow, with a black line along each side. Nulla Mulla Hills (Kurnool District). Ganjam; Chillianwallah; Length 40 inches, tail measuring 8½ inches.

Psammodynastes, *Gthr.* Body and tail rather stout; head with the snout short, and with the front part of the lips swollen; loreal region concave, superciliaries prominent. Shields of the head regular; anterior frontals very small; vertical, narrow, elongate; one nasal, pierced by the nostril. Scales short, rhombic, smooth, without apical groove, in seventeen rows; anal entire. Pupil elliptic, erect. Anterior teeth in both jaws long, posterior maxillary tooth grooved. Only two species are known, one of which occurs in British India.

Psammodynastes pulverulentus, *Gunth. Colubr. Snakes,* p. 140.

Psammophis pulverulenta, *Boie, Isis,* 1827, p. 547. *Schleg. Phys. Serp.* ii. p. 211.

Dipsas ferruginea, *Cantor, Proc. Zool. Soc.* 1839, p. 53. *Blyth, Journ. As. Soc. Beng.* xxiii. p. 293; xxiv. p. 715.

The whole snake is sometimes black; sometimes a broad dark band runs along the side of the body,—the back, above the band, being of a lighter coloration. This snake has a very repulsive aspect: its dark, undefined colours, short and thick head, and swollen lips, caused by large hidden fangs, give it the appearance of a venomous snake; the largest specimen only 21 inches, the tail measuring 4½ inches. Khasya, Sikkim, Assam, Pegu, Mergui, Cochin-china, Sumatra, Java, and the Philippine Islands.

Family of Tree Snakes.—*Dendrophidæ.*

Body and tail much compressed or very slender and elongate; head generally elongate, narrow, flat, depressed, distinct from the slender neck; snout rather long, obtuse or rounded in front; cleft of the mouth wide; nostril lateral; eye of moderate size or large, with round pupil. Shields of the head normal. Scales generally narrow and much imbricate; ventral shields generally with two keels, rising on the sides; subcaudals two-rowed. No large fang either in front or in the middle of the upper jaw. The snakes of this family are diurnal species, living in trees, and feeding chiefly on tree-lizards; they are found in all the tropical regions. The Indian species belong to the following genera;

Gonyosoma, *Wagler.* Body and tail elongate, strongly compressed, with more than 200 keeled ventral shields; head flat above, with the snout more or less elongate, distinct from neck; eye of moderate size, with round pupil. Shields of the head regular: loreal sometimes absent; one anterior, two posterior oculars, two nasals. Scales not much elongate, smooth or very faintly keeled. Anal bifid. Teeth subequal in size, none grooved. The species known are East Indian.

Gonyosoma oxycephalum, *D.&B.* vii. p. 213.

Coluber oxycephalus, *Boie, Isis,* 1827, p. 537.

Gonyosoma viride, *Wagl. Icon.*

Herpetodryas oxycephalus, *Schleg. Phys.* p. 189 *and Abbild. Cantor, Mal. Rept.* p. 80.

Alopecophis chalybæus. *Gray, Ann. & Mag. Nat. Hist.* 1849, iv. p. 247.

? Aspidea robusta, *Hallowell, Proc. Acad. Nat. Sci. Philad.* 1860, p. 488.

Sea-green, paler below, sometimes entirely green. This snake occurs in many of the large islands of the Archipelago—Java, Celebes, Borneo, the Philippines,—at Pinang, and in Tenasserim. Length 82 inches, the tail measuring 19 inches.

Gonyosoma gramineum. Probably from Khasya. 14½ inches long, the tail measuring 3½ inches.

Gonyosoma frænatum, *Gunth. Col. Sn.* p. 123.

Herpetodryas frenatus, *Gr. A. & M. N. H.* 1853, p. 390.

A black band runs from the loreal region through the eye to the angle of the mouth. The only specimen known is from Khasya; 27½ inches, the tail measuring 7½ inches.

Phyllophis, *Gthr.* Body and tail moderately elongate, strongly compressed, with more than 200 keeled ventral shields. Snout not depressed, of moderate length; supraciliary rather prominent; head distinct from neck; eye of moderate size, with round pupil. Shields of the head regular: two anterior and two posterior oculars; one nasal. Scales not much elongate, keeled, in twenty-three rows. Anal bifid. Teeth subequal in size, none grooved. Only one species.

Phyllophis carinata. Upper parts uniform greenish olive (?); said to be from China; 21 inches long, the head measuring 10 lines, and the tail 4½ inches.

Dendrophis, *Boie.* Body and tail very elongate, slender, compressed; head rather depressed, oblong, with the snout obtusely rounded in front. Eye rather large, with round pupil; nostril lateral, between two nasals. Shields of the head regular. Scales smooth, in thirteen or fifteen rows, those of the vertebral series more or less enlarged, triangular or polygonal; the other scales much imbricate and elongate, narrow, quadrilateral. Ventral shields keeled; anal bifid. Posterior maxillary teeth not enlarged or grooved. The genus Dendrophis has been formed to comprise those tree snakes which combine an isodont dentition with an obtuse snout and enlarged, smooth vertebral scales.

Dendrophis picta. *Schleg. Phys. Serp.* ii. p. 228. *Gunth. Colubr. Snakes*, p. 148.

Coluber pictus, *Gm. Syst. Nat.* i. p. 1116. *Russell, Ind. Serp.* ii.

Coluber decorus, *Shaw, Zool.* iii. p. 538.

Leptophis maniar, *Bell, Zool. Journ.* ii. p. 329.

Ahætulla bellii, *Gray, Ind. Zool.*

Dendrophis boii, *Cant., Pr. Zool. Sc.* 1839, p. 53.

Leptophis pictus, *Cantor, Mal. Rept.* p. 83.

Bronze or brown above, sometimes with a yellow vertebral line on the front part of the trunk. This tree-snake is one of the most common species in almost every part of the East Indies. Its food consists of lizards and frogs. When old it is rather ferocious and bites readily; length 4 feet, the tail being not quite one-third.

Dendrophis caudolineata. *Gunth. Col. Sn.* p. 150.

Ahætulla caudolineata, *Gray, Ind. Zool.*

Leptophis caudolineatus, *Cant. Mal. Rept.* p. 85.

Dendrophis octolineata, *Dum. & Bibr.* vii. p. 201.

D. picta, *Motley & Dillwyn, Labuan*, p. 46.

Light brownish bronze with two black bands running from a short distance behind the head along the lower parts of the side to the tip of the tail. Pale yellow beneath; a black line along the middle of the lower surface of the tail. This species is found at Pinang, Singapore, and in Borneo, and attains to a length of 5 feet, the tail being one-fourth.

Chrysopelea, *Boie.* Body and tail very elongate and compressed oblong, with the snout obtusely rounded in front.

Chrysopelea ornata, *Russell, Ind. Serp.* 1 *and* 2 *D. & B.* vii. 1042; *Gunth. Cat. Col. Sn.* p. 146.

Ch. ornata et Ch. paradisei, *Boie. Isis.* 1827, 546-7.

Coluber ornatus, *Shaw, Zool.* iii. p. 477.

Leptophis ornatus, *Cantor, Malay Rep.* p. i.

Dendrophis ornata, *Schl. Ph. Sep.* p. 234.

D. paradisei, *Motley and Dillwyn. Labuan*, p. 46.

This species has six varieties, it is the most beautiful of all snakes. Himalaya, Khassya China, Malayana, E. Archipelago. It is very gentle.

Chrysopelea rubescens. *Gunth. Col. Sn.* 165.

Dipsas rubescens, *Gr. Ind. Zo.*

Leptophis rubescens, *Blyth, J. A. S. B.* 1855, xxiii. p. 293.

Purplish above and below, minutely dotted with brown; and with irregular black specks, when old nearly uniform greyish yellow. Length 30 in. tail 9 in. Philippines, Sumatra.

Family of Whip Snakes,—*Dryophidæ.*

Body and tail generally excessively slender and elongate, head very narrow and long with tapering snout. Asiatic species have a long fang like tooth in the middle of the maxillary and all are provided with a posterior grooved tooth.

Tropidococcyx, *Gth.* Body and tail rather slender slightly compressed.

Tropidococcyx perotteti, *Gunth. A. M. N. H.* 1850.

Psammophis perottetii, *D. & B.* vii. p. 898.

Leptophis Canariensis, *Jerd. J. B. A. S.* 1155, xxii. 530.

Dryiophis tropidococcyx, *Gunth. Col. Sn.* 147.

Common in N. Canara. Length 24 in. tail 5¼ in.

Tragops, *Wagl.* Body and tail exceedingly slender, tail compressed.

Tragops prasinus, *D. & B.* vii. 826.

Trag. nasutns. *Wagl. Syst. Amph*, 184.
Dryiophis prasina, *Boie. Isis* 1827 & 525.
Dryinus nasutns, *Bell. Zo. Journ.* iii. 327.
Dr. prasinus, *Cantor. Mal. Rept.* 18.

Ground colour, in some green in others, yellow; all have a yellow or white line running along the ventral shields. Ceylon, Bengal China and Archipelago.

Tragops dispar, *Gunthr*. Males bright green, females bronze coloured. Anamally.

Tragops fronticinctus, *Gth.*
Dryiophis fronticinctus. *Gunth. Col. Sn.*

Uniform grass-green above, paler below with a yellow band along each side of the belly, E. Indies, 10½ in.

Passerita Gray. Body and tail exceedingly slender, slightly compressed; head depressed, very long, with the snout long, pointed, and terminating in a flexible appendage; præorbital region deeply concave, with a projecting edge above. Eye of moderate size, with horizontal pupil; nostril small, lateral, situated in the hinder part of a single nasal shield. Shields of the head regular; loreal none. Scales smooth, elongate, narrow, much imbricate, in fifteen rows, those of the vertebral series larger than those on the side. Ventral shields not keeled; anal bifid. Maxillary with a strong tooth in the middle and with a grooved tooth behind.

Passerita mycterizans, *Gr.An. Ph.* x.p. 208.
? Coluber mycterizans, *L.Mus.Ad. Fried.* p. 28. *Russell, Ind. Serp.* i.
Dryinus nasutus, *Morr. Tent.* p.186 (not *Bell*). *Dum. & Bibr.* vii. p. 809.
Dryiophis nasuta, *Schleg. Phys. Serp.* ii. p. 246.

Bright grass-green, with a bronze shade on the back. Ceylon, the peninsula of India; also said to be from Khasya, Sumatra Java, Celebes, and the Philippine Islands but these last are more or less suspicious.

Passerita purpurascens.
Passerita mycterizans, var. Dryinus fuscus, *Gunth. Colubr. Snakes*, p. 161 (not *Dum. & Bibr.*).
P. fusca, *Cope, Proc. Acad. Nat. Sc. Philad.* 1860, p. 554. *Tennent, Nat. Hist. Ceylon.* p. 307.

Brownish grey, marbled with purple and dotted with brown, above and below. Peculiar to Ceylon; rare, attaining to a length of 4 feet, the tail measuring 1½ foot.

Family of Dipsades.—*Dipsadidæ.*

Body much compressed, elongate or of moderate length; head short, generally broad behind, subtriangular, with rounded, short snout, distinct from neck; eye large, generally with vertical pupil; nostril lateral. Shields of the head regular; cleft of the mouth wide; lower jaw expansible, with a mental groove. Scales generally smooth, those of the vertebral series frequently enlarged. Maxillary bone and its teeth well developed: all the Indian species with a grooved fang behind; and several, moreover, with fangs in front. The Indian dipsades are nocturnal Tree Snakes with a vertical pupil, a short, broad head, and compressed, elongate body.

Dipsas auct. Body and tail much elongate and compressed; head depressed, triangular, short, broad behind, very distinct from neck; snout short. Eye rather large, with vertical pupil; nostril between two nasals. Shields of the head regular; loreal present Scales smooth, more or less narrow on he sides, those of the vertebral series dilated. Anal entire; subcaudals two-rowed. Posterior maxillary tooth grooved.

Dipsas cynodon *Cuv. Regne Anim. Schleg: Phys. Serp.* ii. p. 268. *Cantor, Mal. Rept.* p. 77.
Eudipsas cynodon, (*Fitz.*) *Gunth. Col Sn.* p. 168.
Pareas wandersii, *Bleek. Nat. Tydschr. Nederl. Ind.* 1860, xx. p. 470.

Dipsas forsteni.
Triglyphodon forsteni, *D. and B.* p. vii. p. 1077.

Anamallay, Malay Peninsula and E Archipelago.

Dipsas boops, *Gunth. Colubr. Snakes.* p. 170.
Dipsas fuscus. *Motley, & Dillwyn, Nat. Hist. Labuan*, p. 43. Bengal.

Dipsas dendrophila (*Reinw.*) *Wagl. Syst. Amph.* p. 181, and *Icon. Schleg. Phys. Serp.* p. 263, and *Abbild. Cantor, Mal. Rept.* p. 76. *Motley & Dillwyn, Labuan*, p. 47. *Gunth. Colubr. Snakes*, p. 169.
Triglyphodon dendrophilum et gemmicinctum, *Dum & Bibr.* vii. pp. 1086, 1091.

This belongs to the fauna of the East India Archipelago extends to the Malayan Peninsula, Singapore, aud Penang. It attains to the large size of 7 feet, the tail being rather less than one-fourth.

Dipsas bubalina. *Seba*, ii. p. 37.
Vipera bubalina, *Klein, Tent. Herpet*, p. 21.
Triglyphodon cyaneum, *Dum & Bibr.* vii. p. 107
Dipsas nigromarginata, *Blyth, Journ. As. S Beng.* xxiii. p. 294.

Said to be from China. According to Bly it is an inhabitant of Assam. 53 inches lo the tail measuring 14 inches.

Dipsas hexagonotus, *Blyth Journ. As. S Beng.* 1856, xxiv. p. 360; bright ruddy fer ruginous inclining to coral red, paler be and mottled with black, bordering some of scales of the upper parts. Calcutta.

Dipsas multimaculata, *Schleg. Phys. Ser* i. p. 265, and *Abbild. Cantor, Mal, Rept.* p. 7 *Russell, Ind. Serp.* ii. Reddish olive, with a series of round brown spots. Bengal, Tenasserim, the Malay Peninsula, Pinang, Siam, Java, Celebes, and China; length 2¼ feet, the tail being one-fifth. The remains of birds in the stomach.

Dipsas trigonata, *Boie, Isis,* 1827, p. 559, *Schleg. Phys. Serp.* ii. p. 267. *Russell, Ind. Serp.* i.

Coluber trigonalis, *Schneid. in Bechst. Uebers.' Lacep.* iv.

Dipsadomorphus trigonatus, *Fitz. Gunth. Colubr. Snakes*, p. 175.

Common in the Peninsula of Southern India, Bengal and to the foot of the Himalaya, attains to a length of about 3 feet, the tail being one-fourth. It feeds on mice.

Dipsas multifasciata, *Blyth, Journ. As. Soc. Beng.* 1861, xxix. p. 114. *Subathoo.*

Dipsas gokool, *Gray, Ind. Zool.**

D, cynodon, *Cantor, Mal.* Rept. p. 77 (the young specimen).

Yellowish brown, scarce, Pinang, Bengal. Larger specimens 33 inches long, tail measuring 7 inches ; feeds on mice.

Dipsas ceylonensis.

Dipsadomorphus ceylonensis, *Gunth. Colubr. Snakes*, p. 176.

Greyish olive, minutely punctulated with black.

Family of Lycodontes.—*Lycodontidæ.*

Body generally of moderate length or rather slender, rounded or slightly compressed ; head of moderate length and width, generally with depressed, flat, and elongate muzzle. Eye rather small, generally with vertical pupil. Shields of the crown of the head regular, with the posterior frontals enlarged. Maxillary with a fang in front, but without a posterior grooved tooth. The Indian species, having a vertical pupil, would appear to be nocturnal snakes.

Lycodon. *Boie.* Body and tail of moderate length, slightly compressed ; generally a slight ridge along the side of the belly and tail. Head depressed, with flat, obtuse snout, distinct from neck. Number of ventrals between 150 and 250. Nostril between two shields Shields of the head regular ; loreal present ; one or two præ- and two post-oculars. Scales smooth, in seventeen rows. Subcaudals two-rowed ; anal entire or bifid. Pupil elliptical, erect. Maxillary with one of the anterior teeth enlarged, there being a toothless space behind it ; posterior maxillary tooth enlarged, not grooved ; anterior mandibulary teeth longer than the following ; palatine teeth not enlarged. This genus is entirely composed of Indian species.

Lycodon aulicus, *Boie, Isis,* 1826, p. 981. *Cantor, Catal,* p. 68

Coluber aulicus, *L. Syst. Nat.* i.p. 381. *Russell*, ii.

C. hebe, *Sch. Ph. Sp.* ii. p. 106. (*not* C. hebe, *Daud.*)

One of the most common snakes of the Indian continent and Ceylon ; it does not extend northwards to China, and becomes carcer on the coasts of the south eastern parts of India ; it occurs in only a few of the islands —in the Philippines and in Timor ; it is not certain whether the Javan form is specifically the same. It attains to a length of more than 2 feet, the tail being one-sixth. It is of fierce habits and defends itself vigorously.

Lycodon laoensis. *Gunth.* Deep black above, with pure-white cross-bands : lower parts uniform white. From the Laos Mountains, a male and female, are perfectly alike, and having a considerably shorter and narrower snout than *L. aulicus* ; this character, combined with the peculiar coloration, indicated a specific difference. The male is 16½ inches long, the tail measuring 3½ inches.

Lycodon striatus. *Russell, Ind. Serp.* i.

Coluber striatus, *Shaw, Zool.* iii. p. 527.

C. malignus, *Daud. Rept.* vii. p. 46.

Appears to be confined to the peninsula of India, the Anamallay Mountains, the Madras Presidency ; it does not grow to the same size as *L. aulicus*, the largest specimen seen being less than 2 feet, tail one-sixth of the total length.

Lycodon anamallensis. Greyish brown, with about twenty-five small, white, brown-edged cross bars on the back of the trunk ; sides indistinctly reticulated with whitish ; no collar ; each labial with a brown spot. Lower parts uniform white, 20 inches long, the tail measuring 3½ inches.

Lycodon rufozonatus, *Cantor, Ann. & Mag. Nat. Hist.* 1842, ix. p. 483.

Coronella striata, *Hallowell, Proc. Acad. Nat. Sc Philad.* 1856, p. 152.

Eumesodon striatus, *Cope, Ibid.* 1860, p. 268.

Crimson above, dotted and speckled with brown, Chusan ; attains to a length of 40 inches, tail measuring 5½ inches.

Tetragonosoma, *Gthr.* Body and tail of moderate length, compressed, with rounded back and angular belly. Head depressed, of moderate length, with rounded snout, distinct from neck. Ventrals more than 200 angularly bent on each side. Nostril between two shields. Shields of the head regular : loreal none, replaced by posterior or frontal ; one ante-, three (two) post-oculars. Scales smooth, without apical groove, in seventeen rows. Subcaudals two-rowed. Pupil elliptical, erect. Maxillary with one of the anterior teeth (third) enlarged, there being a toothless space behind it ; palatine teeth not enlarged ; mandible with a fang in front.

Tetragonosoma effrene, *Gunth Col. Sn.* p. 253.

Lycodon effrænis, *Cantor, Mal. Rep.* p. 70.

Lycodon ophiteoides, *Bleek. Nat. Tydschr. Nederal. Ind.* xvi. p. 436.

The Great Hill of Pinang ; 12½ inches long.

tail measuring 2¼ inches, from Sinkawang (Borneo), 27 inches long, the tail measuring 6½ inches.

Tetragonosoma atropurpurenm.
Lycodon atropurpureus, *Cant. Pr. Z. S.* 1839, p. 50.
Deep purple, marbled with white and black; beneath pearl-coloured. Ventrals 257; subcaudals 91." Mergui.

Leptorhytaon, *Gthr.* Body of moderate length, rounded, not compressed; tail short; head depressed, of moderate length, with rounded snout, distinct from neck. Ventrals less than 200, not bent on the sides. One nasal shield, pierced by the nostril; loreal elongate, pointed behind, but scarcely coming into the orbit. One præocular, situated above the loreal; two postoculars. Scales smooth, with a minute apical groove, in seventeen series. Subcaudals two-rowed. Pupil elliptical, erect. Maxillary with a fang in front of the mouth, a toothless space behind it; a series of small teeth on the side, the last being stronger than the others. Palatine teeth not enlarged. Mandible with one or two fangs in front. Only one species is known.

Leptorhytaon jara, *Gunth. Col. Sn.* p. 205.
Jara-potoo, *Russell, Ind. Serp.* i.
Coluber jara, *Shaw, Zool.* iii. p. 525.
C. bipunctatus, *Cantor, Pr. Z. S.* 1839, p 52.
Lycodon jara, *Schleg. Phys. Serp.* ii. p. 110.
Length 16¼ in. tail 2¼ in. Animalay, Ganjam, Bengal, Assam. Brown above, each scale, with two white dots, generally a white collar; lower parts uniform white.

Ophites, *Wagler.* Body and tail rather slender, compressed, with an angular ridge along each side of the belly and tail. Head depressed, with flat, obtuse snout, distinct from neck. Ventrals about 200 or more, angularly bent on each side. Nostril between two shields. Shields of the head regular: in one species præocular absent. Scales keeled, in seventeen rows. Subcaudals two-rowed. Pupil elliptical, erect. Maxillary with one of the anterior teeth (third or fourth) enlarged, there being a short toothless space behind it; last maxillary tooth and palatine teeth not enlarged; mandible with a fang in front.

Ophites subcinctus, *Wagl. Syst. Amph.* p. 186.
Russell, Ind. Serp. ii.
Coluber platurinus, *Shaw, Zool.* iii. p. 468.
Lycodon subcinctus, *Boie, Isis,* 1827, p. 551, *Schleg. Phys. Serp.* ii. p. 117.
L. platurinus, *Cantor, Mal. Rept.* p. 69.
Black, paler on the sides and below. This is a Javan species, extending to Penang, where it is very scarce. It attains to a length of 3½ feet, the tail being one-fourth or one-fifth of the total length. It feeds on skinks and is of same habits, like the other Lycodontides.

Ophites albofuscus, *Gunth. Col. Sn.* p. 207.
Sphecodes albofuscus, *Dum. & Bibr.* vii. p 394.
Light reddish, with numerous (about fifty) brown cross bands, Malabar Coast, Sumatra; 24¾ inches long, the tail measuring 8½ inches.

Cercaspis, *Wagl.* Body of moderate length, strongly compressed; tail rather short. Head rather depressed, flat above, with rounded snout of moderate length, not very distinct from neck. Ventrals not quite 200 in number, with a strong angular ridge on each side; subcaudals simple. Shields of the head regular. Scales strongly keeled, in nineteen series. Pupil elliptical, erect. Maxillary with one of the anterior teeth (third or fourth) enlarged, there being a toothless space behind it; the last maxillary tooth is larger than the preceding, and separated from them by an interspace. Palatine teeth not enlarged; the anterior mandibulary teeth are not much larger than the following. Only one species, from Ceylon, is known.

Cercaspis carinata.
Hurria carinata, *Kuhl, Beitr. Zool.* p. 95.
Cercaspis carinatus, *Wagl. Syst. Amph.* p. 191.
Lycodon carinatus, *Schleg. Phys. Serp.* ii. p. 109.
Black: white rings encircle the body and the tail; it is not scarce in Ceylon, attaining to a length of 2 feet, the tail taking from 4 to 5 inches.

Family of Blunt-Heads—*Amblycephalidæ.* Body much compressed, slender or of moderate length; its hinder portion and the tail prehensile; head short, thick, very distinct from neck; eye of moderate size, with vertical pupil; nostril lateral, in a single plate. Shields of the crown of the head sometimes increased in number. Cleft of the mouth much narrower than the external posterior commissure of the lips would indicate; lower jaw not expansible, covered with large unsymmetrical chin-shields, not separated by a mental groove. Scales smooth or faintly keeled, in from thirteen to fifteen series, those of the vertebral series enlarged. Maxillary bone very short, provided with only a few very small teeth; palate and lower jaw with strong teeth anteriorly; no grooved tooth.

Amblycephalus, sp., *Kuhl.* Body and tail slender, strongly compressed, prehensile; head thick and large, much elevated, with convex lips, very distinct from neck. Shields of the head irregular: rostral very high; two pairs of frontals of moderate size; an elongate vertical and supraciliaries; a pair of rounded occipitals; smaller shields are sometimes intercalated between those mentioned. Several loreals; a ring of small separate shields round the orbit; anterior labials narrow, high; temporals numerous, scale-like. Scales smooth, thin, elongate, without apical groove, much imbricate, in thirteen series; those of the vertebral series exceedingly large, hexagonal. Ventrals rounded, less than 200 in number; anal and subcaudals simple. Teeth few in number: a long fang anteriorly in the palate and in the lower jaw.

Amblycephalus boa, (*Kuhl.*) *Boie, Isis*, 1828, p. 1035.
Dipsas boa, *Schleg. Phys. Serp.* ii. p. 28 *Cantor, Mal. Rept.* p. 78.

The head of this most singular snake resembles much that of a mastiff, the lips, being arched and tumid; it climbs with great facility, frequenting the roofs of the huts of the natives in pursuit of its food, which consists of insects. It belongs properly to the fauna of the archipelago, inhabiting Java, Borneo, and the Philippine Islands; Cantor found it at Penang; it does not appear to be common anywhere. It readily bites; and attains to a length of 3 feet, the tail being one-third.

Pareas, *Wagl.*—Body strongly compressed of moderate length or rather slender; tail of moderate length, prehensible. Cleft of the mouth very short. Shields of the upper side of the head regular. Loreal present, or united with præocular. Scales smooth or faintly keeled, in fifteen series, those of the vertebral series largest. Ventrals rounded, less than 200 in number; anal simple; subcaudals bifid. Maxillary teeth small, few in number; palatine and mandibulary teeth in a continuous series, gradually increasing in length towards the front.

Pareas carinata, *Wagl. Syst. Amph.* p. 181.
Dipsas carinata, (*Reinw.*) *Schleg. Phys. Serp.* ii. p. 285, and *Abbild.*

Greyish brown, with numerous closely-set, eticulated blackish cross bands; whitish beow, with some irregular brown dots, not very are in Java. From the Laos Mountains n Cochin-China. It attains to a length of 20 nches, the tail being one-fourth.

Pareas monticola.
Dipsas monticola *Cantor, Pr. Z. S.* 1839, p. 53.

Brown, yellowish below, irregularly dotted with brown.

Pareas lævis, *Dum. & Bibr.* vii. p. 442.
Amblycephalus lævis, (*Kuhl*) *Boie Isis*, 1827, p. 19.
Dipsas lævis, *Schleg. Phys. Serp.* ii. p. 287.

Brown or blackish ash marbled with black, he black colour being disposed in irregular ross bands; belly brown. This snake is found n Java, Cochin-China, (Lao Mountains) and Khasya. Longest specimen, is 16 inches the il measuring 3 inches.

Family of Rock Snakes.—*Pythonidæ.*

Body and tail of moderate length or rather slender, rounded; tail prehensile: head with the snout rather long, depressed, truncated or rounded in front. Eye of moderate size, with vertical pupil. Scales smooth, in numerous series; subcaudals two-rowed. Some of the upper and lower labials are pitted. Teeth in the intermaxillary, maxillary, palatine, pterygoid, and mandibulary bones, of unequal size; none are grooved. Adult individuals with a spur-like prominence on each side of the vent; it is the extremity of a rudimentary hind limb hidden between the muscles. The Rock-snakes are found in the hottest parts of Africa, Asia the East Indian Archipelago, and Australia. They climb as well as they swim; most of them prefer the neighbourhood of water. This family contains the largest snakes. Only one genus, the python, is found in British India.

Python, sp., *Daud.* The two species of Indian Rock-snakes are among the largest of living reptiles. Of snakes, only their African congeners and the American *Eunectes murinus* can be placed beside them. Their dimensions and their strength, however, have been much exaggerated: specimens of 18 to 20 feet in length are very rare, although isolated statements of the occurrence of individuals which measured 30 feet are on record and worthy of credit. Rock-snakes from 15 to 20 feet long have the thickness of a man's thigh, and will easily overpower a small deer, a sheep, or a good-sized dog. The Rock-snakes must attain to a considerable age. A *Python reticulatus* lived in the menagerie of the Zoological Society of London for fifteen years; when brought to England it was about 11 feet long, and in ten years it had attained to a length of 21 feet, after which no further growth could be observed. The males remain smaller than the females. The Rock-snakes will propagate in captivity—the Indian *P. Molurus* having bred in Paris, and the African *P. Sebæ* in London. In both cases the eggs were incubated by the mother, and in the former successfully hatched.

Python reticulatus. *Gray. Zool. Misc.* p. 44. *Dum & Bibr.* vi. p. 426. *Cantor, Mal. Rept.* p. 55. *Seba*, i. p. 98, ii. p. 83 and p. 85.
Boa reticulata, *Schneid. Hist. Amph.* p. 264.
Python schneiderii, *Merr. Tent.* p. 89. *Schleg. Phys. Serp.* ii. p. 415.
Ular- Sawa, Malay.

Ground-colour light yellowish brown, chesnut, or olive: This is a common species in the Archipelago, inhabiting almost all the islands. The fauna of the Malayan Peninsula bears as much the insular as the continental character, and appears to be the only part of the continent where this Rock-snake is found; according to Cantor it is numerous there and in the neighbouring islands, feeding on quadrupeds and birds. It often takes up its abode in outhouses, preying at night, and is thus useful in destroying vermin, although plunder is occasionally committed in poultry-yards. When kept in captivity it is of importance to supply it with a small tank of water, in which it will frequently remain for days. Individuals of 16 feet in length are not of rare occurrence, and some about 30 feet long are on record.

Python molurus. *Gray*, *Zool. Misc.* p. 44. *Dum. & Bibr.* vi. p. 417. *Seba*, i. p. 59.

Coluber molurus, *L. Syst. Nat.* i. p. 225.
Peddapoda, *Russell*, *Ind. Serp.* i.
Python tigris, *Daud.* v. p. 241.
P. bivittatus (part.), *Schl. Ph. Serp.* ii. p. 403.
Azhdaha. Hind. Pers.

The ground-colour is light greyish brown. A dark-brown streak runs from the nostril through the eye to behind the angle of the mouth, gradually becoming broader and confluent with another band running along the lower jaw. Lower parts yellowish, brownish or blackish on the sides. This Python, commonly known under the name of "Rock Snake," and by some misnamed "Boa," is almost peculiar to the continent of India. Common in the Southern Peninsula and in Bengal, it extends northward into the Saul Forest at the foot of the Himalaya, and probably to Southern China. Its occurrence in the Malayan Peninsula is problematical, and in Java it is at all events much scarcer than *P. reticulatus*. Ceylon is inhabited by a Python, but it is not known whether it is *molurus* or *reticulatus*—probably the former. Specimens are known to have been captured which were 20 feet long, and it is probable that it attains to the same size as its congener from the Archipelago.

Family of Sand Snakes.—*Erycidæ.*

Body of moderate length, cylindrical, covered with small, short scales; tail very short, with a series of subcaudals; head with a broad snout of moderate length, or somewhat elongate. Eye rather small, with vertical pupil. None of the labials are pitted; cleft of the mouth wide; teeth in the maxillary on the palate, and in the mandible, none in the intermaxillary; the anterior teeth are the longest. Adult individuals with a short conical prominence in a groove on each side of the vent; it is the extremity of a rudimentary hind limb. The snakes of this family show great similarity to the Pythons and Boas with regard to their internal structure as well as to their external characters. But their tail is very short, not flexible, much less prehensile.

Gongylophis, *Wagl.* Head flat, oblong, scarcely distinct from neck, with the snout rather long and obtusely rounded in front, and without canthus rostralis. Body cylindrical, of moderate length; tail very short, tapering. Nostril lateral, directed upwards; eyes rather small, with vertical pupil. Head covered with scales only the foremost part of the snout and the lips are shielded; scales small, keeled; ventrals and subcaudals narrow. Chin entirely covered with small scales, without medium groove. Anterior teeth in the jaws and on the palate longest.

Gongylophis conicus, *Wagl. Syst. Amph.* p 192. *Gunth. Proc. Zool. Soc.* 1860, p. 163.

Russell, *Ind. Serp.* i. p. 5.
Boa conics, *Schneid. Hist. Amph.* ii. p. 268, and *Denkschr. Munch. Acad.* 1821, vii. p. 119.
Eryx conicus, *Dum. & Bibr.* vi. p. 470.

Brownish gray. Common in many parts of the Peninsula of India, Sikkim at 4,000 feet, Length above two feet.

Cursoria. *Gray*, distinguished from Gongylophis by its having smooth scales.

Cusoria elegans, *Gray*, *Viper, Snakes*, p. 107, tail short, tapering, eye very small, with vertical pupil, ventrals 184. Light brownish olive, with a dorsal series of irregular rounded, chestnut-brown black-edged spots. Numerous small brown spots along the side and belly. Affghanistan, about 16 inches long.

Eryx. sp. *Daudin.* Head not distinct from neck, with the snout obtusely conical, and with a sharp transverse anterior edge. Body cylindrical, of moderate length; tail very short. Nostril very narrow, lateral; eyes small, with vertical pupil; head covered with scales: snout shielded, scales small, slightly keeled. Chin with some small shields along the middle separated by a median groove.

Eryx johnii, *Dum. & Bibr.* vi. p. 458.

Boa johnii, *Russ. Ind. Serp.* ii. p. 18 and p. 20.
Clothonia johnii. *Gray*, *Zool. Misc.* p. 45. *Gunth. Proc. Zool. Soc.* 1860, p. 164.
E. maculatus, *Hallowell*, *P. A. N. S. Phil.* 1849, p. 184.

Upper parts reddish olive, uniform or with irregular small black spots and dots; lower parts generally marbled with blackish. This is a common species in the plains of the peninsula of Southern India; a large specimen, spotted all over with black, was brought from Sikkim by Messrs. von Schlagintweit, who fix the elevation at which it was captured at 9,800 feet above the level of the sea.

Family of Wart Snakes.—*Acrochordidæ.*

Body of moderate length, rounded or slightly compressed, covered with small, wart-like, not imbricate, tubercular or spiny scales; tail rather short, prehensile. Head rather small, not distinct from neck, covered with scales like the body. Eye small. Nostrils close together, at the top of the snout. Teeth short, but strong, subequal in size, in the jaws and on the palate. Viviparous.

Acrochordus, *Hornstedt*. The hind part of the body and tail are slightly compressed; tail not expanded by a fold of the skin. No ventral or subcaudal shields whatever; each scale with a strong triangular keel, terminating in a spine; many scales with another pair of smaller spines. Only one species is known.

Acrochordus javanicus, *Hornst. Abhandl. Acad. Stockh.* 1797, vii. p. 306. *Schleg. Phys. Serp.* ii. p. 424, and *Abbild.* p. 55. *Cantor, Mal. Rept.* p. 58.

Brown above, more yellowish on the sides. This snake is very rare, and has been found only in Java, at Pinang, and Singapore. It grows to a length of 8 feet, its habits are terrestrial.

Chersydrus, *Cuv.* The hind part of the body and the tail are slightly compressed; the surface of the latter is vertically expanded by a fold of the skin running along its lower side. No ventral or subcaudal shields whatever; a low fold of the skin runs along the median line of the abdomen. Scales with a short tubercle-like keel, not spiny. Only one species is known.

Chersydrus granulatus et annulatus, *Gray, Viper. Snakes*, p. 61.

Hydrus granulatus, *Schneid. Amph.* p. 243.
Acrochordus fasciatus, *Sh. Z.* iii. pp. 11, 576.
Chersydrus fasciatus, *Cuv. Règne Anim.*
Acrochordus granulatus, *Cant, Mal. Rept.* p. 59.

Brownish black, with whitish cross bands on the sides and abdomen; head with some small yellowish spots. This is a thoroughly aquatic species, as is indicated by its broad, compressed tail, which, however, differs greatly from that of the Hydrohides in not having the processes of the caudal vertebræ prolonged. It is more or less scarce, but found in the rivers and on the sea coasts of numerous islands of the Archipelago, extending to New Guinea and the Philippines. It inhabits also the eastern coasts of Southern India and the Malayan Peninsula, and sometimes it may be seen three or four miles distant from the shore. It is not venomous, as has been stated by writers.

SECOND SUB-ORDER.

Ophidii Colubriformes Venenosi—Venomous Colubrine Snakes.

Snakes with an erect, immoveable, grooved or perforated tooth in front of the maxillary.

Family of Elapides—Elapidæ.

Body cylindrical or sub-cylindrical; tail rather short, tapering: head with the normal number of shields above; loreal constantly absent. Nostril lateral. Eye rather small, with round pupil. The venom-fang shows a distinct groove along its front, and the canal in its interior terminates in a slit at its extremity.

Naja, *Laur.* Body and tail of moderate length; belly flat; head rather high and short not very distinct from neck, which is very dilatable, the anterior ribs being elongate. The shields of the head normal, but the loreal is absent. Nostril wide, lateral, between two shields; eye of moderate size, with round pupil. One præ-, three, sometimes two or four post-oculars. Six upper labials, the third and fourth entering the orbit; the third forms the lower half of the anterior margin of the orbit. Scales smooth, much imbricate, in numerous series round the hood. Anal entire; subcaudals two rowed. The fang is grooved, with a foramen at its extremity; one or two small ordinary teeth at a short distance behind it.

Naja tripudians. *Merr. Tent.* p. 147. *Gray. Ind. Zool. Schleg. Phys. Serp.* ii. p. 466. *Gunth. Colubr. Snakes*, p. 223.

Coluber naja, *L. Syst. Nat.* i. p. 382.
Naja lutescens, *Laur. Syn.* p. 91. *Cant. Mal. Rept.* p. 117. *Russell, Ind. Serp.* i.
N. larvata, *Cantor, Proc. Zool. Soc.* 1839, p. 32
N. atra, *Cant. A. & M. Nat. Hist.* 1842, ix. p. 482.
N. kaouthia, *Less. in Bélang. Voy. Ind. Orient. Zool.* p. 312, *Rept.*
Cobra or Naga.

Var. α. Uniform brownish olive above, with a pair of very conspicuous white, black-edged spectacles on the neck. Madras, Animallay, Dekhan, Bengal, Penang.

Var. β. Dark brown above, many scales with whitish edges, a pair of spectacles on the neck, white, black-edged; in old cobra, spectacles uniform black. Ventrals 195, sub-caudals 62. Ceylon.

Var. γ. Olive brown above with very conspicuous white, black-edged spectacles. Ventrals 174. China.

Var. δ. Uniform blackish brown above and below, head of a lighter colour. Ventrals 180. China.

Var. ε. Without spectacles, uniform blackish brown above, spectacles: variety from Dekhan, Sikkim and Penang. Ventrals 184-187.

Var. ζ. Uniform black. A large white ocellus on the neck with black centre and black margin. Ventrals 174. Siam.

Var. η. Black above and below. A large white ocellus on the neck with black centre. Ventrals 170. Siam.

Var. θ. Black above and below a large white ocellus on the neck with black centre and black edge. Ventrals 193, sub-caudals 53. Bombay, Calcutta, Assam, Sikkim.

All the varieties form but one species, which is widely spread, all over the East Indies,

N. sputatrix *Reinwardts* of the Archipelago, appears to be a distinct species. The true *Naja tripudians*, however, is also found in a number of the larger islands of the Archipelago. It extends eastwards to the Sutlej, and westwards to the Chinese island of Chusan. Singularly, it has never been observed by Mr. Hodgson in the valley of Nepal, but occurs in different parts of the Himalaya, reaching an altitude of 8,000 feet in Sikkim. It is more a nocturnal animal than a diurnal one, and ovo-viviparous. Its chief enemies are the jungle fowl, which destroy the young brood, and the *Herpestes* or ichneumons, which will attack and master the largest Cobra: in districts where the Cobras or other venomous snakes have too much increased in number, the most efficient way of destroying them is to protect their natural enemies. The Cobra is the most common venomous snake of the East Indies.

Ophiophagus, *Gthr*. Body rather elongate ; tail of proportionate length ; head rather short, depressed, scarcely distinct from neck, which is dilatable. Occipitals surrounded by three pairs of large shields, the two anterior of which are temporals. Nostril between two nasals. Loreal none ; one or two præ-, three post-oculars. Scales smooth, much imbricate, in transverse rows, in fifteen series round the body, but in many more round the neck ; those of the vertebral series are rather larger than the others. Ventrals more than 200 ; anal entire ; anterior subcaudals simple, posterior two rowed, sometimes all bifid. Maxillary with a large fang in front, which is perforated at the end, showing a longitudinal groove in front ; a second, small, simple tooth at some distance behind the fang. Only one species is known.

Ophiophagus elaps.

Naja bungarus, *Schleg. Phys. Serp.* ii. p. 476, and in *Verhand. Overz. Bezitt. Nederl. Ind. Zool.* p. 71.

N. elaps, *Schleg. Phys. Serp.* ii. p. 485.

N. vittata, *Elliott, Madr. Journ. Lit. & Sci.* xi.

Hamadryas (hamnah) ophiophagus, *Cantor, As. Res.* xx. p. 87. and *Mal. Rept.* p. 116.

Trimeresurus ophiophagus, *D. & B.* vii. p. 1245.

Hamadryas elaps, *Gunth. Colubr. Snakes*, p. 219

This remarkable snake is easily recognized by the large shields surrounding the occipitals. Although rather rare, it has a very wide geographical range : in almost every part of the Indian continent, the Andaman Islands, Java, Sumatra, Borneo, the Philippine Islands, and, according to Dumeril, also in New Guinea. It is one of the largest and most deadly venomous snakes, attaining to a length of more than 12 feet, of which the tail is about one-fifth. It inhabits hollow trees, and is sometimes found resting between the branches ; it feeds on other snakes.

Bungarus, *Daud.* Body rather elongate ; tail comparatively short ; head more or less dilated, depressed, with broad, rounded muzzle, scarcely distinct from neck, which is not dilatable. Nostril between two nasals. Loreal none ; one præ-ocular, two post-oculars. Scales smooth, moderately imbricate, disposed in oblique rows, forming fifteen longitudinal series round the body ; those of the vertebral series are very broad, hexagonal. Ventrals between 200 and 250 ; anal and subcaudals entire. Maxillary with a fang in front, which is perforated at the end, showing a longitudinal groove in front ; a second, small, simple tooth at some distance behind the fang. All the species occur on the continent of India. The name of the genus has been derived from a vernacular name, Bungarum, used on some parts of the coast of Coromandel. All the species known belong to the continental fauna, two of them extending to some of the islands of the Archipelago ; the diagnoses given, although short, will be found fully sufficent to recognize and distinguish these closely allied species.

Bungarus cæruleus, *Daud. Hist. Rept.* v. p. 270. *Dum. & Bibr.* vii. p. 1273.

? ? Coluber candidus, *L. Mus. Ad. Fried.*

Pseudoboa cœrulea, *Schneid. Hist. Amph.* p. 284.

Boa Krait, *Williams, As. Res.* ii. p. 328. *Russell, Ind. Serp.* i.

Boa lineata, *Shaw, Zool.* iii. p. 356.

B. lividus, *Cantor, Proc. Zool. Soc.* 1839, p. 32.

B. candidus, *Cantor, Mal. Rept.* p. 113 (not synon.

B. arcuatus, *Dum. & Bibr.* vii. p. 1272.

B. lineatus, *Günth. Colubr. Snakes*, p, 219.

Rather common throughout the peninsula of Southern India, in Bengal, and in Assam, but not in Ceylon. It attains to a length of 54 inches, of which the tail takes about one-seventh.

Bungarus fasciatus. *Cantor, Mal. Rept.* p, 113. *Seba*, ii. *Russell, Ind. Serp.* i.

Pseudoboa fasciata, *Schneid, Hist. Amph.* p. 283.

Bungarus annularis, *Daud. Rept.* v. p. 265. *Schleg. Phys. Serp.* ii. p. 457 and *Abbild*.

Lower parts and throat uniform yellow. This is the largest species of *Bungarus*, attaining to a length of 4 feet, the tail taking one-tenth of it. It has a wide range, but appears to be rather locally distributed ; it has been brought from Java, from the Malayan Peninsula and Pinang, from the Tenasserim coast, from Bengal and China, and from the coast of Coromandel. Jerdon says that he has seen specimens only in the Northern Circars at Ganjam, where it is not very common.

Bungarus ceylonicus.

B. fasciatus, var. B. *Gunth. Colubr. Snakes*, p. 221.

This species or variety is peculiar to Ceylon and not uncommon.

Bungarus semifasciatus, *Kuhl. Isis*, 1827, p. 552. *Schleg. Phys. Serp.* ii. p. 459, and *Abbild. Dum.* & *Bibr.* vii. p. 1271.

Aspidoclonion semifasciatum, *Wagl. Icon.*

Bungarus multicinctus, *Blyth, Journ. As. Soc. Beng.* 1861, xxix. p. 98.

China from the Island of Formosa. Length 4 feet, tail one-ninth of the total length. It feeds on lizards when young, and afterwards probably on small mammals.

Xenurelaps. Body subcylindrical, long and slender; belly rounded; head short, subtriangular, with rounded snout, not distinct from neck, which is not dilatable; tail short. The shields of the head normal, but the loreal is absent. Nostril lateral, between two shields; eye small, with round pupil, one præ; two post-oculars. Scales smooth, not much imbricate, in fifteen rows; those of the vertebral series enlarged, hexagonal. Anal entire; subcaudals bifid. Maxillary with a grooved fang in front, and with a small smooth tooth behind. Only one species is known.

Xenurelaps bungaroides.

Elaps bungaroides, *Cant. Pr. Z. Soc.* 1839, p. 33.

Ventrals 237; anal entire; subcaudals 46. Upper parts black, with narrow white, angular, transverse lines. Lower parts whitish, with irregular blackish cross bands. From Chirra Punji; it is 15¼ inches long, the tail measuring 1⅞ inch.

Megærophis, *Gray*. Body elongate, tail of moderate length; head flat, depressed, with broad, rounded snout, scarcely distinct from neck, which is not dilatable. Nostril between two nasals. Loreal none; one præ-, two post-oculars. Scales smooth, moderately imbricate, in thirteen series, those of the vertebral series being very broad, hexagonal. Ventral shields about 225; anal and anterior subcaudals entire, the others bifid. Maxillary with a fang in front, which is perforated at the end, showing a longitudinal groove in front; a second small, simple tooth at some distance behind the fang. Only one species is known.

Megærophis flaviceps.

Bungarus flaviceps. *Reinh. Dansk. Vidensk. Afhand.* x. p. 253. *l. Cantor, Catal.* p. 112. *Günth Colubr. Snakes*, p. 221.

Megærophis formosus, *Gray, Ann. & Mag. Nat. Hist.* 1849, iv. p. 247.

Black, with a white vertebral line which becomes red posteriorly. Belly red in specimens from Borneo, black anteriorly and red posteriorly in specimens from Pinang. This snake has the structure of the head-shields and of the vertebral scales of a *Bungarus*; it is rare, and found in Borneo, Java, Sumatra, and at Pinang. It attains to a great length, the largest specimen measuring 6 feet and 1 inch, the tail being 9 inches long.

Callophis, *Gray*. Body subcylindrical, very long and slender; belly rounded; head short, obtuse, with broad snout, not distinct from neck, which is not dilatable; tail short. The shields of the head normal, but the loreal is absent. Nostril wide, lateral, between two shields; eye small, with round pupil; one præ-, two-post-oculars; temporals in a single longitudinal series Six, seven, or eight upper labials, the third and fourth entering the orbit. Scales smooth, not much imbricate, in thirteen rows, those of the vertebral series not enlarged. Sub-caudals bifid. Maxillary with a grooved fang in front, without other teeth behind. The Callophides are more numerous on the East Indian continent than in the Archipelago; they are the representatives of the American *Elaps*, of the Australian *Vermicella*, and of the African *Homorelaps*. Cantor says they are generally seen lying motionless, with the body thrown into many irregular folds but not coiled.

Callophis bivirgatus, *Gunth. Proc. Zool. Soc.* 1859, p. 81.

Elaps bivirgatus, (*Boie*) *Schleg. Phys. Serp.* p. 451, and *Abbild. Gunth. Colubr. Snakes*, p. 230.

E. flaviceps, *Cantor, Mal. Rept.* p. 109.

Doliophis flaviceps, *Girard, in U. S. Explor. Exped. Herpetol.*

Borneo, Java, Sumatra, Malayan Peninsula, and Pinang. 54 inches long, the tail measuring 5 inches.

Callophis intestinalis, *Günth. Proc. Zool Soc.* 1859, p. 82. *Seba*, ii.

Aspis intestinalis, *Laur. Syn. Amph.* p. 106.

Elaps furcatus, *Schneid. Hist. Amph. p.* 303. *Schleg. Phys. Serp.* ii. p. 450. *Abbild.* and *Verhand. Nederl. Overz. Bezitt. Zool.* p. 64. *Motley & Dillw. Labuan*, p. 45. *Russell, Ind. Serp.* ii.

Maticora lineata, *Gray, Illustr Ind. Zool.*

Elaps intestinalis, *Cantor, Mal. Rept.* p. 107. *Günth. Colubr. Snakes*, p. 230.

A variety from the Peninsula, Pinang, Singapore, and Central India (Malwah). Specimens from Java have the vertebral line continued in the head, where it is forked; it has no black edges; and the ground-colour is brown. This species occurs also in Sumatra, Borneo, and in the Philippine Islands; it attains to a length of 2 feet, the tail measuring 1½ inches.

Callophis gracilis. *Gray. Ind. Zool.*

Elaps nigromaculatus, *Cantor, Mal. Rept.* p. 108.

A series of large, round, black, white-edged spots along each side of the back. Belly pale yellow with black cross bands, both colours being nearly equally divided. This fine species has been found only at Pinang and Singapore; it attains to a length of 28 inches, the tail measuring 1½ inches.

Callophis macclellandii. *Gunth. Pr. Z. S.* 1861.

Elaps macclellandii, *Reinh. Calc. Journ. Nat.*

Hist. 1844. iv. p. 582; and *Vidensk. Medd. Naturh Foren. Kjobenh,* 1860, p. 247.
E. personatus, *Blyth, J.A.S.B.* 1855, xxiii. p. 298.
E. univirgatus, *Günth. Colubr. Snakes*, p. 281.
Callophis univirgata, *Günth. Pr. Zool. S.* 1859, p. 83.

Head and neck black above, with a yellow cross band behind the eyes. From Nepal and Darjeeling, a variety from Assam.

Callophis annularis. *Gunth.* Body and tail reddish brown, without longitudinal band, but with forty narrow, equidistant, black white edged rings; belly yellowish, with a black cross band in the middle between the rings.

Callophis trimaculatus, *Gunth. Proc. Zool. Soc.* 1859, p. 83. *Russell Ind. Serp.* i.
Vipera trimaculata, *Daud. Rept.* vi. p. 25.
Elaps trimaculatus, *Merr. Tent.* p. 143.
Coluber melanurus, *Shaw, Zool.* iii. p. 552.

Light bay above. Belly uniform white (red) during life. The coast of Tenasserim, Bengal, 12 inches long, the tail measuring $\frac{1}{2}$ inches. In addition to the above enumerates *Elaps malabaricus*, Jerdon, besides an *Elaps melanurus*, Shaw, the " *E. malabaricus*" appears to be the true *E. melanurus*, Shaw.

Callophis maculiceps, *Gunth. Proc. Zool.* Soc. 1859, p. 84.
Elaps melanurus, *Cantor, Mal. Rept.* p. 106.
E. maculiceps, *Gunth. Colubr. Snakes*, p. 232.

Light bay above, with a series of distant black dots along each side of the back; belly uniform whitish (red during life.) Found in the Malayan Peninsula; according to Cantor it exceeds a length of 2 feet.

Callophis nigrescens, *Günth. Ann. & Mag. Nat. Hist.* 1862, ix. p. 131.
C concinnus, *Beddome, Madr. Quart. Journ. Med. Sc.* vi.

Upper parts dark blackish ash, or black, the lower uniform red. Nilgherries; the largest is 4 feet long, the tail measuring 5 inches.

Family of Sea Snakes—*Hydrophidæ.*

Body subcylindrical anteriorly, more or less compressed posteriorly; tail strongly compressed, elevated, paddle-shaped. Head-shields generally abnormal; loreal none. Nostrils situated on the upper side of the head, except in *Platurus.* Eye small, with round pupil. The venom-fang small, grooved in front, and with a canal in its interior terminating in a short slit. The Sea-snakes are inhabitants of the tropical parts of the Indian and Pacific Oceans, extending from the coast of Madagascar to the Isthmus of Panama; they are most numerous in the East Indian Archipelago and in the seas between Southern China and North Australia, being represented on the outskirts of the geographical range we have mentioned by only one species, and that the most common, viz. *Pelamis bicolor* The most striking feature in the organization of the Sea-snakes is their elevated and compressed tail, the processes of the caudal vertebræ being much prolonged and styliform. The food of the Sea-snakes consists entirely of small fish; all the species are viviparous, bringing forth, without leaving the sea, from four to nine young ones. They have very formidable and very numerous enemies in the sea-eagles (*Haliaetus,*) in the sharks, and other large raptatorial fishes. There is no other group of reptiles, the species of which are so little known, and the synonymy of which is so confused, as that of the Sea-serpents. Our present knowledge of the geographical distribution of most of the species is extremely vague.

Platurus, *Latr.* Body subcylindrical, of moderate length. Shields of the head subnormal in number and arrangement; nostrils lateral, in a single nasal shield, both nasals being separated from each other by a pair of anterior frontals. Scales imbricate, smooth; ventral shields well developed; tail with two series of subcaudals. The poison-fang is short, and not followed by a series of other simple teeth as in *Hydrophis.*

Platurus scutatus.
Coluber laticaudatus, *L. Mus. Ad. Fried.* 1754.
Laticauda scutata, *Laur. Syn. Rept.* p. 109. *Cantor, Mal.* Rept. p. 125.
Hydrus colubrinus, *Schneid. Hist. Amph.* p. 238.
Platurus fasciatus, *Latr Rept.* iv. p. 185.
Hydrophis colubrinus, *Schleg. Phys. Serp.* ii. p. 514. *Faun. Japon. Rept.* p. 92.

It is a common species, extending from the Bay of Bengal to the Chinese seas and to the coasts of New Zealand. The largest example seen is exactly 5 feet long.

Platurus fischeri, *Jan, Iconogr. descript.* in *Rev. et Mag. Zool.* 1859. Upper part of the snout yellow, upper labials black. They are from the Bay of Bengal, from Chartaboum on the coast of Siam, from New Guinea, and from Aneiteum (New Hebrides). The largest specimen is only 30 inches long.

Aipysurus, *Lacèp.* Body not much compressed, with trenchant belly, of moderate length. Shields of the head generally divided into more or less numerous smaller pieces; normally only one pair of frontals; nostrils superior, each in a single nasal, the nasals being contiguous to each other. Scales of moderate size, imbricate, smooth or slightly tubercular; ventral shields well developed, with a longitudinal median ridge. Subcaudals broad, entire. The species of this genus appear to belong rather to the fauna of Polynesia and Australia than to that of British India.

Aipysurus anguillæformis.
Thalassophis anguillæformis, *Schmidt, Abhandl. Naturw, Hamb.* ii. p. 76.

T. muræniformis, *Schmidt, l. c.* p. 77.
? Tomogaster eydouxii, *Bibr. in Voy. Pole Sud. Rept. Gray, Viper. Snakes*, p. 59.
? Aipysurus lævis, *Guichen. Voy. Pole Sud. Rept.* 21. *Dum. & Bibr.* vii. p. 1326. *Fischer, Abhandl. Naturw Hamb.* iii. p. 32.
A. margaritophorus, *Bleek. Natur. Tydschr. Nederl. Ind.*, xvi. p. 49.

Specimens have been captured on the coast of Java; the largest is more than 2 feet long.

Aipysurus lævis, *Lacèp. Ann. Mus.* iv. pp. 197, 210.
Hypotrophis jukesii, *Gray, in Jukes, Voy. Fly* p. 333.
Stephanohydra fusca, *Gray, Viper. Snakes*, p. 60.
Aipysurus fuliginosus, *Dum. & Bibr.* v. p. 1327. *Fischer Abhandl. Naturw. Ham.* iii. p. 33.

When old, are uniform brown. From Darnley Islands, New Caledonia, and New Guinea. The largest measures more than 5 feet.

Aipysurus fuscus, *Fischer, Abhandl. Naturw. Hamb.* iii. p. 33.
Stephanohydra fusca, *Tschudi, in Wiegm. Arch.* 1837, p. 331.

Either uniform brown, or each scale and ventral shield with a large brownish-black spot near the hind margin. Australian seas; 39 inches long

Disteira, *Lacep.* Body compressed, of moderate length; head shielded above: a pair of anterior frontals between the nasals, which are small. Scales imbricate; ventral shields distinct, but small.

Disteira doliata, *Lacep. Ann. Mus.* iv. p. 199. *D. & B. Erpét gén.* vii. p. 1331, (not synon).
D. dumerilii. *Jan. Icon. descript. in Rev. et Mag. Zool.* 1859.

Back with broad brownish cross bands.

Acalyptus, *Dum. & Bibr.* Posterior half of the trunk compressed, of moderate length. Head covered with scales above, the snout and superciliary region only being shielded. Scales imbricate; ventral shields none.

Acalyptus superciliosus *D. & B.* vii. p. 1340. One of the scarcest Ophidians, only two specimens being known to exist in collections; the larger, 26 inches long, is in the British Museum. It is believed to inhabit some part of the south-western Pacific.

Hydrophis, sp., *Daud.* Posterior part of the body strongly compressed. Head short or of moderate length, shielded above; only one pair of frontals; nostrils superior, in a single nasal shield, both nasals being contiguous to each other. Scales imbricate or not imbricate, not polished, generally with a tubercle or with a keel. Ventral shields very narrow, or quite rudimentary, or entirely absent. Lower jaw without notch in front.

Hydrophis Jerdonii.
Hydrus nigrocinctus, var., *Cant. Mal. Rept.* p. 129.
Kerilia jerdonii, *Gray, Viper, Snakes*, p. 57.

Coasts of Madras and Pinang.

Hydrophis Stokesii. *Gray in Stokes' Australia*, i. p. 502.
Hydrus major, *Shaw, Zool.* iii. p. 558. *Gray, Vip. Sn*, p. 58.
Hydrophis schizopholis, *Schmidt, Abhandl. Naturw. Hamb.* 1846, i. p. 166. *Dum. & Bibr. Erpét. gén.* vii. p. 1357.
H annulatus, *Gray, Viper. Snakes*, p. 59.
Astrotia schizopholis, *Fischer, Abhandl. Naturw. Hamb.* iii. p. 38.

Young specimens and adult males with broad black cross bands, which either extend only over the back or entirely surround the body. Old females nearly entirely uniform greyish above and whitish below, not rare on the northern coasts of Australia, but its occurrence in the Chinese seas and in the East Indian Archipelago (Singapore) is rather doubtful.

Hydrophis major.
Hydrus major, *Shaw, Zool* iii. p. 558.
Pelamis shavii, *Merr Tent*, p. 139.
Hydrophis mentalis, *Gray, Zool. Misc*, p 62.

Back of the trunk with thirty-one large rhombic black spots, rather broader than the interspaces between them, and not extending downwards to the middle of the sides. Said to be from the Indian Ocean. 44 in. long, cleft of mouth 10 lines, tail 4¾ inches.

Hydrophis robusta.
Hydrophis nigrocincta, *Sch. Ph. Serp.* ii. p. 505. *Fischer, Abhandl. Naturw. Hamb.* iii. p. 46,

This snake, is 6 feet long; found on the coasts of India and Archipelago.

Hydrophis Belcheri.
Aturia belcheri, *Gray, Viper. Snakes*, p. 46.

Back brownish olive, with blackish cross bands anteriorly. Sides and belly yellowish. New Guinea, 34 inches long, the cleft of the mouth measuring ½ inch, the tail 3¼ inches.

Hydrophis cærulescens *Gr. Zo. Misc. p.* 62.
Hydrus cærulescens, *Shaw, Zool* iii. p. 561.
H. hybrida, *Schlg. Abbild.* p. 115. *Fischer Abhandl. Naturw Hamb.* iii. p. 74.

Yellowish. Bay of Bengal Pinang; Java. The largest is 2 feet long.

Hydrophis aspera, *Gray. Viper. Sn* p. 55.
Dirty yellowish: Upper side of the head uniform blackish in the adult. Said to be from Singapore, 43 inches long, tail thick 4¼ inches.

Hydrophis spiralis, *Gray, Vip. Sn.* p. 54.
? ? Shiddil, *Russell, Ind. Serp.* ii.
Hydrus spiralis, *Shaw, Zool.* iii. p. 564.
Hydrophis melanurus, *Wagl. Ic. Amph.*

Head black above with a horse shoe shaped yellow mark.

Hydrophis cyanocincta. The Chittul. *Russell Ind. Serp.* ii.
Hydrophis cyanocinctus, *Daud. Rept.* vii. p. 388.
Leioselaime striee, *Lacep. Ann. Mus.* iv. p. 198.

Hydrophis striata, *Schleg. Faun. Japon. Rept.* p. 89. ii. p. 502. *Fischer, Abhandl. Naturw. Hamb.* 1856, iii. p. 41. *Dum. & Bibr. Erpet, gen.* vii. p, 1349.

H. subLævis, *Gray, Zool. Misc.* p. 62. *Tennent, Nat. Hist Ceylon*, p. 3.1.

H. subannulata, *Gray, Viper Snakes*, p. 54.

Hydrus striatus, *Cantor, Mal. Rept.* p. 126.

One of the commonest sea-snakes, on the coasts of Ceylon, Madras, the Bay of Bengal, the East Indian Archipelago, and in the seas of China and Japan. length more than 6 feet. Old males have a remarkably thick and rounded tail.

Hydrophis melanosoma. Head nearly uniform blackish: habitat. ?

Hydrophis subcincta. *Gunth.*.

Hydrophis subcinctus, *Gray, Zool. Misc.* p 63.

Indian ocean, length 46 in. cleft of mouth. ½ in. tail 4 in.

Hydrophis nigrocincta. *Russell Ind. Serp.* ii.

H. nigrocinctus, *Daud. Hist. Rept.* vii. p. 380.

Enhydris nigrocinctus, *Merr. Tent.* p. 140.

Coast of Bengal, the largest is 40 inches long, cleft of the mouth ⅓ inch, tail 4 inches.

Hydrophis elegans.

Hydrophis doliatà, *Gray, Zool. Misc.* p. 62, and *Viper. Snakes*, p. 51.

Aturia elegans, *Gray, Zool. Misc.* p. 61.

North coast of Australia, New South Wales, Largest 50 inches long, cleft of the mouth 7 lines, tail 3½ inches.

Hydrophis torquata.

? Polyodontes annulatus. *Less. in Bélang. Voy. Ind. Zool. Rept*. p. 325.

Hydrophis nigrocincta *Sch. Ph. Serp.* ii. p. 506.

Hydrus nigrocinctus, *Cantor, Mal. Rept.* p. 128.

Penang Coast.

Hydrophis chloris. *Daud. Hist. Rept.* vii. p. 377. *Russell, Ind Serp.* ii.

H. obscura. *Gray, Viper. Snakes, p.* 49.

? Hydrophis gracilis, *Cantor, Trans. Zool. Soc.* ii.

Coasts of Madras, Penang, Sunderbunds. Largest specimen 40 inches long, cleft of the mouth 4½ lines, tail 3 inches.

Hydrophis lindsayi, *Gr. Viper. Snakes*, p. 50.

? Hydrophis gracilis, *Schl. Phys. Serp.* ii. p. 507.

Aturia lindsayi, *Gray, Zool. Misc.* p. 61.

Trunk greenish olive above, yellow ish on the side and below. Very similar to *H. chloris.* The coasts of China, Siam, and Malabar. The largest is 39 inches long, cleft of the mouth 5 lines, tail 3 inches.

Hydrophis atriceps. Sides and belly yellowish white; the head is entirely black. From Siam; 31 inches long, cleft of the mouth 4 lines, tail 3 inches.

Hydrophis latifasciata. From the coast o Mergui; its total length is 30 inches, th cleft of the mouth being ⅜ inch, tail 3 inchese

Hydrophis coronata.

Hydrophis hardwickii. *Gray, MS.*

H. fasciata, *Gray, Viper. Snakes*, p. 50.

The coast of Bengal. 37 inches long, cle of the mouth 4 lines, tail 3¼ inches.

Hydrophis diadema. Lower jaw and belly yellowish; tail with from seven to nine blackish cross bars. The largest is 32 inches long, cleft of the mouth 5 lines, tail 3⅜ inches.

Hydrophis gracilis. *Russell*, ii.

Hydrus gracilis, *Shaw, Zool.* iii. p. 560.

Hydrophis obscurus, *Daud. Rept* vii. p. 375.

? Microcephalophis gracilis, *Less., in Bélang. Voy. Ind. Orient. Atl. Rept.*

Microcephalophis gracilis, *Gray, Vipr. Sn.* p. 46.

Thalassophis microcephala, *Schmidt, Abhandl Naturw. Hamb* ii. p. 76.

Hydrophis microcephala, *Fischer, ibid.* iii. p 52.

Head very small, narrow, neck very slender. Madras and Java.

Hydrophis fasciata. *Russell, Ind. Serp*

Hydrus fasciatus, *Schneid. Hist. Amph.* p. 241. *Shaw, Zool.* iii. p. 563.

Anguis mamillaris, *Daud. Hist. Rept.* vii. p. 340.

Vizagapatam: coast; 26 inches long, cleft of the mouth 5 lines, tail 2¼ inches.

Hydrophis cantoris.

Hydrus gracilis, *Cantor, Mal. Rept* p. 130.

? Liopola fasciata, *Gray, Zool. Misc.* p. 60.

Penang, 42 in. long, tail 4 in. with ten blackish vertical bars.

Hydrophis lapemoides.

Aturia lapemoides, *Gray, Viper. Snakes*, p. 46.

Lower parts of the head greyish. Tail black; from Madras and Ceylon, 24 inches long tail 2¼ inches, cleft of mouth 7 lines.

Hydrophis longiceps.

Chitulia fasciata, *Gray. Viper. Snakes*, p. 56.

Indian Ocean, 31 inches long, the tail 3¼ inches, cleft of the mouth ¾ inch.

Hydrophis stricticollis. Body with fifty-five blackish rings. 18¼ inches long, the tail 1⅜ inch, cleft of the mouth ⅜ inch.

Hydrophis ornata.

Aturia ornata, *Gr. Zo. M.* p. 61. *Vip. Sn.* p. 45

Chitulia inornata, *Gray Viper. Snakes*, p. 56.

Thalassophis schlegelii, *Schmidt, Abhandl. Naturw Hamb*, ii p. 83.

Hydrophis schlegelii, *Fischer. Abhandl. Naturw. Hamb.* iii. p, 50.

H, lævis, *Lutken, Naturw, Foren, Vidensk, Meddel*, 1862,

Head uniform blackish olive above, with a whitish supraciliary edge. Tail black, with narrow whitish cross bars. The Indian O[illegible] largest is 30 inches long, the cleft of the [illegible] ⅞ inch, the tail 3 inches.

Hydrophis ellioti.

Aturia ornata, var. 2, *Gray. Viper. Snakes*, p. [illegible]

Head uniform greenish olive in the [illegible] reticulated with yellow above in the young. All the lower parts and, in the adult, the sides whitish. One male is 49 inches long, tail 5 inches; another adult, from Siam, is 29 inches long, the tail 2¼ inches, cleft of the mouth [illegible] inch. The others are young, from Madras and Ceylon.

Hydrophis pachycercus. *Fischer, Abhandl. Geb. Naturwiss. Hamb*, iii. p. 44. Body brownish yellow above. From the East Indian Archipelago; it is 36 inches long, the tail measuring 9 inches.

Hydrophis viperina.
Thalassophis viperina, *Sch, Abh. Nat. Hamb*. ii. p. 79.
Disteira praescutata, *D. & B Erp. gen*. vii. p. 1351.
Hydrophis doliata, *Fisch, Abhl. Nat. Hamb*, iii. p. 56.
Back with from thirty-one to thirty-eight rhombic black spots, from the coast of Madras.

Hydrophis ocellata, *Gray, Viper. Snakes*, p. 53. Back with from thirty-two to thirty-four blackish cross bands, head uniform brownish olive; from the Australian seas only. 44 inches long, cleft of mouth $\frac{7}{8}$ inch tail, 5 inches.

Hydrophis anomala. *Fischer. ibid*. p. 58.
Thalassophis anomala, *Schmidt, Abhandl. Naturw. Hamb*. ii. p. 61.
Samarang, 32 inches long.

Hydrophis curta.
Hydrus curtus, *Shaw, Zool*. iii. p. 562.
Lapemis curtus, *Gray, Zool. Misc*. p. 60.
Hydrophis propinquus, *Jan. Iconogr. descr. in Rev. et Mag. Zool* 1859.
Tail black, with only two yellow transverse spots at its root. The largest is only 17 inches long, the cleft of the mouth being $\frac{5}{8}$ inch, the tail $1\frac{3}{4}$ inch. Madras is the only well-authenticated locality where it has been found.

Hydrophis hardwickii.
Lapemis hardwickii, *Gr. Z. M*. p. 60, *Ind. Zool*.
? Hydrophis pelamidoides, *Schl. Ph. Serp*. ii. 512. *Schl. Faun. Japon. Rept*. pl. 9. *Fischer, Abhandl. Naturw. Hamb*. 1856, iii. p. 64.
Tail black, with from three to five yellowish bands across its basal half. Procured at Pinang; it is 20 to 30 inches long, cleft of the mouth $\frac{3}{4}$ inch, tail $2\frac{1}{8}$ inches.

Hydrophis loreata.
H. pelamidoides *var*. annulata, *Fisch. Abhand. Naturw. Hamb*. 1856.
Lapemis loreatus, *Gr. A. & M. N. Hist*. 1848.
L. hardwickii, *var. Gray. Vip. Sn*. p. 44.
Borneo; Philippines; 3 ft. long, tail $3\frac{3}{8}$ in. cleft of mouth, 1 inch.

Enhydrina, *Gray*. Differing from *Hydrophis* only by having a deep longitudinal notch, in front of the lower jaw.

Enhydrina bengalensis, et E. valakadyen, *Gray, Viper. nakes*, p. 48.
Valakadyen, *Russell, Ind. Serp*. i.
Hydrus valakadyn, *Boie, Isis*, 1827, p. 554.
Hydrophis schistosa (not *Daud*.), *Schleg. Phys. Serp*. ii. p. 500. *Fischer, Abhandl. Naturw. Hamb*. iii. p. 48. *Dum. & Bibr. Erpét. gen*. vii. p. 1344.
Hydrus schistosus, *Cantor, Mal. Rept*. p. 132.
Hydrophis bengalensis et H. subfasciata, *Gray, Zool. Misc*. p. 92.

Thalassophis werneri, *Schmidt, Abhandl. Naturw. Hamb*. ii p. 84.
Common in the Bay of Bengal and in the western parts of the Archipelago, extending to the coast of New Guinea; it attains rarely to a length of 4 feet, a newborn individual measuring $10\frac{1}{4}$ inches.

Pelamis, sp. *Daud*. Head flat, with very long, spatulate snout; neck rather stout; body of moderate length. Nasal shields contiguous, longer than broad, pierced by the nostril posteriorly; only one pair of frontals. Scales not imbricate, not polished, tubercular or concave. Ventral shields none or very narrow. Lower jaw without notch in front.

Pelamis bicolor. *Russell*, i. p. 47. *Daud. Rept*. vii. p. 366, *Gray, Viper, Snakes*, p. 41. *Fischer, Abhandl, Naturw. Hamb*. 1866, p. 61.
Hydrus bicolor, *Schneid. Hist. Ambh*. p. 242 *Cantor, Mal. Rept*. p. 135.
Hydrophis variegata, *Schleg. Faun. Japon*.
H. pelamis, *Schleg. Phys. Serp*. ii. p. 508.
Pelamis ornata, *Gray, Viper. Snakes*, p. 43.
One of the most common sea-snakes, and has the widest geographical range of all the species of this family; it appears to be found throughout the tropical and subtropical parts of the Indian and Pacific Oceans. Up to 3 ft.

THIRD SUB ORDER.

Ophidii viperiformes—Viperine snakes.
Snakes with a long, perforated, erectile fang on the maxillary, which is extremely short, without any other teeth.

Family of Pit-Vipers—*Crotalidæ*.

Body robust; tail of moderate length or rather short, sometimes prehensile; head broad, subtriangular, frequently scaly above or imperfectly shielded; a deep pit on the side of the snout, between the eye and nostril; eye of moderate size, with vertical pupil. Viviparous. The Pit-Vipers are found only in Asia and America; those of the New World surpassing the Asiatic species in size, and therefore they are much more dangerous.

Trimeresurus, sp., *Lacep. Ann. Mus*. 1804, iv. p. 196. Head triangular, covered above with small scales, except the foremost part of the snout and the supraciliary region, which generally are shielded; body with more or less distinctly keeled scales, in from seventeen to twenty-seven series. Body and tail of moderate length, prehensile. Subcaudals two-rowed. The Trimeresures are Tree-snakes, as is indicated by their prehensile tail and by their green or varied coloration. In general they are sluggish, not attempting to move out of the way, and as they very closely resemble the branch on which they rest, they are frequently not perceived until they prepare to dart, vibrating the tail and uttering a faint hissing sound, or until they have bitten the disturber of their rest. The bite of larger specimens, from 2 to 3 feet long, is more dangerous, and has occasionally proved fatal. When roused these snakes are extremely fierce, striking at everything within their reach, and Cantor says that in the extreme of fury they will fix the fangs in their own bodies. Frogs, mammals, and birds form their food, The Trimeresures occur only in the East Indies, and belong to a tribe of snakes which is provided with a singular pit in the loreal region, and found in the New and Old World. The use of this organ is not known.

Trimeresurus gramineus, *Russell, Ind Serp.*i.
Coluber gramineus, *Shaw, Zool.* iii. p. 420.
Vipera viridis, *Daud. Rept.* vi. p. 112.
V. gramineus *Cantor, Mal. Rept.* p. 119.
Trim. viridis, *Gr. A.&M.N.H.* 1842, xii. p. 391.
T. elegans, *Gr.A.&M.Nat. Hist.* 1853, xii. p. 391.

Grass-green, above, lighter on the sides ; tail sometimes cinnamon-red. From Pinang, Mergui, the Lao Mountains in Cochin-China, Khasya, Sikkim, Ladak, and Ningpo in China. Length up to 32 inches, but is generally smaller.

Trimeresurus erythrurus. *Russell. Ind. Serp.* ii.
Trigonocephalus erythrurus, *C.P.Z.S.* 1839, p. 81.
Trimesurus albolabris, *Gray, Zool. Misc.* p. 48.
Trigonoceph. viridis, *Schl. Phys. Serp.* ii. p. 544.

Delta of the Ganges, Java, Siam, China. An old female measures 33 inches, the tail being 6 inches.

Trimeresurus carinatus, *Gray, Z. Misc.* p. 48.
T. bicolor, *Gr. A.&M. N. Hist.* 1842, xii. p. 392.
T. porphyraceus, *Blyth, J.A.S.B* 1861, xxix. 110.
Cryptelytrops carinatus, *Cope, Proc. Acad. Nat. Sc. Philad.* 1859, p. 340.

From Sikkim and Rangoon. An adult female is 37 inches long, the tail measuring 6 inches.

Trimeresurus purpureus, *Gr. Z. Misc.* p. 48.
Trigonocephalus purpureo-maculatus, *Gr, Ind. Z.*
T. puniceus, *Cantor, Mal. Rept.* p. 122.

Dull reddish brown. hitherto found only at Pinang and Singapore. 38 inches long, tail measuring 6 inches.

Trimeresurus anamallensis. Anamallay Mountains largest is 24 inches long, the tail 3½ inches.

Trimeresurus monticola.
Parias maculata, *Gray, Ann. and Mag. Nat. Hist.* 1853, xii. p. 392 (not *Trimesurus maculatus.)*

Nepal, Sikkim ; an adult female is 21 inches long, the tail measuring 2½ inches.

Trimeresurus wagleri.
Trigonocephalus wagleri. *S. Ph. Serp.* ii. p. 542.
Trimesurus maculatus, *Gray, Zool. Misc.* p. 48, and *Viper. Snakes*. p. 8.—[This *Tr. maculatus*, is composed of young specimens of *Tr. wagleri, Schleg.* and of *Tr. formosus, Gray* ; *Gunther* considers the latter as a Bornean variety of *Tr. wagleri*, and different from the *Tr. formosus* of Muller and Schlegel.]
Trigonocephalus sumatranus, *Cantor, Mal. Rept.* p. 121, not *Coluber sumatranus.* Raffles, a snake said to have 184 ventral shields.)
Trimesurus sumatranus, *Gray, Viper. Sn.* 10.
T. subannulatus, *Gray, Viper. Snakes*, p. 9. *Motley & Dillwyn, Nat. Hist. Labuan.* p. 44.
T. formosus, *Gray, Viper. Snakes*, p. 10. (*not Mull. & Schleg.)*

Young : Grass-green above ; *half-grown* specimens. a yellowish-green centre, *Old* specimens 3 feet long, are black ; is common in the Malayan peninsula ; other varieties occur in almost all the larger islands of the Archipelago. Three feet, feeds on small mammals, birds, and frogs.

Trimeresurus strigatus. *Gray, Zool. Misc.* p. 48.
Trigonocephalus neelgherriensis, *Jerdon, Journ. As. Soc. Beng.* 1854, xxii. p. 524.

Nilgherries Dekkan. Largest 19 inches long, tail 2½ inches.

Trimeresurus trigonocephalus.
Cophias trigonocephalus, *Merr. Tent.* p. 156.
C. nigro-marginatus, *Kuhl, Beitr.* p. 20.
Trigonocephalus nigromarginatus, *Schleg. Phys. Serp.* ii. p. 541.
Megaera trigonocephala, *Wagl. Syst. Amph.* p. 174. *Gray, Zool. Misc.* p. 49.
M. olivacea, *Gray, Zool. Misc.* p. 49.

Green, with a network of black stripes on the head. Peculiar to Ceylon, and not very common ; it is a Tree-snake with a strongly prehensile tail, length 31 inches, tail 5 inches.

Trimeresurus mucrosquamatus.
Trigonocephalus mucrosquamatus, *Cantor, Proc. Zool. Soc.* 1839, p. 32.

Brownish grey above, with black, white-edged rings.

Peltopelor, *Gthr.* A large pit in the loreal region. Head covered with large, shield-like, imbricate scales ; body with twelve series of very large keeled scales. Body and tail of moderate length, prehensile. Subcaudals two-rowed. Only one species is known.

Peltopelor macrolepis.
Trimesurus macrolepis, *Beddome, Madras Quart. Journ. Medic. Sc.* vol. v.

Anamallay Mountains ; the largest specimen is 21 inches long, the tail measuring 4¾ inches. It is a Tree-snake, closely allied to *Trimeresurus.*

Calloselasma, *Cope, Pr. Ac. N. Sc Phil.* 1859, p. 336. Head triangular, pointed in front, covered with the normal number of shields above. Body of moderate length, with smooth scales, in twenty-one series. Tail of moderate length, not prehensile, terminating in a long [illegible] scale. Subcaudals two-rowed. Only one species is known.

Calloselasma rhodostoma. *Russ. Ind. Serp* ii.
Trigonocephalus rhodostoma, *Reinw. Isis.* [illegible], p. 561. *Schl. Ph. Serp.* ii. p. 547 *& Abbild.* p. [illegible]

Java, Siam, is one of the most beautiful and most dangerous venomous snakes. Feeding on frogs, it frequents grassy plains, and approaches gardens and human dwellings. Kuhl saw two men bitten by one and the same snake who expired five minutes after. Length 3 feet.

Halys, *Gray*. Head broad, obtuse in front, covered with the normal number of shields above. Body of moderate length, with keeled scales, in from twenty-three to twenty-seven series. Tail rather short, not prehensile, terminating in a long spine-like scale. Subcaudals two-rowed. Central Asia, Tartary, on the northern side of the Himalayas, in China, Japan, and Formosa.

Halys elliotti.

Trigonocephalus elliotti, *Jerdon. Journ. As. Soc. Beng.* xxli. 1854, p. 523.—Form massive; up to 2 feet and upwards long.

Halys blomhoffii.

Trigonocephalus blomhoffi, *Boie, Isis.* 1826, p, 214. *Schleg. Phys. Serp.* ii. p. 552. and *Faun. Japan. Rept. Gray. Viper. Snakes*, p. 14.
T. affinis *Gray, Viper Snakes*, p. 14.
Japan, Formosa and probably in China.

Halys himalayanus.

Trigonocephalus affinis, *Gunth, Proc, Zool. Soc*, 1860, p. 167 (not *Gray*).

Body of moderate length, rounded; dark brown, belly almost entirely black, marbled with yellowish. From Garhwal, Himalayas (altitude 9000 feet). The longer of the two specimens is 25 inches, tail 3¾ inches.

Hypnale, *Fits.* Head broad, triangular; snout covered with numerous small shields above, the crown of the head being normally shielded. Body of moderate length, with keeled scales in seventeen rows. Tail rather short, not prehensile, terminating in a short conical scale. Subcaudals two-rowed. Only one species is known.

Hypnale nepa.

Coluber nepa, *Laur. Syn.* p. 97. *Russell, Ind. Serp.* ii.
Carawala, *Davy, Ceylon*, p. 85.
Cophias hypnale, *Merr. Tent.* p. 155.
Trigonocephalus hypnale, *Wagl. Syst. Amph.* p. 174. *Schl. Ph. Serp.* ii, p. 550. *Gr. Vip. Sn.* p. 15.
Trimesurus, ? ceylonensis, *Gray, Zool. Misc.* p. 48, and *Vip. Snakes*, p. 11.
Trigonocephalus zara, *Gray, Viper. Snakes*, p. 15.

Brown or grey or reddish olive, with a double dorsal series of brown or black spots; the spots of both sides sometimes confluent into cross bands. Found in Ceylon, but also in the peninsula of Southern India, the Anamallay Mountains. The Carawala is much dreaded, although its bite is but exceptionally fatal to man, and in such cases death does not occur before the lapse of some days.

Family of Vipers.—*Viperidæ.*

Body robust; tail rather short, not prehensile; head broad or thick, generally scaly above, or incompletely shielded; no pit in the loreal region; eye of moderate size, with vertical pupil. Viviparous. The Vipers inhabit the Old World and Australia, and are thoroughly terrestrial snakes. Africa produces the largest species and the greatest variety of forms. Only two are known from British India:—

Daboia, *Gray*. Head covered with scales; nostril lateral, oblique, extremely large, in and between three nasal shields; a narrow supraciliary shield. Sides of the head covered with keeled scales, several series of which are between the orbit and the low upper labials. Scales much imbricate, strongly keeled, in twenty-nine or thirty-one series. Subcaudals two-rowed. Only one species is known.

Daboia russellii.

Tic-polonga, *Russell, Ind. Serp.* i. p. 10; ii. p. 37. *Davy, Ceylon*, p. 85.
Coluber russellii, *Shaw, Zool.* iii. p. 418.
Vipera elegans, *Daud. Rep.* vi. 124. *Schl. Ph. Serp.* ii. 588.
V. daboia, *Daud. Rept.* vi. p. 119.
Daboia elegans. *G.Z.M.* 69, *Viper. Snakes*, p. 28.
D. pulchella, *Gray, Zool. Misc.* p. 69.
D. russellii, *Gray, Viper. Snakes*, p. 24.
Cobra monil of Europeans in Peninsula.
Tic-polonga of Ceylon.

Greyish brown. Belly uniform yellowish or marbled with brownish. A native of Ceylon and of the peninsula of India: the Anamallay Mountains, Waltair, Bombay, and Almorah, (5,500 feet elevation) the Himalayas, in Kulu at 3,400 feet. Length 50 inches, tail measuring 7 inches; it is thoroughly terrestrial, feeding chiefly on mice. It is one of the most common venomous snakes, and, on account of its size and nocturnal habits, more dangerous than the Trimeresures and Hypnales.

Echis, sp., *Merr.* Head covered with keeled scales: a pair of very small frontals behind the rostral shield. Nostril small, round, directed upwards, situated in a large nasal shield, which is subdivided behind the nostril. Sides of the head covered with keeled scales, two series of which are between the eye and the low upper labials. Scales much imbricate, strongly keeled, in from twenty five to twenty-nine series, those in the lateral series have their tips directed obliquely downwards. Subcaudals one-rowed.

Echis carinata, *Merr. Tent.* p. 149.
Pseudoboa carinata, *Schn. Hist. Amph.* ii. 285.
Horatta Pam, *Russell, Ind. Serp.* i.

Brown or brownish grey. Belly whitish. This little venomous snake is common in the Anamallay, the Carnatic, and vicinity of Madras; largest 20 inches long, tail measuring 2⅓ inches.

Second Sub-Class. *Batrachians.*

Only one ventricle of the heart; atrium incompletely divided into two. Passing through a metamorphosis. Breathing by gills in an early stage of their development, the gills being permanent in some species. Two occipital condyles.

The Order of Tailless Batrachians.—*Batrachia Salientia.*

Body broad, short, in the perfectly developed state with four legs and without tail. The Batrachians are distinguished from the other divisions of the vertebrate animals by their passing through a *metamorphosis*—that is, after their embryonal life, undergoing changes which affect not only their external form, but also their internal organs. Moisture is as necessary for Batrachians as food and air, hence they are found only in damp places or in the neighbourhood of water; and when the hot season commences. When they dive the lungs are emptied, and the respiration remains interrupted for one or two hours, after which time the animal is compelled to rise to the surface in order to breathe. Many Batrachians live at some distance from water; all, however, as far as is known at present, enter it at the season of propagation. The males have also generally a distinctly more slender form than the females. the eggs are impregnated the moment they are deposited by the female in the water; The young ones, or tadpoles, have a thick ovate body without legs, terminating in a long, strong, compressed tail which serves as an organ of locomotion in the water. The development is about a hundred days in the European *Rana temporaria*. But several years elapse before the young perfect batrachian attains its full size. None are poisonous.

Bombinator sikkimensis, *Blyth, J. A. S. B.* 1854, xxiii. 300. Colour dull livid olive green above, flame coloured below marbled with dusky.

Oxyglossus, *Tschudi.* Fingers quite free; toes webbed to their tips by a very extensible membrane. Skin glandular or nearly smooth. Vomerine teeth none; tongue more or less elongate, not notched behind. Openings of the eustachian tubes small. Vocal sac single, internal. Only two species are known, one, *O. lævis*, being confined to the Philippine Islands, whilst the other is found in the Archipelago as well as on the Continent.

Oxyglossus lima, *Tschudi, Batr.* p. 85. *Dum & Bibr.* viii. p. 334.

1½ inch long; hind limb not quite 2 inches in length. Sea-coasts of Siam and Gamboja, China and Java; it is said to occur also in Bengal.

Dicroglossus, *Gthr.* Fingers free; toes broadly webbed; tongue rather elongate, deeply notched behind; vomerine teeth none; openings of the eustachian tubes of moderate width, tympanum indistinct; vocal sacs of the male external and lateral. Only one species is known.

Dicroglossus adolfi, *Gunth. Pr. Z. S* 1860, 158. Length of the head and body 1 inch 7 lines; of the fore leg 10 lines; of the hind leg 2 inches 4 lines. Kulu and Simla, at 2,400 to 4,200 feet above the sea.

Rana, *auct.* Fingers quite free, none of them opposed to the others; toes webbed; head covered with skin. Vomerine teeth in two series or groups; tongue large, oblong, free and deeply notched behind. Metatarsus with one or two blunt tubercles. True frogs are found in almost every part of the globe, except in Australia and in the islands of the Pacific. Jerdon mentions R. crassa; R. flavescens; R. agricola, R. niligrica from Peninsula. Blyth mentions R. fusca & R. altelabris from Pegu. R. trivettata; R. nebulosa & R. multistriata of Hong-Kong. R. Neweraelia is of Ceylon.

Rana kuhlii *Schleg. D. & B. Erpet. gen.* p. 384. *Gunth. Batrach,* Sal. p. 8.

R. corrugata, *Peters, Mona. Berl. Ac.* 1863, p. 412.

Not uncommon in Ceylon and found in Java, Celebes, and at Ningpo in China.

Rana hexadactyla, *Lesson, in Belang. Voy. Ind. Orient. Rept.* p. 331.

Dactylethra bengalensis, *Less. Ill. Zool,* p. 47.

Rana cutipora, *D. & B. Erp. gen.* viii. p. 339.

R. robusta, *Blyth, J. A. S. B.* 1854, xxiii. 298.

Ceylon. Madras.

Rana cyanophlyctis, *Schneid. Hist. Amph.* i. p. 137. *Peters, Sitzgsber. Berl. Acad.* 1863, p. 78.

R. bengalensis, *Gr. Ind. Zool. Kelaart, Prodr. Faun. Zeyl.* i. p. 192.

R. leschenaultii, *D. & B Erp. gen.* viii. 342. *Cant. Mal. Rep.* p. 138.

Common in Ceylon and Southern India, less numerous in the Malay peninsula; it occurs also in Lower Bengal.

Rana tigrina, *Daud. Rain.* p. 64. *Dum. & Bibr. Erpet. gen.* viii. p. 375. *Kelaart, Prodr. Faun. Zeyl.* i. p. 192. *Gunth. Batrach. Sal.* p. 9. *Peters, Sitzgsber. Berl. Acad.* 1863, p. [illegible]

R. cancrivora (*Boie*), *Gravenh. Délic.* p. 41.

R. brama, *Less., in Belang. Voy. Ind. Orient. Rept.* p. 329.

R. vittigera, *Wiegm. Nov. Act. Acad. Leopold. Carol.* 1835, xvii. p. 255.

R. rugulosa, *Wiegm. l. c.* p. 258.

The upper parts are brown, lower parts whitish. It is the "Bull-frog" of Europeans, is very common over almost the whole of India, Ceylon, Southern India, Sikkim, Bengal, Malay Peninsula, China, and islands of the Archipelago.

Rana liebigii, *Gunth. Pr.Z.S.* 1860 p.157. Sikkim. Nepal.

Rana esculenta, *L. Syst. Nat.* i. p. 357. *Schleg. Faun. Japon. Rept.* p. 109.

R. cachinnans, (*Pallas*) *Eichwald, Faun. Casp. Caucas*, p. 126.

R. marmorata, *Hallowell. Proc. Acad. Nat. Sc. Philad.* 1860, p. 500.

?.Rana nigromaculata, *Hallowell, l. c.*

Usual length 3 inches, the hind limb 5 inches. It is found in every part of Europe, in North Africa, through Central Asia, to China, Japan, Ningpo and Chusan.

Rana silvatica, *Leconte. Ann. Lyc. Nat. Hist. New York*, i. p. 282.

Rana temporaria, *Schleg. Faun. Japan. Rept.* p. 109, pl. 3, fig. 2.

R. temporaria, var. japonica, *Gunth. Batrach. Sal.* p. 17.

Brownish or brownish olive; Japan, neighbourhood of Ningpo. It is closely allied to *Rana temporaria.*

Rana gracilis, *Wiegm. Nov. Act. Acad. Leopold. Carol.* 1835, xvii. p. 257. *Peters, Monatsber. Berl. Acad.* 1868, p. 78.

R. vittigera, *Gunth. Batrach. Sal.* p.9 (not *Wiegm.*)

Greyish olive, with large dark spots and bars on the back and limbs; uniform white below. Only 1¾ inch long, the hind limb 2⅓ inches common near Ningpo and Hongkong, found in Loochoo, the Himalaya (Jámu), Siam, and Madras.

Hoplobatrachus, *Peters, Monatsber. Berl. Acad.* 1863, p. 449. Fingers quite free; toes completely webbed. Vomerine teeth in two oblique series; tongue deeply notched behind. Openings of the eustachian tubes small. Metatarsus with a flat, sharp-edged prominence.

Hoplobatrachus ceylonicus, *Peters, l. c.* Dark green above, with blackish markings: Trincomallee. Length of body 3½ inches, of the hind limb 5½ inches.

Pyxicephalus, sp., *Tschudi.*

Tomopterna (*Bibr.*) et Sphærotheca, *Gunth. Batrach. Sal.* pp. 7 & 20.

Fingers quite free; toes incompletely webbed. Vomerine teeth in two oblique series; tongue large, free and deeply notched behind. Openings of the eustachian tubes small. Metatarsus with a flat, sharp-edged, shovel-like prominence.

Pyxicephalus breviceps.

Rana breviceps, *Schneid. Hist. Amph.* i. p. 142. *Peters, Monatsber. Berl. Acad.* 1863, p. 76.

Pyxicephalus fodiens, *Jerd. J. A. S. B.* 1854, 534.

P. pluvialis, *Jerdon, l. c.*

Sphærotheca strigata, *G. B. S.* 20, pl. 2, fig. A.

Tomopterna strigata, *Gunth. Pr. Z. S.* 1860, 165.

Above yellowish brown. The largest 2 inches or more in length; hind legs 2¼ or 2⅓ inches, the males having the toes a little more slender than the females. Found in the Peninsula of India, Simla and Ceylon.

Pyxicephalus rufescens, *Jerdon. Journ. As. Soc. Beng.* 1854, p. 534. Of a rufous colour above, whitish beneath; body rough and granulose; limbs barred. Length 1½ inch; hind leg 2⅒ inches; foot ½ inch. Not rare in gardens on the Malabar coast.

Megalophrys, *Kuhl.* Fingers quite free; toes with a short but distinct interdigital membrane. Head and body much depressed; eyelid prolonged into a triangular flap; cleft of the mouth large. Vomerine teeth present. Tongue circular. Tympanum hidden; openings of the eustachian tubes of moderate width. Male without vocal sac.

Megalophrys montana, (*Kuhl.*) *Wagl. Syst.* p 204. *Dum. & Bibr.* viii. p. 458. *Günth. Batrach. Sal.* p. 36. *Female.*

Ceratophrys montana, *Schl. Abbild.* p. 29. taf. 10, fig. 3. also p. 30.

Megalophrys montana, *Cant. Mal. Rept.* p.140.

Ceratophryne nasuta, *Schleg. in litt. Gunth. Batrach. Sal.* pp. 37 & 136. *Schleg. Handb. Dierk.* ii. p. 57. pl. 4. fig. 72.

Pinang, Java Sumatra, Ceylon, Philippines.

Xenophrys, *Gthr.* Fingers and toes tapering, free to the base. Lower jaw without prominent apophyses; the internal openings of the nostrils and eustachian tubes small; tympanum rather small and inconspicuous. No parotoids. The transverse processes of the sacral vertebra much dilated. Vomer with two separate prominences, which are apparently toothless. The upper eyelid is well developed, broad, with a sharp, prominent edge, but without appendages. A single species from the Himalayas.

Xenophrys monticola. *Gunther.* Similar in habit to *Megalophrys montana.* Upper parts brownish olive. From Sikkim and from Khasya. 19 lines long, hind limb 31 lines.

Cacopus, *Gthr.*

Uperodon, *Dum. & Bibr.*

Head very short; mouth small; limbs short. A series of four papillæ across the palate: one on the hind margin of each choana, and two on a pair of osseous prominences of the vomer. Tongue circular, scarcely notched behind. Tympanum hidden; openings of the eustachian tubes of moderate width. Toes slightly webbed; metatarsus with a pair of large compressed prominences. Male with a vocal sac.

Cacopus systoma. *Gunther.*

Rana systoma, *Schneid. Hist. Amph.* i. p. 144. *Peters, Monatsber. Berl. Acad.* 1863, p. 82.

Engystoma marmoratum, *Cuv. Regne Anim.*
Uperodon marmoratum, *D.* & *B.* viii. 749. *Gunth. Bat. Sal.* 49.

Carnatic; length $2\frac{1}{3}$ inches, hind limb $2\frac{5}{12}$ inches.

Cacopus globulosus. *Gunther*, Russelcondah, in Madras Presidency; body surrounded by a mass of ovaries.

Diplopelma, *Gthr.* Head small, with rather pointed snout; mouth narrow; body thick; upper arm and thigh rather short. Teeth none, in jaws or on the palate. Tongue elongate, ovate, entire behind. Tympanum hidden; openings of the eustachian tubes very small. Skin smooth; fingers free, toes one-third webbed; metatarsus with two obtuse tubercles. Male with a single subgular vocal sac.

Diplopelma ornatum, var. *A.*, *Günth. Batr. Sal.* p. 50.
Engystoma ornatum, *Dum.* & *Bibr.* viii. p. 745.
One of the smallest Indian frogs, 1 inch long Madras Presidency, Southern India and Ceylon.

Diplopelma pulchrum. *Gunth.*
Diplop. ornatum, var B., *Günth. Batr. Sal.* p. 50.
Engystoma pulchrum, *Hal. P. A. N. S. P.* 1860, 506.
Yellowish or greyish-olive above; China, Ningpo, Hongkong, and Siam. Total length 13 lines, hind limb 24 lines.

Bufo, *auct.* Snout rounded or truncated; limbs rather short. Teeth none. Tongue elongate-ovate, entire and free behind. Parotoids very distinct, swollen; skin more or less warty. Openings of the eustachian tubes of moderate width. Fingers quite free; toes generally half-webbed, sometimes entirely webbed. Males generally with a single vocal sac, which is not visible externally.

Bufo vulgaris. The Common European Toad. *Saur. Syn. Rept.* pp. 28, 125. *Eichw. Faun. Casp. Cauc* p. 127. *Dum. & Bibr.* viii. p. 670. *Gunth. Batr. Sal.* p. 55.
Rana bufo, *L. Syst. Nat.* i. p. 354. *Roesel,* p. 85.
B. cinereus, *Schneid. Hist. Amph.* p. 185.
B. palmarum, *Cuv. Regne. Anim. Asiatic varieties* :—
Bufo vulgaris japonicus, *Sc. Faun. Jap. Rept.* 106.
B. gargarizans, *Can. Ann. & Mag. N. H.* 1842, ix 483.
B. griseus, *Hallow. Pr. Ac. N. Sc. Philad.* 1860, 506.
This species extends from Western Europe, through the temperate parts of Central Asia, to Mauritius China, and Japan.

Bufo calamita. *Roesel, Hist. Ran. Laur. Syn. Rept.* 27. *Gun. Batr. Sal.* 57. *The Natter Jack.*
B. calamita, *Laur. Syn. Rept.* 27. *Gun. Batr. Sal.* 57.
Found in many parts of Europe, also in Tibet. Rarely exceeds a length of 2¼ inches.

Bufo kelaartii, *Günth. Batr. Sal.* p. 140.
Adenomus badioflavus, *Cope. Proc. Acad. Nat. Sc. Philad.* 1860, p. 371.
Peculiar to Southern Ceylon; 24 lines long.

Bufo galeatus. Gamboja; 2½ inches long.

Bufo melanostictus. *The Common Indian Toad. Schneid. Hist. Amph.* p. 216. *Cantor, Mal. Rept.* p. 142.
B. scaber, *Daud. Rept.* viii. p. 194. *Schleg. Abild.* p. 64. *Dum. & Bibr.* viii. p. 699.
B. bengalensis, *Daud. l. c.* p. 197.
B. carinatus, *Gray, Ind. Zool.*
B. dubia, (*Shaw*), *Gray, Ind. Zool.*
Himalaya Sikkim Nepal. every part of the Indian continent from Southern India to China and the Philippine Islands; in the Himalaya it ascends to an altitude of 9,000 feet.

Bufo asper, *Schl. Abbild.* 63. *D. & B.* viii. p. 668. Java, Borneo, Celebes, Sumatra. Mergui; length 5½ inches.

Hylorana, *Tschudi.* Skin smooth, generally a glandular fold along each side of the back. Vomerine teeth present. Tongue elongate and deeply notched behind. Tympanum distinct. Limbs generally slender; fingers quite free, toes broadly webbed; disks of the fingers and toes not much developed.

Hylorana macrodactyla, *Gunth. Bat. Sal.* 72.

Hongkong. Length of body 1½ inch; length of cleft of mouth ½ inch; length of front limb ⅝ inch; length of hind limb 3 inches.

Hylorana erythræa. *Gunth.*
Hyla erythræa, *Schleg. Abbild.* p. 24.
Hylarana erythræa, *Tschudi. Batr.* p. 78.
Limnodytes erythræus, *D. & Bib.* viii. 511. *C. M. R.* 141.
Sumatra, Java, the Philippine Islands, Oceania (San Christoval, Solomon Islands); the Malay Peninsula and the south coast of Siam. Length 2 inches, 8 lines, hind limb 4 inches 7 lines, fourth toe 1 inch 5 lines.

Hylorana macularia. *Gunth.*
Limnodytes macularius, *Blyth, Journ. As. Soc. Beng.* 1855, xxiii. p. 299.
Ceylon: length 2¼ inches.

Hylorana malabarica. *Gunth.*
? Rana sanguineo-maculata, *Less. in Belang. Voy. Ind. Orient. Zool.* p. 328. *Rept.*
Rana malabarica, *Dum. & Bibr.* viii. p. 365.
Malabar Coast; one specimen 2 inches 10 lines long.

Hylorana temporalis.
Hylorana malabarica, *Kelaart, Prodr. Faun. Zeyl.* Rep. p. 191. *Gunth. Batrach. Sal.* pp. 131 & [illegible] (not synon.)
Ceylon only. Length of body 3 inches.

Polypedates, *Dum & Bibr.* Skin smooth, rarely with tubercles; no glandular fold on the side of the back, a short fold from behind the eye above the tympanum. Vomerine teeth present (in adult specimens). Tongue elongate and deeply notched behind. Tympanum more or less distinct. Limbs of proportionate length; fingers shortly webbed, or free; toes broadly webbed. Disks well developed.

Polypedates maculatus. *Common Indian Tree-Frog. Gunth. Batrach. Gal. p.* 78.
Hyla maculata, *Gray. Ind. Zool.*
H. leucomystax, *Gravenh. Delic.* p. 26.
Polypedates leucomystax, *Dum. & Bibr.* viii. p. 519. *Cantor, Mal. Rept.* p. 142. *Kelaart. Prodr. Faun. Zeyl.* p. 193.
P. rugosus, part., *Dum. & Bibr.* viii. p. 520.
P. cruciger, *Blyth, in Kelaart, Prodr. Faun. Zeyl. App.* p 48.

Ceylon, Sikkim, Penang, China, Siam. One of the most common frogs of Ceylon and of the continent of India. In the Himalaya (Sikkim) it ascends only to an altitude of 2,780 feet; and, singularly, in Pinang, it is absent in the valleys, whilst it occurs at an altitude of above 2,000 feet.

Polypedates quadrilineatus, *Gun. Bat. Sal.* 79.
Hyla quadrilineata, *Wiegm. Act. A cad. Cæs. Leop. Carol.* 1835, p. 260.
Polypedates rugosus, part, *D. & B.* viii. 520.

Archipelago Java, (Philippine Islands), Penang and Singapore, largest 3 inches long the hind limb 5 inches.

Polypedates microtympanum, *Gunth. Batrach. Sal.* p. 77. Not uncommon in Ceylon, 2½ inches.

Polypedates pleurostictus. From the Madras Presidency. The largest is 2 inches long.

Polypedates reticulatus. Similar in habit to *P. microtympanum* and *P. pleurostictus*, but readily distinguished by a peculiar coloration of the hinder part of the thighs, &c. It is 2½ inches long; inhabits Ceylon.

Polypedates eques. *The Spurred Tree-Frog. Gunth. Batrach. Sal.* p. 80. Not rare in Ceylon, 2¼ inches long.

Polypedates afghana, *Gunth. Batrach. Sal.* 81) Afghanstan 3 inches long, hind limb 5 inches.

Ixalus, *Dum. & Bibr.* Skin smooth or tu-ercular; no glandular fold on the side of the ack. Vomerine teeth absent. Tongue elongate nd deeply notched behind. Tympanum dis-inct. Limbs of proportionate length; fingers uite free, toes more or less broadly webbed; isks of the fingers and toes well developed.

Ixalus variabilis, *Gunth. Batrach. Sal.* p. 74, ound in Ceylon only, is 1½ inch long.

Ixalus temporalis. Whitish below, throat dot-d with brown. Ceylon.

Ixalus femoralis. Ceylon, 13 lines long.

Rhacophorus, *Kuhl.* Slender in habit; skin mooth. Fingers and toes entirely webbed, ith the terminal disks very large. Vomerine eth in two series, separated by an interval, d situated on a level with the anterior angle of the choanæ. Tongue large, elongate, free, and deeply notched behind. Tympanum distinct; openings of the eustachian tubes rather small. Males with a simple internal subgular sac.

Rhacophorus maximus. *Gunth. Bat. Sal.* 83.
? Rhacophorus reinwardtii, *D.&B. Atlas* (not *Boie.*)

Tympanum half the size of the eye. From Nepal and from Sikkim, where it extends to an altitude of 5,200 feet.

Hyla, *Dum. & Bibr.* Skin smooth, or with small tubercles; no large gland. Fingers and toes with the terminal disks well developed; toes webbed, fingers frequently connected with a more or less developed membrance. Tympanum distinct. Tongue large, subcircular, entire, or only slightly notched behind. Vomerine teeth present. Male with one or two vocal sacs.

Hyla chinensis.
Hyla arborea, var. chinensis, *Gunth, Bat. Sal.* 108. China, Formosa.

Callula, *Gray.* Head rather small, with short snout; body short, depressed; limbs short; cleft of the mouth narrow; eye rather small. Teeth none; a sharp osseous transverse ridge behind the choanæ; a fold of the mucous membrane runs across the palate, another further behind, before the œsophagus. Tongue, free and entire behind. Openings of the eustachian tubes narrow; tympanum indistinct or hidden. Skin smooth, or with a few flat tubercles; no large glands. Males with a simple vocal sac, which opens by a pair of slits on the middle of the side of the tongue.

Callula pulchra. *Gunth.*
Kaloula pulchra, *Gr. Z. M.* 38. *Gunth. Bat. Sal.* 128.
Hylædactylus bivittatus, *Cant. Mal. Rept.* 148.

Ceylon. Malay Peninsula, Pegu, Mergui, Gamboja, Siam, and China, rather more than 3 inches long.

The Order of Tailed Batrachians. *Batrachia Gradientia.*

Body elongate, terminating in a tail, with four or two limbs, lizard-like. The tailed Batrachians have small teeth in both jaws and on the palate.

Cynops, *Tschudi.* Head of moderate size, body not elongate, tail compressed. Parotoids present; body without series of pores on the side; skin granular. Palatine teeth in two longitudinal series, divergent behind. Tongue narrow, scarcely free on the edges. Limbs well developed, toes four in front and five behind. Two species are known, one from Japan and one from Northern China.

Cynops chinensis, *Gray. Proc. Zool. Soc.* 1859, p. 229. Captured in a river, inland from Ningpo; 5½ inches long, the tail nearly 3 inches.

Plethodon, *Tschudi*. Head of moderate size; body cylindrical, more or less elongate; tail scarcely compressed. Parotoids none; body with vertical folds on the side; skin smooth. Vomerine teeth in a transverse series. Tongue more or less adherent to the bottom of the mouth. Toes four in front and five behind not clawed.

Plethodon persimilis, *Gray. Proc. Zool. Soc.* 1859, p. 230. Siam. 3 to 4 inches long.

The Order of Burrowing Batrachians, Batrachia Apoda.

Body long, cylindrical, without limbs, worm like tail absent or extremely short. They constantly live below ground, burrowing like worms; their food appears to consist of mould and worms. Only three species are known from British India; they belong to two genera:—

Epicrium, *Wagl.* A small round groove in front and below the eye, near the labial margin. Two species are known:—

Epicrium glutinosum, *D.* & *B.* viii. p. 286.
Serpens cœcilia ceylonica, *Seba*, ii. p. 26.
Cœcilia glutinosa, *L. Mus. Ad. Fred.* p. 19.
C. hypocyanea, *Hasselt, Isis*, 1827, p. 565.
Epicrium hasseltii (*Fitz.*), *Wagl. Isis*, 1828, 743.

Ceylon, Southern India, Khasya, Siam, Tenasserim, Java; length 15 inches, the greatest circumference of its body being $1\frac{7}{12}$ inch.

Epicrium monochroum.
Ichthyophia glutinosus, *Can, Mal.* Rept. *var*. p. 137.
Epicrium monochrous, *Blvek. Nat. Tydschr. Nederl.* xvi. *Hind.* 1858, p. 188.

Singapore. W. Borneo. Length $9\frac{1}{2}$ in circumference $1\frac{9}{12}$ in.

Cœcilia, *Wagl.* A small round groove below each nostril.

Cœcilia oxyura, *Dum.* & *Bibr.* viii. p. 280. said to be from the coast of Malabar, about 12 inches long.

It is of interest to mention that the Emys crassicollis, *Bell*, apud *Gray*, feeds upon frogs and also upon shell-fish and animal offal. Old Malay women, who may be seen after every heavy fall of rain, spending hours, rod in hand, over the overflowing ditches, out of which their huts rise, are often ludicrously disappointed on perceiving this tortoise on the hook.

The Emys platynota, *Gray*, lived in Dr. Cantors garden at Penang, upwards of a twelve month, apparently without food, and it was never observed to enter a tank. The shell bears deep white marks of corrosion, in appearance like that observed in Testacea inhabiting stagnant water. The animal suffered itself to be touched with impunity, never offering to scratch or bite. This tortoise inhabits the valleys, but is apparently not numerous at Penang.

The Cistudo Amboinenses, *Dandin*, is very timid, withdrawing its head and limbs when handled, though it neither bites nor scratches.

The Tetraonyx affinis, *Cantor*, was at different times found in fishing stakes placed along the sea-shore of Pinang; one was also taken out of the sea with a small hook, baited with a shrimp. The Malays assert that this tortoise also inhabits estuaries and rivers on the Peninsula, and that it grows to a considerable size. The young is very timid, withdrawing the head and extremities when touched.

The Gymnopus gangeticus, *Cuvier*, is of fierce habits, desperately defending itself by biting, emitting when excited a low, hoarse, cackling sound.

The Gymnopus Indicus *Gray*, is frequently taken in the fishing stakes at Pinang the Chinese inhabitants greatly relish this as well as the preceding species of Gymnopus as articles of food. Individuals weighing 240 lbs. occur in the Ganges, and others of gigantic dimensions are not uncommon at Pinang. It is very powerful, and of ferocious habits.

Chelonia virgata *Sahweig.* Is at all seasons plentifully taken in fishing stakes in the Straits of Malacca. It is the "Green Turtle" of the European inhabitants of the Malayan settlements, and of the seaports of India. In size it equals Chelonia midas, *Schweigger*, which it rivals in flavour. About December and January is the season when the female deposits her eggs in the sandy beach of some sequestered island, and then the fishermen watch during the moonlight nights to "turn turtles." The eggs are of a spherical shape, about one inch in diameter, covered by a soft hemitransparent membrane of a pale yellow colour. The expert eye of the fishermen baffles the pains with which the turtle conceals her eggs, and prodigious numbers are disinterred. They are very rich flavoured, like marrow, and will keep for weeks although exposed to the air.

Chelonia olivacea, *Eschscholtz*: The flesh of this turtle, though relished by the Chinese settlers, is unpalatable to Europeans.

The Crocodilus vulgaris, *Cuvier*.—inhabits not only rivers and estuaries, but also the sea coasts, and may in calm weather be seen floating at a distance of two to three miles from the shore. Although numerous at Pinang and the opposite coast, it appears to be less so than *Crocodilus biporcatus*. Fishermen while working the nets are not seldom attacked by crocodiles, and would, but for their presence of mind, oftener than they do forfeit their lives. When seized they force the fingers into the eyes of the crocodile, which immediately lets go its victim, who is further rescued by his comrades—from 1842 to 1845 many persons lost their limbs from accidents of this description. Individuals, 15 feet in length are not uncommon; some attaining to 20 feet and upwards are reported to occur.—In rivers a single one will often appropriate to himself a limited district, which if it happen to be in the vicinity of a village, will soon be perceived in, the loss of the grazing cattle. Instances are on record of Malays, who, to avenge the loss of a relative, have watched the crocodile, and by diving from below, plunged a Kris into its heart. The eggs are white, the shell hard, of a cylindrical form, upwards of 3 inches in length, and about 1½ inch in diameter.

Platydactylus gecko, *Linn.* is the "To-ke" of the Malays. The Malays, denominate the family of Geckotidæ, *Gekko, Keko, Gago, Goke* evidently onomatopoias, in imitation of the cry of these lizards.

Platydactylus monarchus *Schlegel*, inhabits the Malayan Peninsula, Pinang, Singapore, Philippine Islands, Amboyna, Borneo. The Malayan Geckonidæ have the power of somewhat changing the ground colour, none however in a greater degree than the present species. In the valley and on the hills of Pinang it is very numerous, swarming at night in rooms, on the walls, and under the ceiling, occasionally giving out a sound, resembling the monosyllable "Tok," repeated six or eight times with increased celerity. The aim of these lizards is by no means unerring; they frequently miss an insect, and fall from the ceiling. Among themselves they are pugnacious, when two or more covet an insect, the successful one has to defend its prize or give it up to the stronger.

Ptychozoon homalacephalum, *Creveld*, inhabits Pinang Hills, Singapore, Java, and Ramree Island, in Arracan. A female while in Dr. Cantors possession refused insects and water. She deposited a single egg, of a spherical form, about half an inch in diameter soft, and of a yellowish white colour, which the following day she devoured.

Hemidactylus frenatus, *Schlegel*. Inhabits he Malayan Peninsula Pinang, Singapore, Amboyna, Timor, Java, Marrianne Islands.Ceylon, Bengal. In the Malayan valleys and hills his small species is very numerous. It is f fierce habits, like several other Geckonidæ destroying its own species. Its normal colour ppears to be greyish, which however it has n its power to change.

Varanus salvator *Laurenti*, Inhabits the Malayan Peninsula, Pinang, Philippine and Molucca Islands, Amboyna, Java, Bengal. It is very numerous both in hilly and marshy localities. During the day it is commonly observed in the branches of trees overhanging rivers, preying upon birds and their eggs, and smaller lizards, and when disturbed, it throws itself from a considerable height into the water.—When attacked on level ground, it attempts its escape by running, if possible towards the water. Its quickness however is not so great as to prevent a man from overtaking it, when it will courageously defend itself with teeth and claws and by strokes of the tail. The lowest castes of hindoos, capture these lizards commonly by digging them out of their burrows on the banks of rivers, for the sake of their flesh which by these people is greatly relished. Some individuals attain to nearly 7 feet in length, but the majority are smaller.

Bronchocela cristella, *Kuhl*, inhabits the Malayan Peninsula, Pinang, Singapore, Amboyna, Island of Bugu, Java, Sumatra. It is very numerous in the Malayan countries both in the valleys and on the hills. It moves and leaps with great quickness among the branches of the trees. The most striking feature is the great power of suddenly changing its colours. The Malayan denomination of this species is "*Grumung*," which Marsden's in his Dictionary describes as a species of lizard which changes its colour as it is affected by fear or anger.

Lophyrus armatus *Gray*. Inhabits Pinang, Singapore, Cochin-China. At Pinang this species appears to be very local and not numerous: two individuals examined were obtained from spice plantations in the valley. They were very active and fierce, possessed in a slight degree the power of changing the ground colour to a lighter hue, and in captivity refused food and water.

Draco volans, *Linn*. Inhabits the Malayan Peninsula, Pinang. Philippine Islands, Borneo, Java. The transcendent beauty of its individually varying colours, baffles description. As the lizard lies in shade along the trunk of a tree, its colours at a distance appear like a mixture of brown and grey, and render it scarcely distinguishable from the bark. Thus it remains with no signs of life except the restless eyes, watching passing insects, which, suddenly expanding the wings, it seizes with a sometimes considerable, unerring leap. The Typhlopidæ family of Ophidia are all of similar habits. They mostly live under ground, but appear occasionally in shady places, particularly after showers of rain, in

Bengal, in the rainy season. They are very agile, and appear to make use of the horny point of the tail as a propeller. When taken, they frequently press it against the hand in their attempts to escape. Reposing on the ground Typhlops braminus may easily be mistaken for an earthworm, until its serpentine movements, and the darting of the white furcated tongue, while the head and neck are raised, make it known. In confinement they refuse food and water. In all dissected, the stomach contained some earth ; in a few, remains of insects, (myriapoda, ants.) A young female had a string of six cylindrical soft eggs, of a yellowish white colour, each about $\frac{3}{8}$ of an inch in length, $\frac{1}{16}$ in diameter.

Python reticulatus is very numerous in the Malayan hills, and valleys, feeding upon quadrupeds and birds. It often takes up its abode in out-houses, preying at night, and is thus useful in destroying vermin, although plunder is occasionally committed in poultry yards. Dr. Montgomerie had seen in George Town, Pinang, a young one which the inhabitants suffered to retain unmolested possession of the rice stores in order to secure them against the ravages of rats.

The Lycodon effrænis, *Cantor*, inhabits Pinang. In fierceness it resembles its congeners, but unlike them, it raises vertically the anterior part of the body, and bites after a few oscillating movements from side to side. Lycodon platurinus, and aulicus, like many other harmless, and some venomous serpents, the pupils of which are vertically closed by the light, prepare to attack horizontally coiled on the ground, with the head bent close to the body, and drawn as far backwards as possible, when, suddenly uncoiling the anterior part of the body, they dart obliquely upwards, but as they are blinded, not always in the direction apparently aimed at, and they frequently miss the aim.

The Herpetodryas oxycephalus, *Reinwardt*, is of Pinang, Java, Celebes. Its ferocious habits have been accurately described by M. Reinwardt. It has in a remarkable degree the power of laterally compressing the neck and the anterior part of the body, when the greyish blue skin becomes visible between the separated scales. In such state of excitement it raises nearly the anterior third vertically from the ground, continues fixed during several seconds with vibrating tongue, and bites. It then throws itself down, to rise to a renewed attack. A similar mode of attack characterizes Dryinus nasutus, *Lacepede* ; Prasinus, *Reinwardt* ; Leptophis pictus *Gmelin*, and Leptophis caudalineatus.

Tropidonotus junceus, *Cantor* inhabits Pinang and like most of the Asiatic species of this genus, is of fierce habits. It twice unprovokedly bit a woodcutter who happen to pass it. The bite, of course, was productive of no consequences except a slight momentary pain. The very slender make and the elongated tail are characters which approach this species to the arborial Colubridæ.

Bungarus species are not numerous in the Malayan countries but B. candidus and fasciatus are of no uncommon occurrence in Bengal and on the Coromandel Coast, where, however, it should be observed, a class of the natives ("serpent charmers,") earn a livelihood by capturing and exhibiting serpents ; this craft is unknown among the Malays. B. flaviceps, B. candidus and B. fasciatus like the rest of the venomous serpents, are very ferocious when attacked, but unprovokedly they are not known to attack man : on the contrary, when met in the jungle, they attempt to escape. When trod upon, or struck, their rage is instantly excited, in self-defence they will even turn from their retreat, and then their habitual sluggishness is roused to furious activity. Preparing to attack, the head is, by a short curve of the neck, brought closely to the body, and drawn far backwards, when suddenly darting the anterior part of the body obliquely upwards, they bite. The height of the place where the wound is inflicted, of course depends on the length of the serpent, which is capable of darting nearly the anterior half of the body. Notwithstanding the circular pupil, they appear to shun the light, hiding the head under the folds of the body, and they are singularly uncertain in their movements, often suddenly jerking the head or tail without any apparent object. Like all serpents of tropical Asia, they seldom expose themselves to the sun : when during the day they leave their hiding places, they select the shade. The genus Bungarus is terrestrial, feeding on rats, mice, serpents, (Col. mncosus, *Lin*,) and toads. Like other venomous serpents, when the venom has been inflicted on their prey, they disengage it from the fangs, sheathe and place them as horizontally as possible, in order that they may offer no resistance to the introduction into the mouth of the lifeless prey, which is now seized head foremost. The innocuous serpents kill or strangle their prey, which when life is extinct is either swallowed at once, or if it happen to have been killed in a position, likely to render the deglutition difficult, is often disengaged from between the teeth, and seized a second time, by the head. In captivity these serpents refuse food, but greedily lap up and swallow water. A fowl four minutes after it had been bitten on the inner side of the thigh, by a *Bungarus fasciatus*, fell on the wounded side, and was shortly after seized with slight purging. The eyes were half closed, the pupils alternately dilated and contracted, immobile. In 17 minutes slight spasms occurred, under which the bird expired 43 minutes after it had been wounded. Another fowl wounded in the same place as the former, by the same serpent, but after an interval of seven hours, expired under similar symptoms, only more violent spasms, in the course of 28 minutes. Venom taken from another serpent, the fangs of which had been extracted, was inoculated by a lancet-incision in the right thigh; four minutes after, the fowl was seized with trembling, fell, and remained lying on the wounded side, with the eyes closed, but it gradually recovered, and rose apparently recovered, 30 minutes after the inoculation of the venom. Other fowls were killed by different serpents of this species in 20 to 31 minutes. Fowls bitten by Bungarus candidus expired under similar symptoms, within 30 to 45 minutes; dogs from within 1 hour 10 minutes to 2 hours, under symptoms noted in Russell's Experiments; the venom of Naja lutescens, *Laurenti* was carefully obtained so as to avoid any admixture of saliva, by compressing the venomous glands. It issued from the lower aperture of the fangs in viscid drops of a syrupy consistency, and was received as it fell from the fangs in platina capsules. The serpents operated upon were an adult *Cobra de Capello* Naja lutescens, *Laurenti* and one of its varieties—Naja Kaouthia *Belanger*. In every instance the venom readily changed the blue of litmus to red, and restored the bright yellow to turmeric paper that had been reddened by the application of caustic alkali; an unequivocal proof of acidity. When left to spontaneous evaporation, it dried into a varnish resembling mucilage, or the glare of an egg, cracking in all directions; and on being heated it deposited an abundant coagulum, apparently albuminous. In either instance when redissolved, it retained its acid property.

What the nature of this acid may be, it was impossible to determine from the small quantity operated upon; nor was Dr. Cantor prepared to say that the poison *itself* is an acid, although if it be not so, it is certainly associated with one. The poison itself probably consists of some compound, which would be wholly disorganised, under any attempts at detection by chemical means.

Trigonocephalus Sumatranus, Raffles *Var.*, inhabits Pinang, Singapore, Malayan Peninsula. In Malayan countries this variety is not of so rare occurrence as the species appears to be in Sumatra. Both are equally dreaded. The natives of Sumatra denominate it, "Puchuk," a young, green shoot of a tree, a name expressive both of its color and arborial habits. The Malays of the Peninsula, who only know the black variety, call it from its broad cordate head the "hatchet shaped" serpent, "Kapack," or "Kapak," signifying an axe. At Pinang it generally occupies the lower parts of the hills or the valleys, either on the ground or on trees, but Dr. Montgomerie in one instance observed it at an elevation of 2,200 feet. It preys upon rats, small birds, tree-frogs. Trigonocephalus puniceus is general sluggish, but when roused, is of ferocious habits, Tr. gramineus, Tr. sumatranus and Tr. puniceus resemble the genus *Bungarus*; their mode of attack is also similar: like *Vipera Russelli*, Shaw, when it prepares to dart, they vibrate the prehensile tail, and utter a faint hissing sound. As the pupil is vertically contracted by the light, they frequently miss their aim, and like *Bungarus*, *Naja*, *Vipera Russelli* and *Hydrus*, in the extreme of fury, they will fix the fangs in their own bodies. Although they are averse to motion, they are not of quite so stationary habits as represented by M. Schlegel, Dr. Cantor in the jungle noticed them moving between the branches of trees or on the ground, either in search of prey, or after heavy rains had flooded their hiding places. In Bengal, most terrestrial serpents keep to the latter during the hot season, but the rains send them abroad in search of dry localities.

Although the present genus has venomous organs, as highly developed as *Crotalus* or *Vipera*, the effects produced by wounds of two species at least, appear to be less dangerous. According to Russell's experiments with the venom of *Trigonocephalus gramineus*, chickens expired within 8 to 33 minutes, Pigeons in 14 to 18 minutes. A pig recovered in 6 or 7 hours, a dog in 2 to 3 hours, after having been wounded Mr. Hodgson has seen a man who was wounded by this species, the only venomous snake known to inhabit Nepal, fearfully suffering from pain and swelling, but he never heard of a fatal case.

A male *Trigonocephalus puniceus*, successively wounded two fowls, one in the chest, the other in the left thigh. In both cases the fangs of both sides acted, but neither of the birds experienced any other effect except a slight pain, which lasted a few minutes after they had been wounded. It should, however, be observed, that the serpent at the time had gorged itself with food, in which state it was observed close to the General Hospital, in the valley of Pinang. Another individual was subsequently caused to wound a fowl on the inside of the thigh. The bird immediately drew up the wounded leg, fell down and was purged 3 minutes after being wounded. In 3 minutes more, slight spasms of the head and neck appeared at short intervals, but they ceased in 5 minutes, when the fowl made, at first, some unsuccessful attempts to rise. Twenty-one minutes after having been wounded, the bird rose, shook the wings, and had perfectly recovered. The same serpent subsequently was made to wound another fowl on the inside of the left thigh. The bird drew up the wounded leg, and was slightly purged, but showed no other inconvenience from the wound.

The following experiment was communicated by Dr. Montgomerie. An adult *Trignocephalus sumatranus, Var.* was made to bite a fowl in the fleshy part of the thigh. The bird limped about for a short time, and a minute after it was wounded commenced purging. At the end of two minutes it fell, breathing labouriously and was strongly convulsed. At the end of 6 minutes a few drops of water exuded from the eyes; in fifteen seconds more it was quite dead, six minutes and a quarter after it had been wounded. Both fangs had acted, the wound was livid, and similar lines were observed in the course of the absorbents. On another occasion, after some unsuccessful attempts to make another individual bite a fowl, a terrier accidentally was wounded in the fleshy part of the fore-arm. The serpent fixed the fangs for an instant in the flesh; the dog pitifully screaming, jumped and shook it off. A ligature was immediately applied above the elbow, and the dog secured in a cage. It continued for some time whining from pain, probably aggravated by the tight ligature, which was removed at the close of half an hour, and the dog let free. In a short time it had regained the free use of the limb and was apparently well. But on the third day following a perfectly circular slough, including the bitten spot, of about ¾ of an inch in diameter, was thrown off, the sore readily healed up and the dog suffered no further inconvenience.

All the hitherto known species of pelagic serpents, have been observed at Pinang, among the abundant supply of fishes daily carried to the markets. Of their general habits some account appears in the *Transactions of the Zoological Society, London, Vol.* II, p. 303. One of them, *Hydrus schistosus*, is incredibly numerous in the Bay of Bengal, at Penang and Singapore, far more so than any known terrestrial serpent. The fishing nets are hardly ever worked, but that one or more are among the contents. Other six species are of rare occurrence at Penang and Singapore, as will be perceived from the disproportionally small number of each, examined during four years, viz. of *Laticauda scutata* 3; *Hydrus striatus* 2; *nigrocinctus* 6; *gracilis* 7; *pelamidoides* 4; *pelamus* 1.—Of these Laticauda scutata is excessively numerous in Timor. *Hydrus pelamis* in New Guinea, the Molucca Islands, and Otaheite, where the natives use it as an article of food. The remaining species, so far as is known, have been observed nowhere in such overwhelming numbers. Large individuals of every species are very seldom seen, it is the young individuals which frequent the coast, and it appears to be questionable, if even the largest observed are animals arrived at their full size. The large individuals are very ferocious; the young ones are less so. Fortunately for the fishermen the light blinds these serpents, which when out of their proper element, become very sluggish and soon expire. This accounts for the safety of the class of men, whose daily calling brings them in immediate contact with animals, the wound of which is fatal. The fishermen in the Straits of Malacca are aware of their danger, and therefore take care to avoid or destroy these reptiles while landing the fishes. The Malays denominate them "Ular laut," *i. e.* serpents of the sea; among which, however, the innocuous *Acrochordus granulatus*, (Schneider), is also comprised as an inhabitant of the coasts.—*Transactions Zoological Society, London, Vol.* II, *page* 309.

Crocodilus porosus. *Schn.* This, the larger and fiercer of the two crocodiles, is found in various localities both on the East and West Coasts of the Peninsula of India and is the species that was so abundant in the fort ditch at Vellore. It is of very rapid growth. An egg brought from Vellore to Mr Walter Elliot, was hatched in the Government house compound, and in eight years the crocodile had increased to the length of 8 or 9 feet, becoming so powerful as to destroy a full grown buck antelope which had come to drink water at the tank where it usually resorted. Both species of crocodile are called alligators by the English in India; erroneously so, of course, as no alligators have as yet been found in the old world.

Calotes versicolor. *Daud.*

Agoma Tiedmannii, ...Kuhl | A. *vulturosa*, ...Harl.
This has two spines on each side of the nape. No fold on the neck. Tail conical. Scales large, keeled. It is the most common and extensively distributed lizard in British India being found everywhere in gardens, avenues and jungles. Though not a chameleon in structure, it is yet one in habit, and much more so than the

Indian chameleon. Its usual tints are a pale drab or fawn colour, but this it changes to bright red, to black and to a mixture of yellow, red and black. This change is sometimes confined to the head, at other times diffused over the whole body and tail. A common state to see it in, is seated on a hedge or bush with the tail and limbs black, head and neck yellow picked out with red, and the rest of the body red. This display of colours seems merely seasonal. It only occurs in the males, the females being uniformly and plainly coloured. The young has a pale band on each side of the body from the eye to the tail, and a series of dark bands on the back. And some which Dr. Kelaart sent alive from Ceylon were identical with the Bengal reptile. It is chiefly during the months of May and June that the species displays its fine colours; which generally are—head and neck, and more or less of the fore-part of the body, bright red; rest of body and limbs dark greenish-brown; and a great black patch on the shoulder. The female is smaller, and deposits her 8 to 16 eggs very commonly in a flower-pot, burrowing 4 or 5 inches into the hard dry soil, and finally covering them up most carefully, so that no appearance remains of the ground having been disturbed. The young appear in about 8 or 9 weeks. Mr. Blyth had seen a two-thirds grown lizard of this species carry off and partly swallow a Scolopendra nearly of its own length. This and the other species of Calotes are essentially tree lizards, seeking their prey often on the ground, but always retreating up trees when in danger.

Sitana ponticeriana, *Cuv.* Fawn-coloured, rhomboidal dark spots on the back, and a pale longitudinal streak from ear to tail. Male, in breeding season, with a large tri-coloured dewlap. This common ground lizard is distributed over all India, but is rare in the wooded districts, frequenting the open country, field and low copses: on the approach of danger, it runs with great rapidity, tail erect, and conceals itself in any crack in the ground or hole, or under a stone or bush. Notwithstanding its activity, it is the common prey of harriers, buzzards, hawks and eagles. Dr. Jerdon had not seen the beautiful dewlap (blue, black, and red) developed in the south of India, nearly to the extent that appears to take place in the north, and there it attains a greater size. The colours of the dewlap are only exhibited during the pairing season, and it then becomes larger than previously. At this time, too, some blue marks are observable on the nape and back, that on the nape indeed forming a kind of crest more conspicuous now, the colours in general too are deepened, and the quadrangular marks on the back and barring of the limbs very distinct. The name Sitana, said by Cuvier to be the name by which it is known at Pondicherry, is a Latin termination of the word Shaitan or Devil, a name sometimes applied to it by the mussulmans of S. India.

Draco dussumierii—*Dum.* & *Bibr.* The anterior and posterior angles of each orbit edged by a small pointed horn; gray, wings marked black and red. This very beautiful little lizard is only found in the forests of the West Coast, or rather in the neighbourhood of the forests, for it frequents cocoanut and betel-nut plantations, in their vicinity chiefly, not living, it is alleged, in the woods themselves, nor in the gardens at any distance from the forest. It is tolerably common in all Malabar, Cochin and Travancore, but not known farther north than Malabar, being either unknown or very rare in Canara. The colour of the body is a delicate grey, with some darker markings, which the animal occasionally renders very distinct, at other times obscures entirely. It sometimes also changes its whole hue to a dark blackish grey. The ground colour of the wings is red marbled with black and edged with yellow. The small dewlap is pale yellow marbled with green at the base. This is never extended forwards to the extent usually seen in stuffed specimens, being merely brought forward now and then to the edge of the chin, and in a flat state not distended with air. The two lateral appendages of the head, also, are merely slightly raised now and then and never distended in the manner seen in dried specimens.

Agama dorsalis—*Gray*. This large rock lizard is only partially distributed in Southern India and is only found at some elevation above the sea. It is most abundant in Mysore, and especially so in the neighbourhood of Bangalore, where it may be seen on every bare rock. It is also not uncommon on the edges of the Neilgherries up to the height of nearly 6,000 feet. Its normal colour and that of the female at all times is a dusky grey with dark markings. The male can assume a very bright livery, viz., fine vermilion red above, with a streak through the eye; under surface, limbs and tail black: occasionally the red is exchanged for yellow. It frequents bare rocks only, and retreats into holes and clefts on the approach of danger.

Varanus dracæna. *L.* This monitor appears generally spread throughout the whole of British India and it is said to extend into the island of Ceylon. It is chiefly nocturnal in its habits and frequents jungly places. It is by no means confined to the neighbourhood of water, though perhaps it prefers such a locality. It defends itself most vigorously by striking with its tail. It can climb well both trees and walls, and it is popularly believed, that thieves make use of it to effect an entrance into a building or over a wall by allowing the guana to get hold by its fore-claws of the window sill or wall and pulling themselves up by it. It is eaten by the natives, who consider it highly nourishing and aphrodisiac, and many Europeans use it for soup, imagining it allied to the west Indian Guana. It can always be procured in the Madras market.

Tiliqua rufescens, *Merr.* This is the most common scink in the country, being universally dispersed throughout India, hiding itself under leaves, rubbish, stones, in dark rooms, &c. It runs with some rapidity, and is very active.

Vipera. Russellii.—*Gray*, *Russell.*

" Kunnadi vyrien" *Tam.*

This well known and justly dreaded snake grows to a large size, the far-famed *Cobra monil*, or *Cobra manilla* of some, seems merely the young of this species. The old orthography is *monil*, which simply means a chain or necklace, and whoever looks at the markings of this snake especially of the young one, must be struck with the resemblance thereof to a necklace. *Cobra capella* and *Cobra monil* are Portuguese names, and there is little doubt, that the latter name was given to present species by the Portuguese. It has however been forgotten as applied to this viper, and may now be considered a fable ; every one you meet is able, on his own showing, to point you out the *real cobra monil*, as quite distinct, and no two observers describe it alike, they only agree in its being a very deadly snake. The *carpet snake*, another household word in the Madras army, appears to be equally fabulous, several prettily marked innocent species having been, at different times pointed out as the carpet snake. Generally, the little harmless *Lycodon aulicus* and this, perhaps, from its habit of entering houses as much as from its markings. —*Cur. As. Soc.*

Vipera echis.—*Schlegel*, V. noratta—*Shaw*, *Russell.*

" Kuttavyrien," *Tam.*

This little snake is very common in the Carnatic. Jerdon doubts that its bite would prove fatal to man. A dog bitten by one recovered. Of all the venomous land snakes met with in Southern India, the only ones at all common are the Cobra, the Chain Viper (Vipera Russellii), the *Bungarus candidus*, and the little *Vipera echis*. Most of the others are peculiar to the forests of India. Trigonocephali are not usually fatal. Jerdon had known several cases of bites by *Trigonocephalus malabaricus* and *Trig. nepa* ; and none proved fatal. Great pain is experienced, and swelling usually follows but the patient gradually recovers. Jerdon was bitten in the fore-finger by the *Trigonocephalus neelgherriensis* ; he applied a ligature round the finger, and sucked the wound vigorously. In a minute or so the skin round the bite blackened, and in a minute or two more a perfectly circular bit of the skin came of in his mouth, he set off running immediately he was bitten, and felt no further ill effects. See Cantor's remarks on the bite of *Trig. Sumatranus*, in Journ. As. Soc. Calcutta, xvi. 1044-6 ; also Blyth, ibid. xx. 524.

The great Seychelle Tortoise is miscalled T. Indica by Gmelin, and under that name Mr. Gray unites no fewer than seven of the supposed species admitted by M.M. Dumeril and Bibron. According to Dr. Schlegel, the Indian Tortoise probably indigenous to Madagascar and the neighbouring isles, has been acclimated in the Gallapagos Isles, in California, and on several other points on the western coast of South America :" but Blyth had been assured, on good authority, that numerous specimens kept in gardens in the Mauritius, have all been brought from the Seychelle Islands in the first instance, that they are still commonly brought from those islands to the Mauritius, and thence we believe the few in India have been imported. It is most assuredly not an Indian reptile, nor had he heard of its ever propagating in this country. The largest seen in India measures 4 ft. 4 in. in length over the curve of the carapax, or 3 ft. 5 in. in a straight line ; transversely 4 ft. 2 in. over the high arch of the carapax, or in a diameter line 2 ft. 2 in. height, when not raised upon the legs, *i. e.* height of shell, 20½ in. ; when walking, the shell is lifted fully 6 in. from the ground, if not more : circumference of hind-foot 17½ in. A scientific person recently from Jamaica, said that this great Seychelles species is quite distinct from the great Gallapagos Tortoise, which has bred and multiplied in Jamaica & other W. India islands. It is curious that these gigantic land tortoises (diminutive, however, in comparison with the extinct Indian Colossocheilis) should thus be indigenous to small Oceanic groups of islands, in each case remarkable for the peculiarities of both their *fauna* and *flora.* We are reminded of the great wingless birds (Dodos and Solitaires) of the Mauritius, Bourbon, and Rodrigues ; those also of N. Zealand and of Madagascar ; the Megapodius of the Nicobars, and its congeners of other islands ; the singular and quite recently extinct great Parrot of Philip Islet near Norfolk island, with its sole congener in N. Zealand, the Owl like nocturnal Cockatoo of N. Zealand, also close upon extirpation, &c. The majority, if not all, of these islands appearing to be remnants of what may be comparatively termed continents, each with its peculiar centre or centres of creation. In all these supposed reliques of ancient lands, with the chief exception of Madagascar, mamalia are rare, and are chiefly or wholly *Cheiroptera*, *Rodentia*, *Marsupialia* ; the two former orders comprising the only placental mammalia of Australia ; and one species of each of these placental orders being the only known indigenous mammals of N. Zealand, though a large badger-like animal has lately been reported in the latter country, in all probability a marsupial. Madagascar is very remarkable for he extraordinary development of the quadrumanous group of Lemurs, among the higher placental mammalia ; and has even a rodent Lemur in Cheiromys, as Australia has a rodent marsupial in Phascalomys. Its other placental mammals are mostly of peculiar genera, unknown even on the neighbouring continent of Africa and no marsupial has been discovered there.

The common Crocodile of the Nile, the eviathan of the book of Job, is one of the species common in Tenasserim waters, and the other species is very slightly distinguished from it. Crocodiles are numerous in all its tide-water streams. During a two hours' pull up a small river, Mr. Mason once counted fourteen sunning themselves on the mud-banks. They often carry off the natives, and a single animal emboldened by his successes, will usurp dominion over a particular portion of a river, where he becomes the terror of every boat's crew that passes. The steersman occupies the most dangerous position ; for the crocodile's mode of attack is to glide up silently to the bow or stern of a boat, then turn suddenly, when with one stroke of his powerful tail, close to the top of the boat, he sweeps into the water, whoever is within its reach, and the stunned victim becomes an easy prey. A Karen chief with whom Mr. Mason was acquainted, perished in this way at a point in the river Gaing, which had previously been known as the desmesne of one of these river monarchs. Persons sleeping on their boats moored to the shore, have sometimes awoke in the jaws of these monsters and one carried off a Burman from the back of a buffalo that he was riding across a small stream, under the very shadow of the walls of Tavoy.

The large gecko, which the Burmese call *touktay*, and the Malays *toke*, in imitation of the sound it makes,isvery abundant. It disputes the possession of every cranny with the rats, and sometimes it is thought, devours their young. It has been seen making its repast on the small gecko. The natives think it noxious, and always avoid the reptile. According to Dr. Cantor, it is the Indian salamander of old writers ; and new comers usually bottle up a few individuals to send to their friends as specimens of the rare, and unknown productions of the East, not aware that it was well described, and figured by the Catholic missionaries in Siam during the reign of Louis XIV.

Hemidactylus coctæi the common gecko, or small gecko, so abundant in Tenasserim houses, differs generically from Platydactylus gecko, in having the " basal joint of four or five of the toes in each foot forming an oval disk." It is identical with the gecko seen in the houses in Calcutta. The spider of the English bible, Proverbs xxx. 28, was undoubtedly a small gecko represented by this species and the word was so rendered in the Syriac version made in the second century, and in the Vulgate Latin made in the fourth century. Jerome translated : " Stellio manibus nititur, Et moratur in ædibus regis," into

" The gecko taketh hold with her hands
And dwelleth in king's palaces."

Robinson says the opinion of the celebrated Bochart, that the newt, a species of small lizard, is meant, seems in every respect entitled to the preference *i. e.* to that of spider, but it is the gecko that takes hold with her flat fingers, and odious as are her looks, dwells even in the palaces of kings. The word rendered " ferret" in our version, is supposed to be a different name for this same animal, and in the Samaritan Pentateuch the Hebrew word is the same in both passage.

Varanus bengalensis ; theKaren are extravagantly fond of their flesh, they steal up the trees with a noose at the end of a bamboo, and often noose them while leaping for the water, or catch them on the boat which is brought under the tree. The head of this species, the natives say, is venomous, and they discard it altogether ; but the flesh of the other parts, which smells most odiously, is deemed by the Karens much preferable to fowls.

The incantation of serpents has usually been attributed to the power of music, and a late writer remarks that " it is so strange that many have denied the fact, while others have asserted it to be a deception." " Our own conviction," he adds, " is, that serpents are extremely sensitive of impressions from musical notes, or modulations, under the influence of which they wreathe their bodies from feelings of pleasure, while to these graceful contortions and undulating movements, the charmer, who plays on a pipe or some simple instrument, adapts the time." This is the common theory,

—that serpents are rendered docile by music. but Mr. Mason has seen the cobra dance in imitation of its Burmese master, while he sat upon his haunches before it, making the motions with his body and hands that he wished the snakes to imitate, and which it did perfectly without any music whatever, or any other sound except an occasional authoritative *hay!* A pair of cobras kept perfect time with their master, while no sounds were uttered and allowed him to handle them as he wished. At his command they danced, and at his command they lay gracefully down as if asleep. The Burmese usually put a wild one, which they secure when half or two thirds grown, with a practised tame one. These will dance and wreathe themselves at their master's pleasure. Sometimes darting at him but at that moment he straightens himself up, with his eyes fastened upon the snake's eyes, and in a gruff voice commands them to perform. Following his motions, they stand almost upright with their hoods dilated and their colours all in play as they dance; now swift— now slow—now approaching—now receding;—and he has seen the younger in his receding moments give unequivocal tokens of desiring to make his exit: but on hearing his master's call he turned again though evidently with more reluctance than the old actress. The power of effecting all this is certainly attributable neither to magic nor music. It must, he thinks, be ascribed to fear, and to a very simple principle—the power of imitation; a power possessed by different animals in different degrees. Serpents are by no means the least docile of the animal kingdom; nor are cobras the most intractable of serpents, of; the cobra, and the bungarus, being the favourites with the snake charmers.

Fire Serpent. The Elaps is perhaps the "fire serpent" of the Karen so called from the burning produced by its bite, which they say is poisonous, but not fatal. It is the smallest poisonous serpent in Tenasserim. According to the Burmese it has a more wonderful power of reproducing itself than the hydra of antiquity. They say if one be killed, two or three others immediately arise in its place, and a Burman, assured Mr. Mason that he once killed one, and immediately he saw two others, close by the dead one without being able to conjecture whence they came. Its Burman name signifies the father of many.

A large python, usually called a boa, is not uncommon in Tenasserim. Mr. Mason had seen the head of one that was killed by a drove of hogs whose whole length measured eighteen feet, and the natives say they grow much larger. The Karens have an apothegm that the largest python can swallow a full grown buckrusa or sambur deer, horns and all, without inconvenience. They are often seen coiled up among the branches of trees, on the banks of streams in the interior, where they are frequently noosed by Karens, who regard them as valuable food. He has seen a Karen seize one nine feet long by the tail in the water, and with the aid of his associates succeed in capturing him.

INDEX TO REPTILES.

A

Ablabes baliodeirus, *Dum.* 72 ii.
Ablabes bicolor, 72 jj.
Ablabes collaris, *Gunth,* 72 jj.
Ablabes fuscus, 72 jj.
Ablabes melanocephalus, *Gunth.* 72 jj.
Ablabes owenii, *Gunth*; Ablabes rappii, *Gunth,* 72 jj.
Ablabes rappii, *Gunth,* 72 jj.
Ablabes sagittarius, 72 jj.
Ablabes tenuiceps, 72 ii.
Ablabes vittatus. *Dum.*; Zaocys dhumnades, *Cope,* 72 nn.

Acanthodactylus, *Fitzinger,* 72 m.

Acanthosaura armata, *Gray.* 72 y.

Acrochordus fasciatus, *Sh.* Cherşydrus granulatus, *Gray,* 72 aaa.
Acrochordus granulatus, *Cant.* Chersydrus granulatus, *Gray,* 72 aaa.

Adenomus badioflavus, *Cope.* Bufo Kelaartii, *Gunth,* 72 lll.

Aepidea robusta, *Hallowell,* Gonyosoma oxycephalus, *D. & B.* 72 uu.

Agama armata, *Gray*; Acanthosaura armata, *Gray* 72 y.
Agama cellata; *L.* Phrynocephalus caudivolvulus, *Wagler,* 72 aa.
Agama cristatella, *Kuhl*; Bronchocela cristatella, *Gunth,* 72 w.
Agama gutturosa, *Merr*; Bronchocela cristatella, *Gunth,* 72 w.
Agama moluccana, *Less*; Bronchocela cristatella, *Gunth,* 72 w.
Agama ophiomachus, *Merr*; Calotes ophiomachus, *Gunth,* 72 x.
Agama tiedemanni, *Kuhl*; Calotes versicolor, *Gunth,* 72 w.
Agama tuberculata, *Gray,* Stellio tuberculatus, *Gunth,* 72 z.
Agama versicolor, *Daud*; Calotes versicolor, *Gunth,* 72 w.
Agama vultuosa, *Hart*; Calotes versicolor, *Gunth,* 72 w.

Ahætulla belli, *Gray,* Dendrophis picta, *Schleg.* 72 uu.

Aipysurus anguillæformis 72 ddd.
Aipysurus fuliginosus, *Dum.* Aipysurus lævis, *Lacep.* 72 eee.
Aipysurus fuscus, *Fischer,* 72 ee.
Aipysurus lævis, [illegible] A. anguillæformis, 72 eee.
Aipysurus lævis, *Lacep.* 72 eee.
Aipysurus margaritophorus, *Bleek*; A. anguillæformis, *Gunth,* 72

Alopecophis chalybeus, *Gray.* Gonyosoma oxycephalum, *D.&B.* 72

Amblycephalus boa, *Kuhl,* 72 yy.
Amblycephalus lævis, *Khul,* Pareas lævis, *Dum.* 72 yy.

Amphiesma flavipunctatum, *Hallowell*; Tropidonotus flavipunctatus, *Gunth*, 72 pp.
Amphiesma stolatum, *Dum*; Coluber stolatus *Linn* 72 oo.
Amphiesma sub-miniatum, *D. & B.*; Tropidonotus sub-miniatus, *Sch*. 72 oo.
Amphiesma tigrinum, *Dum*; Tropidonotus tigrinus, *Gunth*, 72 pp.

Anguis maculatus, L. Cylindrophis maculatus, *Wagl*. 72 dd
Anguis mamillaris, *Daud* Hydrophis fasciata, *Russell*, 72 fff.
Anguis melanosticta. *Russell*, 72 q.
Anguis rufa, *Laur*; Cylindrophis rufus, *Gray*, 72 cc.
Anguis scylate, *Russell*; Cylindrophis rufus, *Gray*, 72 cc.

Argyrophis bicolor, *Gray*; Typhlops nigro-albus. *Dum*. 72 cc.
Argyrophis horsfieldii, *Gray*; Typhlops horsfieldii, *Gunth*, 72 oc.

spidura brachyorrhos, *Wagl*., 72 gg.
Aspidura carinata, *Jan*.; Haplocercus Ceylonensis, *Gunth*. 72 gg.

spris intestinalis, *Laur*; Callophis intestinalis, *Gunth*, 72 ccc.
spris Berdmorei. *Bl*. 72 p,

strotia schizopholis, *Fischer*, Hydrophis Stokesii, *Gray*, 72 eee.

teuchosaurus chinensis, *Gray*; Euprepes chinensis, *Gunth*, 72 n.

retium schistosum. *Gunth*. 72 pp.

uria belcheri, *Gray*; Hydrophis Belcheri, *unth*, 72 eee.
uria elegans, *Gray*; Hydrophis elegans, *Gunth*, 72 fff,
uria lapemoides, *Gray*, Hydrophis lapemoides, *unth*, 72 fff.
uria lindsayi, *Gray*, Hydrophis lindsayi, *Gr*. 72 fff.

Aturia ornata, *Gr*. Hydrophis ornata, *Gunth*, 72 fff.
Aturia ornata, var. *Gray*. Hydrophis ellioti, *Gunth*, 72 fff.

B

Barycephalus sykesii, *Gunth*; Stellio tuberculatus, *Gunth*, 72 z.

Batagur, *Sp*. 72 g.
Batagur affinis, *Gunth*. 72 g.
Batagur basha. The Batagur. 72 g.
Batagur dhongoka. The Dhongoka.
Batagur lineata, *Gray*. Batagurlineatus, *Gunth*. 72 g.
Batagur lineatus. The Kachuga, 72 g.
Batagur ocellata, *Gray*; Emys ocellata, *Dum*. 72 f.
Batagur smithii, *Gray*, MS. 72 g.
Batagur smithii, *Gray*, Pangshura smithii, *Gunth* 72 g.
Batagur tecta, *Gray*; Pangshura tecta, *Gunth*, 72 f.
Batagur tentoria, *Gray*; Pangshura tentoria, *Gunth*. 72 f.

Batrachians, 72 jjj.

Biancia niger, *Gray*; Japalura variegata, *Gray*. 72 v.

Bitra hydroides, *Gray*, Hipistes hydrinus, *Gunth*. 72 ss.

Boa arcuatus, *Dum*. Bungarus cæruleus, *Daud*. 72 bbb.
Boa candidus, *Cantor*, Bungarus cœruleus, *Daud*. 72 bbb.
Boa conica, *Schneid*; Gongylophis conicus, *Wagl*. 72 zz.
Boa johnii, *Russ*; Eryx johnii, *Dum*. 72 zz.
Boa Krait. *Williams*; Bungarus cœruleus, *Daud* 72 bbb.
Boa lineata, *Shaw*; Bungarus cæruleus, *Daud*. 72 bbb.
Boa lineatus, *Gunth*. Bungarus cæruleus, *Daud*. 72 bbb.
Boa lividus, *Cantor*, Bungarus cæruleus, *Daud*. 72 bbb.
Boa reticulata, *Schneid*. Python reticulatus, *Gray*, 72 yy.

Boltalia sublævis. *Gray*. Hemidactylus coctæi *Dum*. 72 s.

Bombifrons siamensis, *Gray*, Crocodilus siamensis, *Schn*. 72 E.
Bombifrons trigonops. *Gray*; Crocodilus palustris, *Less*; 72 k.

Bronchocela cristatella, *Dum*. B. cristatella, *Gunth*. 72 w.
Bronchocela cristatella, The gruning, 72 w.
Bronchocela gutturosa. *Gray*; B. jubata, *Dum*. 72 w.
Bronchocela jubata, *Dum*. 72 w.

Bufo asper, *Schl*. 72 lll.
Bufo bengalensis, *Daud*. B. melanostictus, *Gunth*. 72 lll.
Bufo calamita, *Laur*. B. calamita, *Roesel*, 72 lll.
Bufo calamata. *Roesel*, 72 lll.
Bufo carinatus, *Gray*. B. melanostictus, *Gunth*, 72 lll.
Bufo cinereus. *Schneid*. B. vulgaris, *Gunth*, 72 lll.
Bufo dubia (Shaw), *Gray*. B melanostictus, *Gunth*. 72 lll.
Bufo galeatus. Gamboja, 72 lll.
Bufo gargarizans, *Can*. B. vulgaris, *Gunth*. 72 lll.
Bufo griseus, *Hallow*, B. vulgaris, *Gunth*. 72 lll.
Bufo kelaartii, *Gunth*. 72 lll.
Bufo melanostictus, *Gunth* 72 lll.
Bufo palmarum, *Cuv*. B. vulgaris, *Gunth*. 72 lll.
Bufo scaber, *Daud*. B. melanostictus, *Gunth*. 72 lll.
Bufo vulgaris. *Gunth*. 71 lll.
Bufo vulgaris Japonicus, *Sc*. B. vulgaris, *Gunth*. 72 lll.

Bungarus annularis, *Daud* B. fasciatus, *Cant*. 72 bbb.
Bungarus cæruleus. *Daud*. 72 bbb.
Bungarus ceylonicus, 72 bbb.
Bungarus fasciatus, *Cantr*. 72 bbb.
Bungarus fasciatus, var. B. *Gunth*. B. ceylonicus *Gunth*. 72 bbb.
Bungarus flaviceps, *Reinh*. Megærophis flaviceps, *Gunth*, ccc.
Bungarus multicinctus. *Blyth*; B. semifasciatus, *Kuhl*. 72 ccc.
Bungarus semifasciatus, *Kuhl*. 72 ccc.

C

Cabrita, *Gray*, 72 m.
Cabrita brunnea, *Gray*

Cacopus. *Gthr*. 72 kkk.
Cacopus systoma. *Gthr*. 72 kkk.

alamaria albiventer, *Gth*. 72 ff.
Calamaria bicolor, Ablabes bicolor. *Gunth*. 72 jj.
Calamaria fusca, *Blyth*. Ablabes fuscus; *Gth*. 72 jj.
Calamaria linnei, *Var*. C. albiventer, *Gth*.
Calamaria longiceps, *Cantor*, Oxycalamus longiceps, 72 gg.
Calamaria lumbricoidea, *Var*; C. negro-alba, 72 ff.
Calamaria monticola, *Cant* Cyclophis monticola, *Gunth*. 72 jj.
Calamaria nigro-alba, 72 ff.
Calamaria sagittaria *Cant*. Ablabes sagittarius, *Gth*. 72 jj.
Calamaria scytale, *Schleg*; Aspidura brachyorrhos *Wagl*. 72 gg.
Calamaria tenuiceps, *Bth*. Ablabes tenuiceps, *Gth*. 72 ii.

Callophis concinnus *Beddome*, C. nigrescens, *Gunth*, 72 ddd.
Callophis gracilis, *Gray*, 72 ccc.
Callophis intestinalis, *Gunth*. 72 ccc.
Callophis bivirgatus, *Gth*. 72 ccc.
Callophis macclellandii, *Gunth*; 72 ccc.
Callophis maculiceps, *Gth*. 72 ddd.
Callophis nigrescens, *Gth*. 72 ddd.
Callophis trimaculatus, *Gunth*. 72 ddd.
Callophis univirgata. *Gth*. C. macclellandii, *Gunth*. 72 ddd.
Calloselasma rhodostoma, *Russ*; 72 hhh.
Callula pulchra, *Gunth*. 72 mmm.

Calosaura lechenaultii, *D. & B.* Cabrita lechenaultii, *Gunth.* 72 n.

Calotes maria, *Gray*; Lizards, 72 x.

Calotes ophiomachus, 72 xx.
Calotes ophiomachus, *Gray* C. ophiomachus, *Gunth.* 72 x.
Calotes rouxii, *Blyth.* Calotes nigrilabris, *Peters*, 72 x.
Calotes rouxi, *Blyth*; C. versicolor, *Gunth.* 72 w.
Calotes tricarinatus, *Blyth*; C. maria, *Gray*; 72 x.
Calotes versicolor, *Dum.* C. versicolor, *Gunth.* 72 w.
Calotes versicolor. The blood sucker, 72 w.
Calotes viridis, *Gray*; C. versicolor, *Gunth* 72 w.
Calotes viridis, *Kelaart*; C. ophiomachus, *Gunth.* 72 x.

Campsodactylus lamarrei, *D. & B.*, Hagria Vosmærii, *Gray*, 72 q.

Cantoria elongata. *Gunth.* 72 qq.
Cantoria violacea, *Girard*, C. elongata, *Gunth.* 72 qq.

Caouana olivacea, *Gray.* C. olivacea, *Gunth.* 72 i.
Caouana olivacea. The Indian Loggerhead, 72 i.

Carawala, *Davy.* Hypnale nepra, *Gunth.* 72 iii.

Caretta imbricata (part) auct. C. squamata, *Gth.* 72 i.
Caretta squamata. Hawk-bill Turtle, 72 i.

Ceratophrys montana, *Schl.* Megalophrys montana, *Wagl.* 72 kkk *Schleg.* Megalophrys montana, *Wagl.* 72 kkk.

Cerberus boæformis, *D. & B.*, C. cinereus, *Gray*, 72 rr.
Cerberus cinereus, *Gray*, 72 rr.
Cerberus obtusatus, *Cuv.* C. rhynchops, *Russell.* 72 rr.
Cerbrus rhynchops, *Russell*, 72 rr.

Cercaspis carinata, 72 xx.
Cercaspis carinatus, *Wagl.* C. carinata, *Gunth.* 72 xx.

Chamæleo ceylanicus, *Laur.* Chamæleo vulgaris, *Gunth.* 72 aa.
Chamæleo vulgaris.—The Common Chameleon, 72 aa.

Changulia albiventer, *Gray*, Calamaria albiventer, *Gunth.* 72 ff.

Chelonidæ, Marine turtles, 72 i.

Chelonia dussumieri, *D. & B.*, Caouana olivacea, *Gthr.* 72 i.
Chelonia olivacea, *Esch.* Caouana olivacea, *Gth.* 72 i.

Chersydrus fasciatus, *Cuv.* Chersydrus granulatus, *Gray*, 72 aaa.

Chersydrus granulatus, *Gray*, 72 aaa.

Chiamela lineata, *Gray*, C. *Gray*, 72 q.

Chitra indica, *Gray*, 72 h.

Chitte, *Russell. Ind.* Atretium schistosum, *Gunth.* 72 pp.

Chitulia fasciata, *Gray.* Hydrophis longiceps, *Gunth.* 72 fff.
Chitulia inornata, *Gray*, Hydrophis ornata, *Gunth.* 72 fff.

Chrysopelea ornata, *et.* Ch. paradisi, *Boie.* 72 uu.
Chrysopelea rubescens, *Gunth.* 72 uu.

Cistudo amboinensis, *Gray D. & B.* Cuora Amboinensis, *Gray*, 72 e.
Cistudo (?) bealii, *Gray*, Emys bealii, *Gray*, 72 f.
Cistudo trifasciata, *Gray*, Cuora trifasciata, 72 e.

Clothonia Johnii, *Gray*, Eryx Johnii, *Dum.* 72 zz.

Cobra monil of Europeans in Peninsula. Daboia russellii, *Gunth.* 72 iii.

Cœcilia glutinosa, *L.* Epicrium glutinosum, *D. & B.* 72 nnn.
Cœcilia hypocyanea, *Hasselt.* Epicrium glutinosum, *D. & B.* 72 nnn.
Cælopeltis dione, *Eichw.*, Elaphis dione, *Dum.* 72 kk.

Coloburus ceylanicus, *Dum.* Silybura ellioti, *Gray*, 72 ee.

Coluber aer *Eydoux & Gerv.* Hypsirhina enhydris. *D. & B.* 72 rr.
Coluber anastomosatus, *Daud.*, Hydrus piscator, *Schneid.* 72 nn.
Coluber arnensis, *Shaw*, Simotes russelii, *D. & B.* 72 hh.
Coluber aulicus, *L.* Lycodon aulicus, *Boie*, 72 ww.
Coluber bipunctatus, *Cantor*, Leptorhytaon *Jara Gunth.* 72 xx,
Coluber blumenbachii, *Merr*; Ptyas mucosus, *Cope*, 72 ll.
Coluber buccatus, *L.* Homalopsis buccata, *Khul.* 72 ss.
Coluber calliocephalus, *Gunth.* 72 kk.
Coluber candidus, *L.* Bungarus cæruleus, *Daud.* 72 bbb.
Coluber condanarus, *Merr.* Psammophis condanarus *Blyth.* 72 tt.
Coluber curvirostris, *Cantor*; Zamenis fasciolatus, *Rus.* 72 mm.
Coluber decorus, *Shaw*, Dendrophis picta. *Schleg.* 72 uu.
Coluber dhumna, *Cantor*; C. Ptyas mucosus, *Cope*, 72 ll.
Coluber dhumnades, *Cantor*, Zaocys dhumnades, *Cope.* 72 nn.
Coluber diadema, *Blyth*, *Zamenis* ventrimaculatus *Gunth.* 72 mm.
Coluber diadema, *Schleg.* Zamenis diadema, *Gunth.* 72 mm.
Coluber dione, *Pall*, Elaphis dione, *Dum.* 72 kk.
Coluber fasciolatus, *Shaw*, Zamenis fasciolatus, *Russell*, 72 mm.
Coluber gramineus, *Shaw*, Trimeresurus gramineus, *Russell*, 72 hhh.
Coluber hebe, *Daud.* Zamenis fasciolatus, *Rus-* 72 mm.
Coluber hebe, *Sch.* Lycodon aulicus, *Boie.* 72 ww.
Coluber helena, *Daud.* Cynophis helena, *Gunth.* 72 ll.
Coluber hexagonotus, *Cantor*; Xenelaphis hexagonotus, *Gunth.* 72 mm.
Coluber hippus, *Russ.* C. rectangulus, *Gray*, 72 nn.
Coluber *Jara*, *Shaw*, Leptorhytaon *Jara Gunth.* 72 xx.
Coluber korros. *Reinw.*, Ptyas korros, *Cope.* 72 mm.
Coluber laticaudatus, *L.*, Platurus scutatus, *Gunth.* 72 ddd.
Coluber malignus, *Daud.* Lycodon striatus, *Russell*, 72 ww.
Coluber melanurus, *Shaw*, Callophis trimaculatus, *Gunth.* 72 ddd.
Coluber melanurus, *Schleg.* Compsosoma melanurum, *D. & B.* 72 ll.
Coluber molurus, *L.*, Python molurus, *Gray*, 72 zz.
Coluber monticolus, *Hodgson*; Simotes russelli, *D. & B.* 72 hh.
Coluber mucosus, *L.* Ptyas mucosus, *Cope.*, 72 ll.
Coluber mycterizans, *L. Mus.* Passerita mycterizans, *Gray*, 72 vv.
Coluber naja. *L.*, Naja tripudians, *Merr.* 72 aa.
Coluber nepa, *Laur.* Hypnale nepa, *Gunth.* 72 iii.
Coluber nigromarginatus, *Blyth*, *Zaocys* nigromarginatus, *Gunth.* 72 rr.
Coluber nympha, *Daud.* Odontomus nympha, *D. & B.* 72 kk.
Coluber ornatus, *Shaw*; Chrysopelea paradisi, *Boie.* 72 uu.
Coluber oxycephalus, *Boie.* Gonyosoma oxycephalum, *D. & B.* 72 tt.
Coluber pictus, *Gm.* Dendrophis picta, *Schleg.* 72 uu.
Coluber platurinus, *Shaw.* Ophites subcinctus, *Wagl.* 72 xx.
Coluber plumbeus, Hypsirhina plumbea, *Wagl.* 72 rr.
Coluber porphyraceus, *Cantor.* 72 kk.
Coluber quadri-fasciatus, *Cantor*; Compsosoma radiatum, *Russ.* 72 ll.
Coluber radiatus, *Reinw.*, Compsosoma radiatum, *Russ.* 72 ll.
Coluber rectangulus, *Gray* 72 nn.
Coluber reticularis, *Cant.*, Compsosoma reticulare, *Gunth.* 72 ll.
Coluber-rufo-dorsatus, *Gunth.* 72 kk.
Coluber russellii, *Shaw.* Daboia russellii, *Gunth.* 72 iii.

Coluber russellii, *Daud.*, Simotes russelli, *D.&B.*, 72 hh.

Coluber sauromates, *Dum.* Elaphis sauromates, *Dum.* 72 kk.

Coluber schistosus, *Daud.* Atretium schistosum, *Gunth.* 72 pp.

Coluber stolatus, *Linn.* 72 oo.

Coluber striatus, *Shaw.* Lycodon striatus, *Russell*, 72 ww.

Coluber trigonalis. *Schneid* Dipsas trigonata, *Boie*, 72 ww.

Coluber ventrimaculatus, *Gray.* Zamenis ventrimaculatus, *Gunth.* 72 mm.

Compsosoma hodgsonii, *Gunth.* 72 ll.

Compsosoma melanurum, *D. & B.*, 72 ll.

Compsosoma radiatum, *Russ.* 72 ll.

Compsosoma reticulare, *Gunth.* 72 ll.

Condanarouse, *Russ.* Psammophis condanarus, *Blyth* 72 tt.

Cophias hypnale, *Merr*; Hypnale nepa, *Gunth.* 72 iii.

Cophias nigro-marginatus, *Kuhl.*, Trimeresurus trigonocephalus, *Gunth.* 72 hhh.

Cophias trigonocephalus, *Merr.*, Trimeresurus trigonocephalus, *Gunth.* 72 hhh.

Coronella albocincta, *Cant.* Simotes albocinctus, *D. & B.* 72 ii.

Coronella callicephalus, *Gray*, Coluber porphyraceus, *Cantor*, 72 kk.

Coronella puncticulatus, *Gray*, Simotes punctulatus, *Gunth.* 72 ii.

Coronella russellii, *Schleg.* Simotes russellii, *D. & B.* 72 hh.

Coronella striata, *Hallowell*, Lycodon rufozonatus, *Cantor.* 72 ww.

Coronella violacea, *Cant.*, Simotes punctulatus, *Gunth.* 72 ii.

Coronella baliodeira, *Boie.* Ablabes baliodeirus, *Dum.* 72 ii.

Coryphodon carinatus, *Gunth.* Zaocys carinatus, *Gunth.* 72 nn.

Coryphodon carinatus, *Gth* Zaocys dhumnades, *Cope.* 72 nn.

Coryphodon fasciolatus, *Gunth.* Zamenis fasciolatus, *Russ.* 72 mm.

Coryphodon carinatus, *Gunth.* Zaocys nigromarginatus, *Gunth.* 72 nn.

Coryphodon hexahonotus, *Gunth.* Xenelaphis hexahonotus, *Gunth.* 72 mm.

Crocodilus biporcatus, *Cantley.*, C. palustris, *Less.* 72 k.

Crocodilus biporcatus, *Cuv.* C. porosus, *Schneid* 72 k.

Crocodilus bombifrons, *Gray*, C. palustris, *Less.* 72 k.

Crocodilus galeatus, *Cuv.* C. Siamensis, *Schn.* 72 k.

Crocodilus longirostris, *Schneid.*, Gavialis gangeticus, *Gunth.* 72 k,

Crocodilus palustris, *Less.* 72 k.

Crocodilus pondicerianus, *Gunth.* 72 k.

Crocodilus porosus. *Schnd.* 72 k.

Crocodilus siamensis. *Schn.* 72 k.

Crocodilus trigonops, *Gray.* C. palustris, *Less.* 72 k.

Crocodilus vulgaris, *Dum.* C. palustris, *Less.* 72 k.

Cryptelytrops carinatus, *Cope.*, Trimeresurus carinatus, *Gray*, 72 hhh.

Cryptopus granosus, *D. & B.*, Emyda granosa, *Gunth* 72 h.

Cuora, *Sp.* 72 e.

Cuora amboinensis, *Gray*, Baning or Cuoro, 72 e.

Cuora flavomarginata. Black bellied box Tortoise, 72 e.

Cyclemys mouhotii, *Gray*, Pyxidea Mouhotii, 72 e.

Cylindrophis maculatus, *Wagl.* 72 dd.

Cylindrophis resplendens, *Wagl.* 72 cc.

Cylindrophis rufus, *Gray.* 72 cc.

Cyclophis monticola, 72 jj.

Cyclophis major, *Gunth*, 72 jj.

Cynophis bistrigatus, *Gray*, Cynophis helena, *Gunth.* 72 ll.

Cynophis helena, *Gunth.* 72 ll.

Cynophis malabaricus, *Gunth.* 72 ll.

Cyrtodactylus pulchellus, *Gray*, Gymnodactylus pulchellus, *Wagl.* 72 t.

Cystoclemys flavomarginata, *Gray*, Cuora flavomarginata, 72 e.

D

Daboia elegans, *G. Z. M.*, D. russellii, *Gunth.* 72 iii

Daboia pulchella, *Gray*, D. russellii, *Gunth.* 72 iii

Daboia russellii, *Gunth.* 72 iii.

Daboia russellii, *Gray*: D. russellii, *Gunth.* 72 iii.

Dactylethra bengalensis. *Less.* Rara hexadactyla, *Lesson.* 72 jjj.

Dapatnaya lankadivana, *Kel.* Rhinophis oxyrhynchus, *Hempr.* 72 dd.

Dapatnaya trevelyana. *Kelaart*, Rhinophis trevelyanus, *Gunth.* 72 dd.

Dasia olivacea, *Gr.* Euprepes olivaceus, *Gunth.* 72 o.

Dendrophis boii, *Cant.* Dendrophis picta. *Schleg.* 72 uu.

Dendrophis ornata, *Schl.* Chrysopelea paradisi, *Boie.* 72 uu.

Dendrophis paradisei, *Motley.* Chrysopelea paradisi, *Boie.* 72 uu.

Dendrophis picta, *Schleg.* 72 uu.

Dermatochelys coriacea. *Gunth.* 72 j.

Dilophyrus mentagor, *Gth.* Physignathus mentager. *Gunth* 72 y.

Diploderma polygonatum, *Hallowell*, Japalura polygonata, 72 v.

Diplopelma ornatum, *Var.* *Gunth.* 72 lll.

Diplopelma ornatum. *Var. B.* *Gunth.* D. pulchrum. *Gunth.* 72 lll.

Diplopelma pulchrum. *Gunth.* 72 lll.

Dipsas boops, *Gunth.* 72 vv.

Dipsas boa, *Schleg.* Amblycephalus boa (*Kuhl.*) 72 yy.

Dipsas bubalina, *Seba.* 72 vv.

Dipsas carinata, *Reinw.* Pareas carinata, *Wagl.* 72 yy.

Dipsas ceylonensis, 72 ww.

Dipsas cynodon, *Cantor.* Dipsas gokool, *Gray*, 72 ww.

Dipsas dendrophila, *Wagl.* 72 vv.

Dipsadomorphus ceylonensis, *Gunth.* Dipsas ceylonensis, 72 ww.

Dipsadomorphus trigonatus, *Fitz*; Dipsas trigonata, *Boie.* 72 ww.

Dipsas ferruginea, *Cantor*, Psammodynastes pulverulentus, *Gunth.* 72 tt.

Dipsas forsteni *Gunth.* 72 vv.

Dipsas fuscus, *Motley*, D. boops, *Gunth.* 72 vv.

Dipsas gokool, *Gray.* 72 ww.

Dipsas lævis, *Schleg.* Pareas lævis, *Dum.* 72 yy.

Dipsas monticola, *Cantor*, Pareas monticola, 72 yy.

Dipsas nigromarginata, *Bly.* D. bubalina, *Seba.* 72 vv.

Dipsas multifasciata, *Bth.* 72 ww.

Dipsas rubescens, *Gr.* Chrysopelea rubescens, *Gunth.* 72 uu.

Dipsas trigonata, *Boie.* 72 ww.

Disteira doliata, *Lacep.* 72 eee.

Disteira dumerilii, *Jan*; Disteira doliata, *Lacep.* 72 eee.

Disteira praescutata, *D. & B.* Hydrophis viperina, *Gunth.* 72 ggg.

Dogania guntheri, *Gr.* Trionyx guntheri, *Muller*, 72 h.

Dogania sub-plana, *Gray*, Trionyx subplanus, *Schweig.* 27 h.

Doliophis flaviceps, *Girard* Callophis bivirgatus, *Gth.* 72 ccc.

Draco daudinii, *Dum.* D. volans et præpos, *L.* 72 u.

Draco dussumieri, *Dum.* 72 u.

Draco bimaculatus. 72 u.

Draco maculatus, *Cantor*, 72 u.

Draco rostratus, ——Probably from Borneo, 27 u.

Draco viridis, *Schleg.*, D. volans et præpos. L. 72 u.

Draco viridis et fuscus, *Daud.*, D. volans et præpos L. 72 u.

Draco volans, *Cantor.*, D. volans et præpos, L. 72 u.

Draco volans et præpos, L. 72 u.

Dracunculus maculatus, *Gray.*, D. maculatus, *Cantor*, 72 u.

Dryinus nasutus, *Morr.* Passerita mycterizans, *Gri.* 72 vv.

Dryinus prasinus, *Cantor.* Tragops prasinus *Wagl.* 72 vv.

Dryiophis fronticinctus, *Gunth.* Tragops fronticinctus, *Gunth.* 72 vv.

Dryiophis nasutus, *Bell.* Tragops, *Wagl.* 72 vv.

Dryiophis nasuta, *Schleg.* Passerita mycterizans, *Gr.* 72 vv.

Dryiophis prasina, *Boie.* Tragops prasina *Wagl.* 72 vv.

Dryiophis tropidococcyx. *Gunth.* Trophidococcyx perotteti, *Gunth.* 72 uu.

E

Echis carinata, *Merr.* 72 iii.

Elaphis dione, *Dum.*, 72 kk.
Elaphis pareyssii, *Wagl.*, E. sauromates, *Dum.* 72 kk.
Elaphis tæniurus, *Cope.* 72 ll.
Elaphis virgatus, *Guntr.* E. tæniurus, *Cope. Ph.* 72 ll.

Elaps bivirgatus, *Boie. Schleg.* Callophis bivirgatus, *Gunth.* 72 ccc.
Elaps boæformis, *Schneid.* Cerberus rhynchops, *Russell.* 72 rr.
Elaps bungaroides. *Cant.*, Xenurelaps bungaroides, *Gunth* 72 ccc.
Elaps dorsalis, *Gray.*, Oligodon dorsalis, *Gunth.* 72 hh.
Elaps flaviceps, *Cantor.* Callophis bivirgatus, *Gunth.* 72 ccc.
Elaps furcatus, *Schneid.* Callophis intestinalis, *Gunth.* 72 ccc.
Elaps intestinalis, *Cantor.* Callophis intestinalis, *Gunth.* 72 ccc.
Elaps macclellandii, *Reinh.* Callophis macclellandii, *Gunth.* 72 ccc.
Elaps maculiceps, *Günth.* Callophis maculiceps, *Gunth.* 72 ddd.
Elaps melanurus, *Cantor.*, Callophis maculiceps, *Gunth.* 72 ddd.
Elaps nigro-maculatus, *Cantor.*, Callophis gracilis, *Gray*, 72 ccc.
Elaps personatus, *Blyth.*, Callophis macclellandii, *Gunth.* 72 ddd.
Elaps trimaculatus, *Merr.* Callophis trimaculatus, *Gunth.* 72 ddd.
Elaps univirgatus, *Gunth.*, Callophis macclellandii, *Gunth.*, 72 ddd.

Empagusia flavescens, *Gray*, Varanus flavescens, *Gunth.* 72 l.

Emyda, 72 h.
Emyda granosa. The Bungoma, 72 h.
Emyda punctata, *Gray.*, E. granosa, *Gunth.* 72 h.
Emyda punctata, *Kelaart.*, E. ceylonensis, *Gunth.* 72 h.

Emys, 72 e.
Emys baska, *Gray.*, Batagur baska, 72 g.
Emys batagur, *Gray.*, Batagur baska, 72 g.
Emys bealii. The Speckled Pond Tortoise, 72 f.
Emys belangeri, *Less.*, E. tryuga, *Schweigg* 72 f.
Emys bennettii, *Gray.*, E. sinensis, 72 f.
Emys berdmorei, *Blyth*, E. ocellata, *Dum.* 72 f.
Emys crassicollis. Thick-necked Pond Tortoise, 72 f.
Emys dhongoka, *Gray.*, Batagu dhongoka, *Gunth.* 72 g.
Emys duvancellii, *Dum.* Batagur dhongoka, *Gunth.* 72 g.
Emys flavo-nigra, *Less.*, E. thurgii, 72 f.
Emys hamiltonii, *Gray*, E. guttata, *Gray*, 72 f.
Emys hamiltonii. Yellow spotted Emys, 72 f.
Emys kachuga, *Gray*, Batagur lineatus, *Gunth.* 72 f.
Emys lineata, *Gray.*, Batagur lineatus, *Gunth.*, 72 g.
Emys macrocephala. Broad headed Terrapen, 72 f.
Emys mutica. The Chusan Terrapen, 72 f.
Emys muticus, *Cantor.*,
Emys nigricans, *Gray.*, E. mutica, 72 f.
Emys nigra, *Blyth.*, E. crassicollis, 72 f.
Emys nigricans, *Gray.* The Blackish Pond Tortoise, 72 f.
Emys ocellata. Ocellated Pond Tortoise, 72 f.
Emys, *Sp.* 72 f.
Emys picquotii, *Less.* E. guttata, *Gray*, 72 f.
Emys platynota, *Gray.*, Notochelys platynota, *Gray*, 72 e.
Emys reevesii. Reeves's Pond Tortoise, 72 f.
Emys sebæ, *Gray.*, E. trijuga, *Schweigg.* 72 f.
Emys siamensis, *Gray MS* Geoemyda grandis, *Gray*, 72 e.
Emys sinensis. The Chinese Pond Tortoise, 72 f.
Emys spinosa, *Gray*, Geoemyda spinosa, *Gray.* 72 e.
Emys tecta, *Gray.*, Pangshura tecta, 72 f.
Emys tectum (adult), *Gray*, Pangshura tentoria, *Gunth* 72 f.
Emys tentoria, *Gray*, Pangshura tentoria, 72 f.
Emys thermalis, *Reyn.* E. trijuga, *Schweigg.* 72 f.
Emys thurgii. The Thurgi, 72 f.
Emys trigibbosa, *Less.* Pangshura tecta, 72 f.
Emys trijuga. Ceylonese. Pond Tortoise, 72 f.
Emys trivittata, *Dum.*, Batagur affinis, *Gunth.* 72 g.
Emys guttata, *Gray*, 72 f.

Engystoma marmoratum, *Cuv.* Cacopus systoma, *Gunth.* 72 lll.
Engystoma ornatum, *Dum.* Diplopelma ornatum, *Gunth.* 72 lll.
Engystoma pulchrum, *Hal.* Diplopelma pulchrum, *Gunth.* 72 lll.

Enhydrina bengalensis, *Gray*, 72 ggg.

Enhydris nigrocinctus, *Merr.* Hydrophis nigrocincta, *Russell*, 72 fff.

Enicognathus, *Gray Jan.* Ablabes sagittarius, *Gunth* 72 jj.

Epicrium glutinosum, *D. & B.* 72 nnn.
Epicrium hasseltii, (*Fitz.*) *Wagl.* E. glutinosum, *D. & B.* 72 nnn.
Epicrium monochroum *Gth* 72 nnn.
Epicrium monochrous, *Bloch.* E. monochroum, *Gunth.* 72 nnn.

Eretmochelys squamata, *Agass.* Caretta squamata, *Gunth.* 72 i.
Erpeton tentaculatus, *Latr.* Herpeton tentaculatum, *Gunth.* 72 ss.
Erpeton tentacule, *Lacep.* Herpeton tentaculatum, *Gunth.* 72 ss.

Eryx braminus, *Daud.* Typhlops braminus, *Gunth* 72 cc.
Eryx conicus, *Dum.* Gongylophis conicus, *Wagl.* 72 zz.
Eryx johnii, *Dum.* 72 zz.
Eryx maculatus, *Hallowell.* Eryx Johnii, *Dum.* 72 zz.

Eudipsas cynodon, *Gunth.* 72 vv.

Eumeces Wiegmann, 72 o.
Eu. albopunctatus, 72 p.
Eumeces bilineatus. The black-striped Skink, 72 o.
Eumeces chalcides, 72 p.
Eumeces hardwickii. White-streaked Skink, 72 p
Eumeces indicus, 72 p.
Eumeces isodactylus. The short-toed Skink, 72 p.
Eumeces punctatus, *Var.*, Eumeces albopunctatus, *Gunth.* 72 p.
Eumeces punctatus, *Wiegm* E. punctatus, *Gunth.* 72 p.
Eumeces quadrivirgatus, *Hallow.*, Mabouia quadrilineata, *Gunth.* 72 o.
Eumeces reevesii, 72 p.
Eumeces schlegelii, 72 o.
Eumeces taprobanensis, *Kel.* 72 p.
Eumesodon striatus, *Cope*, Lycodon rufozonatus, *Cantor*, 72 ww.
Euprepes, *Wagler*, 72 n.
Euprepes chinensis, 72 n.
Euprepes ernestii, *Dum.* E. olivaceus, *Gunth.* 72 n.
Euprepes macularius, *Blyth*, 72 o.
Euprepes olivaceus, 72 o.
Euprepes rufescens, *Cant.* Euprepes rufescens, *Gunth.* 72 n.
Euprepes rufescens. Common Indian Skink, 72 n.
Euprepes trilineata, *Gray*, 72 o.
Evesia bellii, *Dum.*, Nessia monodactyla, *Gunth.* 72 q.
Evesia monodactyla, Gray, Nessia monodactyla, *Gunth.* 72 q.

F

Ferania sieboldii, p. 72 m.
Fordonia unicolor, *Gray*, 72 qq.

G

Gavialis gangeticus. The garial or Nakoo.
Gecko guttatus, 72 r.
Gecko homalocephalus, *Tiles.*, Ptychozoon homalocephalum, *Gunth.* 72 r.
Gecko chinensis, *Gray*, G. Japonicus, *Gunth.* 72 r.
Gecko japonicus, 72 r.
Gecko monarchus, *Gray*, 72 r.
Gecko reevesii, *Gray*, Gecko guttatus, *Gunth.* 72 r.
Gecko smithii, *Gray*, 72 r.
Gecko stentor, 72 r.
Gecko triedrus, *Daud*, Hemidactylus triedrus, *Gunth.* 72 s.
Geoclemys macrocephala, *Gray*, Emys macrocephala, 72 f.
Geoclemys reevesii, *Gray*, Emys reevesii, 72 f.
Geoemyda, *Sp.* 72 e.
Geoemyda spinosa, *Gray.* The spinous Tortoise, 72 e.

Geophis microcephalus, 72 gg.

Gymnopus cartilaginea, (*Boddaert*) *Can.*, Trionyx Javanicus, *Schweigg.* 72 h.
Gymnopus duvaucelii, *Dum.*, Trionyx gangeticus, *Cuv.* 72 h.
Gymnopus indicus, *Can.*, Chitra indica, *Gray*, 72 k.
Gymnopus javanicus, *Dum.* Trionyx javanicus, *Schweigg.* 72 h.
Gymnopus lineatus, *Dum.* Chitra indica, Gray, 72 h.

Gymnopus ocellatus, *Dum* Trionyx gangeticus, *Cuv.* 72 h.
Gymnopus subplanus, *Dum* Trionyx subplanus, *Schweigg.* 72 h.
Gonyosoma oxycephalum, *D. & B.* 72 tt.
Gonyosoma viride, *Wagl.* Gonyosoma oxycephalum, *D. & B.* p. 72 tt.
Gongylophis conicus, *Wagl* 72 zz.

H

Hagria vosmærrii, *Gray,* 72 q.
Halys blomhoffii, *Gunth.* 72 iii.
Halys elliotti, *Gunth.* 72 iii.
Halys himalayanus, *Gunth.* 72 iii.
Hamodryas elaps, *Gunth.* Ophiophagus elaps, *Gunth.* 72 bbb.
Hamodryas (hannah) ophiophagus, *Cantor,* Ophiophagus elaps, *Gunth.* 72 bbb
Haplocercus Ceylonensis, *Gunth.,* 72 gg.
Hemidactylus leschenaultii *Jerd. D. & B.* 72 s.
Hemidactylus maculatus, *Dum.* 72.
Hemidactylus marginatus *Wiegm.* Nycteridium schneideri, *Gunth.* 72 t.
Hemidactylus nanus, *Cantor*; Gecko japonicus, *Gunth.* 72 r.
Hemidactylus peronii, *D. & B.* Peripia cantoris, *Gunth.* 72 t.
Hemidactylus peronii, *Dum* Peripia peronii, *Gunth.* 72 s.
? Hemidactylus pieresii, *Kelaart*; H. maculatus, *Dum.* 72 s.
Hemidactylus platyurus, *Wiegm.* Mycteridium schneideri, *Gunth.* 72 t.
Hemidactylus triedrus, 72 s.
Hemidactylus triedrus, *Less.* H. triedrus, *Gunth.* 72 s.
Herpetodryas chloris, *Hallow,* Cyclophis major, *Gunth.* 72 jj.
Herpetodryas helena, *Sch.,* Cynophis helena, *Gunth.* 72 ll.
Herpetodryas malabaricus, *Jerdon,* Cynophis malabaricus, *Gunth.* 72 ll.
Herpetodryas oxycephalus, *Schleg.* Gonyosoma oxycephalum, *D. & B.* 72 tt.
Herpetodryas prionotus, *Cantor,* Ablabes melanocephalus, *Gunth.* 72 jj.
Herpeton tentaculatum, *Gunth.* 72 ss.
Hinulia indica, *Gr.* Eumeces indicus, *Gunth.* 72 p.
Hinulia reefesii, *Gray.* Eumeces reevesii, *Gunth* 72 p.
Hipistes fasciatus, *Gray,* Hipistes hydrinus, *Gunth.* 72 ss.
Hipistes hydrinus, 72 ss.
Homalopsis aer, *Schleg.,* Hypsirhina enhydris, *D. & B.* 72 rr.
Homalopsis buccatus, *Kuhl* 72 ss.
Homalopsis enhydris, *Cantor,* Hypsirhina enhydris, *D. & B.* 72 rr.
Homalopsis hardwickii, *Gray.,* Coluber buccata, *Kuhl.* p. 72 ss.
Homalopsis herpeton, *Schleg.* p. 72 tt.
Homalopsis hydrinus, *Cantor.,* Hipistes hydrinus, *Gunth.* 72 ss.
Homalopsis leucobalia, *Schleg.* Fordonia unicolor, *Gray,* 72 qq.
Homalopsis olivaceus. *Cant.* Hypsirhina enhydris, *D. & B.* 72 rr.
Homalopsis plumbea, *Boie.* Hypsirhina plumbea, *Wagh.* 72 rr.
Homalopsis rhynchops, *Cantor.* Cerberus cinereus, *Gray,* 72 rr.
Homalopsis schneideri, *Sch.* Cerberus cinereus, *Gray* 72 rr.
Homalopsis sieboldii, *Schleg.,* Ferania sieboldii, *Gunth.,* p. 72 ss.
Homalopsis osmizonata *Bly.* H. buccata, *Khul.,* 72 ss
Homonota fasciata, *Jerdon,* Eumeces isodactylus, *Gunth.* 72 p.
Homopus burnesii, *Blyth,* Testudo Horsfieldii, *Gray,* 72 e.
Horatta Pam, *Russell,* Echis carinata, *Merr.* 72 iii.
Hurria carinata, *Kuhl.* Cer-
Hurria schneideriana, *Daud.,* Cerberus rhynchops, *Russell,* 72 rr.
Hydrophis annulatus, *Gray* Hy, stokesii, *Gray,* 72 eee.
Hydrophis anomala, *Fischer,* 72 ggg.
Hydrophis aspera, *Gray,* 72 eee.
Hydrophis belcheri, *Gunth.* 72 eee.
Hydrophis bengalensis, *Gray.* Enhydrina bengalensis, *Gray,* 72 ggg.
Hydrophis cærulescens, *Gr.* 72 eee.
Hydrophis cantoris, 72 fff.
Hydrophis chloris, *Daud.* 72 fff.
Hydrophis colubrinus, *Schleg.* Platurus scutatus, *Gunth.* 72 ddd.
Hydrophis coronata, *Gunth.* 72 fff.
Hydrophis curta, *Gunth.* 72 ggg.
Hydrophis cyanocincta. The Chittul, 72 eee.
Hydrophis cyanocinctus, *Daud.* Hy. cyanocincta, *Gunth.* 72 eee.
Hydrophis doliata, *Gray.* Hy. elegans, *Gunth.,* 72 fff.
Hydrophis doliata, *Fish.,* Hy. viperina, *Gunth.* 72 ggg.
Hydrophis elegans, *Gunth.,* 72 fff.
Hydrophis ellioti, *Gunth.,* 72 fff.
Hydrophis fasciata, *Gray.,* Hy. coronata, *Gunth.* 72 fff.
Hydrophis fasciata, *Russell,* 72 fff.
Hydrus gracilis, *Cantor,* Hydrophis cantoris, *Gunth* 72 fff.
Hydrophis gracilis, *Cantor.,* Hy. chloris, *Daud.* 72 fff.
Hydrophis gracilis, *Russell,* 72 fff.
Hydrophis gracilis, *Schl.* Hydrophis lindsayi, *Gray,* 72 fff.
Hydrus gracilis. *Shaw.,* Hydrophis gracilis, *Russell* 72 fff.
Hydrophis hardwickii, *Gunth,* 72 ggg.
Hydrophis hardwickii, *Gray.,* Hy. coronata, *Gunth,* 72 fff.
Hydrophis Jerdonii, 72 eee.
Hydrophis lævis, *Lutken.,* Hy. ornata, *Gunth.* 72 fff.
Hydrophis lapemoides, *Gunth.* 72 fff.
Hydrophis lindsayi, *Gr.* 72 fff.
Hydrophis longiceps, *Gunth* 72 fff.
Hydrophis loreata, *Gunth.* 72 ggg.
Hydrophis major, *Gunth.,* 72 eee.
Hydrophis melanurus, *Wagl.,* Hy. spiralis, *Gray,* 72 eee.
Hydrophis mentalis, *Gray,* Hy. major, *Gunth.* 72 eee.
Hydrophis microcephala, *Fischer.* Hy. gracilis, *Russell,* 72 fff.
Hydrophis nigrocincta, *Russell,* 72 fff.
Hydrophis nigrocincta, *Sch.* Hy. torquata, *Gunth.* 72 fff.
Hydrus nigrocinctus, *Cantor,* Hydrophis torquata, *Gunth.* 72 fff.
Hydrophis nigrocinctus, *Daud.* Hy. nigrocincta, *Russell,* 72 fff.
Hydrophis nigrocincta, *Sch*; Hy. robusta *Gunth.,* 72 eee.
Hydrophis obscurus, *Daud.* Hy. gracilis *Russell.* 72 fff.
Hydrophis obscura, *Gray.* Hydrophis chloris, *Daud.* 72 fff.
Hydrophis ornata, *Gunth.* 72 fff.
Hydrophis pelamidoides, *Var.* annulata, *Fisch.* Hy. lorcata, *Gunth,* 72 ggg.
Hydrophis pelamidoides, *Schl.,* Hy. hardwickii, *Gunth* 72 ggg.
Hydrophis pelamis, *Schleg*; Pelamis bicolor, *Russell,* 72 ggg.
Hydrophis propinquus, *Jan*: Hy. curta, *Gth.* 72 ggg.
Hydrophis robusta, *Gunth.* 72 eee.
Hydrophis schistosa, *Schleg.* Enhydrina bengalensis, *Gray,* 72 ggg.
Hydrophis schizopholis, *Schmidt.* Hy. Stokesii, *Gray.* 72 eee.
Hydrophis schlegelii, *Fischer.* Hy. Ornata, *Gunth.* 72 fff.
Hydrophis spiralis, *Gray.* 72 eee.
Hydrophis Stokesii, *Gray.* 72 eee.
Hydrophis striata, *Schleg,* Hy. cyanocincta, *Gunth.* 72 fff.
Hydrophis subannulata, *Gray.,* Hy., cyanocincta, *Gunth.* 72 fff.
Hydrophis subcincta, *Gunth.* 72 fff.
Hydrophis subcinctus, *Gray.,* Hydrophis subcincta, *Gunth.* 72 fff.
Hydrophis sublævis, *Gra.* Hy. cyanocincta, *Gunth.* 72 fff.
Hydrophis torquata. 72 fff.
Hydrophis variegata, *Schlg.* Pelamis bicolor, *Russell.* 72 ggg.
Hydrophis viperina, *Gunth.* 72 ggg.
Hydrophobus semifasciatus, *Gunth.* Odontomus semifasciatus, *Gunth.* 72 kk.
Hydrosaurus salvator, *Gray* 72 l.
Hydrosaurus salvator, *Gray.* Ocellated Water Lizard. 72 l.

Hydrus bicolor. *Schneid.*, Pelamis bicolor, *Russell*, 72 ggg.
Hydrus cærulescens, *Shaw.* Hydrophis cærulescens, *Gr.* 72 eee.
Hydrus colubrinus, *Schneid* Platurus scutatus, *Gunth.* 72 ddd.
Hydrus curtus, *Shaw.* Hydrophis curta, G*th.* 72 ggg.
Hydrus enhydris, *Schneid.* Hypsirhina enhydris, *D. and B.* 72 rr.
Hydrus fasciatus, *Schneid.* Hydrophis fasciata, *Russull.* 72 fff.
Hydrus granulatus, *Schneid.* Cherydrus granulatus, *Gray.* 72 aaa.
Hydrus hybrida, *Schley.* Hydrophis cœrulesceus, *Gr.* 72 eee.
Hydrus major, *Shaw.* Hydrophis major.
Hydrus major, *Shaw.*; Hydrophis Stokesii. *Gray.* 72 eee.
Hydrus nigrocinctus var, *Cant.* Hydrophis Jerdonii, G*unth* 72 eee.
Hydrus piscator, *Schneid.* 72 uu.
Hydrus rhynchops, *Schneid.* Cerberus rhynchops, *Russell.* 72 rr.
Hydrus schistosus, *Cantor.* Enhydrina bengalensis, *Gray.* 72 ggg.
Hydrus spiralis. *Shaw.* Hydrophis spiralis, G*ray.* 72 eee.
Hydrus striatus, *Cantor.* Hydrophis cyanocincta. G*unth,* 72 fff.
Hydrus valakadyenn, *Boie.* Enhydrina bengalensis, G*ray.* 72 ggg.
Hyla arborea, var. G*unth.* H. chinensis, *Gunth.* 72 mmm.
Hylædactylus bivittattus, *Cant.* Callula pulchra, G*unth.* 72 mmm.
Hyla chinensis, G*unth.* 72 mmm.
Hyla erythræa, *Schleg.*, Hylorana erythræa, G*unth.* 72 lll.
Hyla leucomystax, *Gray,* Polypedates maculatus. *Gunth.* 72 mmm.
Hyla maculata, *Gray.*, Polypedates maculatus, G*unth*, 72 mmm.
Hyla quadrilineata, *Wiegm,* P. quadrilineatus, *Gunth.* 72 mmm.
Hylorana erythræa, *Tschudi.* Hylorana erythra, G*unth.* 72 lll.
Hylorana erythrœa, G*unth* 72 lll.
Hylorana macrodactyla, G*unth.* 72 lll.
Hylorana macularia, G*unth.* 72 lll.
Hylorana malabarica, G*unth.* 72 lll.
Hylorana malabarica, *Kelaart*, Hylorana temporalis, G*unth.* 72 lll.
Hylorana temporalis, G*unth* 72.
Hypnale nepa, G*unth.* 72iii.
Hypotrophis jukesii, G*ray.* Aipysurus lævis, *Lacep.* 72 eee.
Hypsirhina aer, *Wagler.*, H. enhydris *D. & B.* 72 rr.
Hypsirhina bennettii., G*ray.* 72 rr.
Hypsirhina enhydris D, *and B.* 72 rr.
Hypsirhina hardwickii. G*ray.* H plumbea, *Wagl.* 72 rr.
Hypsirhina maculata, *Dum. Bibr* H. bennettii, *Gray.* 72 rr.
Hypsirhina plumbea, *Wagh.* 72 rr.
Hypsirhina trilineata. G*ray* H. enhydris, D.&*C.* 72 rr.

I

Ichthypophis glutinosus *Can.* Eicrium mouochroum G*unth.* 72 mmm.
Istiurus Physiguathus, *Dum* Physignathus cochin-chinensis *Cuv.* 72 y.

J

Japalura polygonata 72 v. Japalura variegata G*ray* 72 v.
Jara-potoo, R*ussell* Leptorhytaon jara G*unth* 72 xx.

K

Kalonla pulchra, *Gray.*, Callula pulchra. G*unth.* 72 mmm.
Kerilia Jerdonii, G*ray.* Hydrophis jerdonii G*unth,* 72 eee.

L

Lacerta annulatus, *Kuhl.* Gecko guttatus, G*unth.* 72 r,
Lacerta calotes, *L.*, Calotes ophiomachus, G*unth.* 72 x.
Lacerta caudivolvula, *Pall.* Phrynocephalus caudivolvulus *Wagler.* 72 aa.
Lacerta chamæleo, *L.*, Chamæleo vulgaris, *Gunth.* 72 aa.
Lacerta dracæna *L.*, Varanus dracæna G*unth.* 72 l.
Lacerta dracæna Shaw. Varanus dracæna. G*unth.* 72 l.
Lacerta gangetica, G*m.* Gavialis gangeticus, G*unth* 72 k.
Lacerta gecko, *La.*, Gecko guttatus, G*unth.* 72 r.
Lacerta guttatus, D*aud.*, Gecko guttatus, G*unth.* 72r.
Lacerta homalocephala, *Creveldt.* Ptychozoon homalocephalum, *Gunth.* 72 r.
Lacerta interpunctata, G*m.*, Eumeces punctatus, G*unth.* 72 p.
Lacerta leschenaultii *Milne Edw.* Cabrita leschenaultii G*unth.* 72 m.
Lacerta punctata, *L.*, Eumeces punctatus, G*unth.* 72 p.
Lacerta rufescens, *Shaw,* Euprepes rufescens G*unth.* 72 m.
Lacerta chalcides *K.* Eumeces chalcides G*unth.* 72 p.
Lacerta schneideriana, *Shaw,* Nycteridium schneideri, G*unth.* 72 t.
Lacerta serpens, *Bloch.*, Eumeces chalcides G*unth.* 72 p.
Lacerta scutata, *L.*, Lyriocephaalus scutatus *Wagl* 72 v.
Lacerta teres, G., Gecko guttatus G*unth.* 72 r.
Lacerta verus, *Merr.*, Gecko guttatus, G*unth.* 72 r.
Lacerta vulgaris, D*aud.* Chamæleo vulgaris, G*unth* 72 aaa.
La Chagrinee, *Lacep.* Emyda granosa, G*unth.* 72 h.
Lapemis curtus, G*ray.*, Hydrophis curta, G*unth.* 72 ggg.
Lapemis hardwickii, G*ray,* Hydrophis loreata, G*unth.* 72 ggg.
Lapemis hardwickii, G*r.*, Hydrophis hardwickii, G*unth.* 72 ggg.
Laticaudata scutata, *Laur.*, Platurus scutatus, *Gunth.* 72 ddd.
Laudakia tuberculata, *Gray* Stellio tuberculatus, *Gunth* 72 z.
Leiolepis bellii, G*ray.* Liolepis guttatus, *Cuv.* 72 y.
Leiolepis reevesii, G*ray,* Liolepis guttatus, *Cuv.* 72 y.
Leioselaine striee, *Lacep.*, Hydrophis cyanocincta, G*unth.* 72 eee.
Leposoma cochin-chinensis, G*unth.* Tropidophorus Cochin-Chinensis, *Cuv.*, 72 n.
Leptophis ? bellii ?? *Jerdon* Psammophis condanarus., *Blyth.* 72 tt.
Leptæphis Canariensis., *Jerd.* Tropidococcyx perotteti, *Gunth.* 72 uu.
Leptophis maniar, *Bell.* Dendrophis picta, *Schleg* 72 uu.
Leptophis ornatus, *Cantor.* Chrysopelea paradisi, *Boie* 72 uu.
Leptophis pictus, *Cantor.* Dendrophis picta, *Schleg.* 72 uu.
Leptophis rubescens, *Blyth.* Chrysopelea rubescens, *Gunth.* 72 uu.
Leptophis trifrœnatus, *Hallowell.*, Ptyas mucosus, *Cope,* 72 ll.
Leptorhytaon Jara., G*unth.* 72 xx.
Limnodytes erythræus, D. & *B.* Hylorana macrodactyla, *Gunth.* 72 lll.
Limnodytes macularius, *Blyth.* Hylorana macularia, G*unth.* 72 lll.
Liolepis guttatus, *Cuv.* 72 t.
Liopola fasciata, *Gray.* Hydrophis Cantoris, G*unth.* 72 fff.
Liphrus armatus, D*um.* Acanthosaura armata,
Lissonota maculata, *Bl.* Mobouia maculata, *Gunth.* 72 o.
Lophura cuvieri, *Gray.*, Physignathus cochin-chinensis, *Cuv.* 72 y.
Lophura concinna, *Gray.*, Physignathus cochin-chinensis, *Cuv.* 72 y.
Lycodon atropurpureus, *Cant.* Tetragonosoma atropurpureum, *Gunth.* 72 xx.
Lycodon aulicus, *Boie.* 72 ww.
Lycodon carinatus, *Schleg.* Cercaspis carinata, G*unth.* 72 xx.
Lycodon effrænis, *Cantor,* Tetragonosoma effrene, G*unth.* 72 m.
Lycodon gara, *Schleg.* Leptorhytaon Jara G*unth.* 72 xx.
Lycodon melanocephalus, G*ray.* Ablabes melanocephalus, *Gunth.* 72 jj.
Lycodon nympha, B*oie.*, Odontomus nympha, D. &B. 72 kk.
Lycodon ophiteoides, *Bleek.* Tetragonosoma effrene, *Gunth.* 72 uu.

Lycodon platurinus, *Cantor.* Ophites subcinctus, *Wagl.* 72 xx.
Lycodon rufozonatus, *Cantor.* 72 uu.
Lycodon striatus, *Russell.* 72 uu.
Lycodon subcinctus, *Boie.* Ophites subcinctus, *Wagl.* 72 xx.
Lygosoma aurata., *Gray.* Eumeces chalcides, *Gunth.* 72 p.
Lygosoma brachypoda, *Dum.* Eumeces chalcides., *Gunth.*, 72 p.
Lygosoma chalcides, *Can.* Eumeces chalcides. *Gunth.* 72 p.
Lygosoma dussumierii, D. & B. Eumeces Indicus, 72 p.
Lygosoma fallax, *Peters.*, Eumeces taprobanensis, *Kelaart.* 72 p.
Lygosoma serpens, *Gray.*, Eumeces chalcides, *Gunth.* 72 p.
Lyriocephalus macgregorii, *Gray.* L. scutatus, *Wagl.* 72 v.
Lyriocephalus margaritaceus, *Morr.*, L. scutatus, *Wagl* 72 v.
Lyriocephalus scutatus, *Wagl.* 72 v.
Lyriocephalus scutatus, 72 *Wagl.* v. *M. & N.*

M

Mabouia chinensis. The Chinese Skink 72 o.
Mabouia elegans, *Gray.* Eumeces hardwickii., *Gunth.* 72 p.
Mabouia Fitzinger 72 o.
Mabouia maculata 72 o.
Mabouia quadrilineata 72 o
Manouria sp. 72 e.
Manouria emys. The Brown. Tortoise, 72 e.
Manouria fusca, *Gray.*, M. emys. 72 e.
Maticora lineata, *Gray.*, Callophis intestinalis, *Gunth.* 72 ccc.
Mandia, *Gray.* Plectrurus, *Dum. & Biber.* 72 ff.
Mecolepsis hirsutus, *Dumeril.* Salea horsfi ldii, *Gray.* 72 x.
Mecolepsis sulcatus, *Dumeril.* Salea horsfieldii, *Gray.* 72 x.
Mecolepsis trispinosus, *Dumeril.* Salea horsfieldii, *Gray.* 72 x.
Megaera olivacea, *Gray.* Trimeresurus trigonocephalus, *Gunth.* 72 hhh.
Megaera trigonocephala, *Wagl.* Trimeresurus trigonocephalus, *Gth.* 72hhh.
Megærophis flavices 72 cc./
Megalophrys montana, *Cant.* M. montana *Wagl.* 72 kkk.
Megalophrys montana, (*Kuhl*), *Wagl.*
Megærophis formosus, *Gray.* M. flaviceps *Gunth.* 72 ccc.
Melanophidum Wynaudense. 72 ff.
Microcephalophis gracilis, *Gray.* Hydrophis gracilis *Russell.* 72 fff.
Microcephalophis gracilis, *Less.* Hydrophis gracilis *Russell.* 72 fff.
Mitylia gerrardi, *Gray.* Rhinophis trevelyanus, *Gunth.* 72 dd.
Mocoa bilineata, *Gray.* Eumeces bilineatus, *Gunth.* 72 o.
?? Mocoa sikimensis, B. L. Eumeces indicus. 72 p.
Monitor bengalensis, *Gray*, M. heraldicus *Gray.* 72 l.
Monitor bivittatus, *Schleg.* Hydrosaurus salvator, *Gray.* 72 l.
Monitor dracæna, *Gray.* M. heraldicus *Gray.* 72 l.
Monitor elegans, *Gray.* Hydrosaurus salvator, *Gray.* 72 l.
Monitor flavescens, *Gray.* Varanus flavescens, *Gunth.* 72 l.
Monitor nebulosus, *Gray*, Varanus nebulosus, *Gunth* 72 l.
Mutta Pam, Ally Pam, *Russ.* Hypsirhina enhydris *D. & B* 72 rr.
Mytilia melanogaster, *Gray* Rhinophis blythii, Kelaart. 72 ee.
Mytilia templetonii, *Gray.* Rhinophis blythii, Kelaart 72 ee.
Mytilia unimaculata, *Gray.* Rhinophis oxyrhynchus *Hempr.* 72 dd.

N

Naja atra *Cant.* N. tripudians *Merr.* 72 aaa.
Naja bungarus, *Schleg.* Ophiophagus elaps, *Gunth.* 72 bbb.
Naja elaps, *Schleg* Ophiophagus elaps, *Gunth.* 72 bbb.
Naja caouthia, *Less*, N. tripudians, *Merr.* 72 aaa.
Naja larvata, *Cantor.* N. tripudians, *Merr.* 72 aaa.
Naja lutescens, *Laur*, N. tripudians, *Merr.* 72 aaa
Naja tripudians, *Merr.* 72 aaa.
Naja vittata, *Elliott.* Ophiophagus elaps, *Gunth.* 72 bbb.
Nessia monodactyla 72 q.
Notochelys sp 72 e,
Notochelys platynota. *Gray* 72 e.
Nubilia argentii, *Gray.* Hemidactylus maculatus, *Dum.* 72 s.
Nycteridium schneideri, 72 t.

O

Odontomus nympha D. & B. 72 kk.
Odontomus semifasciatus 72 kk.
Oligodon brevicauda, *Gunth* 72 hh.
Oligodon dorsalis, *Gunth.* 72 hh
Oligodon sub-griseum, *Dum.* Olig sub-griseus, *Gunth.* 72 hh.
Oligodon sub-griseus. 72 hh.
Onychocephalus acutus, *Dum.* 72 cc.
Onychocephalus westermanni, *Lutken.* O. acutus *Dum.* 72 cc.
Oopholis pondicherianus, *Gray.* Crocodilus pondicerianus, *Gunth.* 72 k.
Ophidii viperiformes Viperine snakes. 72 ggg.
Ophiophagus elaps 72 bbb.
Ophiops., *Menetries.* 72 p.
Ophiseps, *Blyth.* Pseudopus, *Gunth.* 72 u.
Ophiseps tessellatus, *Blyth.* Dopasia gracilis, *Gray.* 72 o.
Ophites albofuscus, *Gunth.* 72 xx.
Ophites subcinctus, *Wagl.* 72 xx.
Oriotiaris elliotti, *Gunth.* 72 y.
Oxycalamus longiceps, 72 gg.

P

Pangshura smithii *Gunth.* 72 g.
Pangshura tecta. The Pangshure. 72 f.
Pangshura tentoria. The Dura. 72 f.
Parias carinata *Wagl.*
Parias lævis *Dum.* 72 yy.
Parias maculata. *Gray.* Trimeresurus monticola, 72 hhh.
Parias monticola. 72 yy.
Parias wandersii, *Bleek.* Oudipsas cynodon *Gunth.* 72 vv
Passerita mycterizans *Gr.* 72 vv.
Passerita mycterizans, *Gunth.* P. purpurascens, *Gunth.* 72 vv.
Passerita purpurascens P. 72 vv.
Peddapoda *Russell.* Python molurus *Gray* 72 zz.
Pelamis bicolor, *Russell.* 72 ggg.
Pelamis ornata, *Gray.* P. bicolor *Russell.* 72 ggg.
Pelamis shavii *Merr.* Hydrophis major, *Gunth.* 72 eee.
Peltopelor macrolepis *Gunth.* 72.
Peripia cantoris 72 t.
Peripia peronii 72 s.
Phryn tichelii, *Gunth.* 72 z.
Phryn tichellii, *Gunth.* Phrynocephalus caudivolvulus *Wagler.* 72 z.
Physignathus Cochin-Chinensis, *Cuv.* 72 y.
Physignathus mentager. 27y
Pilidion lineatum, *Dum.* Typhlina lineata, *Gunth.*
Platurus faciatus, *Latr.* Platurus scutatus *Gunth.* 72 ddd.
Platurus scutatus 72 ddd.
Platydactylus homalocephalus *Dum.* Pychozoon homalocephalum, *Gunth.* 72 r.
Platydactylus guttatus D. *and B.* Gecko guttatus *Gunth.* 72 r.
Platydactylus jamori, *Schleg* Gecko Japonicus, *Gth.* 72r.
Platydactylus Japonicus *Dum.* Gecko japonicus, *Gunth.* 72 r.
Platydactylus lugubris, *Cantor.* Peripia cantoris. *Gunth.* 72 t.
Platydactylus monarchus, *Dum.* Gecko monarchus *Gray.* 72 r.
Platydactylus stentor, *Can.* Gecko stentor *Gunth.* 72 r.
Platysternum megacephalum, *Muller.* 72 g.
Platysternon megacephalum, *Gray.* Platysternum megacephalum, *Muller.* 72g.
Platyurus schneiderianus, *Gray.* Nycteridium P. schneideri *Gunth.* 72 t.
Plectrurus *Dum. & Bibr.* 72 ff
Plectrurus ceylonicus *Peters.* Rhinophis blythii *Kelaart* 72 ee.
Plectrurus pulneyensis, *Beddome.* Rhinophis pulneyensis *Gunth.* 72 ee.
Plectrurus Wynaudensis, *Beddomme.* Melanophidium wynaudense.
Plestiodon chinensis, *Gray.* Mabouia chinensis *Gunth.* 72 o.
Plestiodon quadrilineatum. *Bl.* Mabouia quadrilineata. *Gunth.* 72 o.
Plestiodon sinense, D. & B. Mabouia chinensis, *Gunth.* 72 o.
Plestiodon sikkimensis, *Gray.* Euprepes rufescens *Gunth.* 72 n.
Podophis chalcides, *Gray.* Eumeces chalcides 72 p.
Polyodontes annulatus, *Less.* Hydrophis torquata *Gunth.* 72 fff.

Polypedates cruciger, *Blyth.* P. maculatus *Gunth.* 72 mmm.
Polypedates leucomystax, *Dum.* P. maculatus, *Gunth.* 72 mmm.
Polypedates maculatus. Common Indian Tree-frog. *Gunth.* 72 mmm.
Polypedates quadrilineatus *Dum.* 72 mmm.
Polypedates rugosus, part, *Dum.* P. maculatus *Gunth* 72 mmm.
Polypedates rugosus, part, *D.* & B. P. quadrilineatus, *Gunth.* 72 mmm.
Pond tortoises. 72 c.
Psammodynastes pulverulentus, *Gunth.* 72 tt.
Psammophis cerasogaster, *Cantor.* Xenochrophis cerasogaster, *Gunth.* 72 pp.
Psammophis collaris, *Gray.* Ablabes collaris, *Gunth.* 72 jj.
Psammophis condanarus, *Blyth.* P. 72 tt.
Psammophis indicus, *Beddome.* P. condanarus. *Blyth* 72 tt.
Psammophis nigrofasciatus, *Cantor.* Coluber porphyraceus, *Cantor.* 72 kk.
Psammophis perotteti. D. *&.* B. Tropidococcyx perotteti *Gunth.* 72 u.
Psammophis pulverulenta, *Boie.* Psammodynastes pulverulentus, *Gunth.* 72 tt.
Psammophis tæniata, *Gunth*- P. condanarus, *Blyth.* 72 tt.
Pseudoboa cærulea, *Schneid.* Bungarus cæruleus, *Daud.* 72 bbb.
Pseudoboa carinata, *Schn.* Echis carinata, *Merr.* 72 iii
Pseudoboa fasciata, *Schneid* Bungarus fasciatus, *Cantor.* 72 bbb.
Pseudopus 72 n.
Pseudopus et Hyalinus, *Merrem.* Pseudopus, *Gunth.* 72 n.
Pseudopus gracilis. 72 n.
Pseudopus gracilis. Khasya glass-snake. 72 u.
Pseudopus ophisaurus, *Daudan.* Pseudopus, *Gunth.* 72 u.
Pseudotyphlops oxyrhynchus. *Schleg.* Rhinophis punctatus, *Muller.* 72. dd
Pteropleura horsfieldii, *Gray.* Ptychozoon homalocephalum, *Gunth.* 72 r.
Ptyas korros, *Cope.* 72 mm
Ptyas mucosus, *Cope.* 72 ll.
Ptychozoon homalocephalum, *Kühl.* P. homalocephalum, *Gunth.* 72 r.
Ptychozoon homalocephalum. The Flying Gecko. 72 r
Python bivittatus, *Schl.* P. molurus, *Gray.* 72 zz.
Python molurus, *Gray.* 72 zz
Python reticulatus, *Gray.* 72 yy.
Python schneiderii, *Merr.*
Python reticulatus, *Gray.* 72 yy.
Pythonia (!) semizonata, *Bl.* Homalopsis buccata *Kuhl.* 72 aa.
Python tigris, *Daud.* Python molurus, *Gray.* 72 zz
Pyxicephalus, *Sp. Tschudi.* 72 kkk.
Pyxicephalus breviceps, *Gunth.* 72 kkk.
Pyxicephalus fodiens, *Jerd.* P. breviceps, *Gunth.* 72 kkk.
Pyxicephalus pluvialis, *Jerd.* P. breviceps, *Gunth.* 72 kkk.
Pyxidea Mouhotii, *Gray* *M. S.* 72 l.

R

Rana bengalensis. *Gr.*, R. cyanophlyctis, *Schneid.* 72 jjj.
Rana brama, *Less.* R. tigrina, *Daud.* 72 jjj.
Rana breviceps, *Schneid.* Pyxicephalus breviceps, *Gunth.* 72 kkk.
Rana bufo *L.* Bufo vulgaris, *Gunth.* 72 lll.
Rana cachinnans, (*Pallas.*) *Eichwald.*, R. liebigi, *Gunth* 72 kkk.
Rana cancrivora, *Boie.*, R. tigrina, *Daud.* 72 jjj.
Rana corrugata, *Peters.*, R. Kuhlii, *Schleg.* 72 jjj.
Rana cutipora, *D.* & *B.* hexadactyla *Lesson.* 72 jjj.
Rana cyanophlyctis, *Schneid.* 72 jjj.
Rana esculenta L. R. liebigii, *Gunth* 72 kkk.
Rana gracilis, *Wiegm.* 72 kkk
Rana hexadactyla, *Lesson.* 72 jjj.
Rana Kuhlii, *Schleg.* 72 jjj.
Rana leschenaultii *D.* & *B.* R. cyanophlyctis, *Schneid.* 72 jjj.
Rana liebigii, *Gunth.* 72 kkk.
Rana malabarica, *Dum.* Hylorana malabarica, *Gunth.* 72 lll.
Rana marmorata, *Hallowell.* R. liebigii, *Gunth.* 72 kkk.
Rana nigromaculata, *Hallwell.*, R. liebigii, *Gunth.* 72 kkk.
Rana robusta, *Blyth.*, Rana hexadactyla, *Lesson.* 72 jjj.
Rana rugulosa, *Wiegm.*, R. tigrina, *Daud.* 72 jjj.
Rana sanguineo-maculata, *Less.* Hylorana malabarica *Gunth.* 72 lll.
Rana silvatica, *Leconte.* 72 kkk.
Rana systoma, *Schneid.* Cacopus systoma, *Gunther.* 72 kkk.
Rana temporaria, *Schleg.* R. silvatica, *Leconte* 72 kkk.
Rana temporaria var japonica, *Gunth.*, R. silvatica, *Leconte.* 72 kkk.
Rana tigrina, *Daud.* 72 jjj.
Rana vittigera, *Gunth*, R. gracilis, *Wiegm* 72 kkk.
Rana vittigera, *Wiegm.* R. tigrina, *Daud.* 72 jjj.
Rhinophis melanogaster, *Peters.*, R. blythii. *Kelaart*, 72 ee.
Rhabdosoma microcephalum, *Gunth.* Geophis microcephalus, *Gunth.* 72 gg
Rhacopharus maximus, *Gunth.* 72 mmm.
Rhacophorus reinwardtii, *D.* & *B.* Rhacophorus maximus, *Gunth.* 72 mmm.
Rhinophis, Hemprich. 72 dd.
Rhinophis blythii, *Kelaart.* 72 ee.
Rhinophis homolepis, *Hemp.*, R. trevelyanus, *Gunth.* 72 ee.
Rhinophis microlepis, *Beddome.* R. sanguineus, *Beddome.* 72 ee.
Rhinophis oxyrhynchus, *Hempr.* 72 dd.
Rhinophis philippinus, *Mull.* 72 dd.
Rhinophis pulneyensis, 72 ee.
Rhinophis punctatus, *Muller.* 72 dd.
Rhinophis sanguineus, *Beddome.* 72 ee.
Rhinophis trevelyanus. 72 dd.
Riopa albo-punctata, *Gray.* Eumeces albopunctatus, *Gunth.* 72 p.
Riopa hardwickii, *Gray.* Eumeces hardwickii, *Gunth.* 72 p.
Riopa punctata, *Gray.* Eumeces punctatus, *Gunth.* 72 p.
Rondoo Talooloo, *Russell.* Typhlops braminus, *Gunth.* 72 oo.

S

Saara hardwickii, *Gray.* Uromastix hardwickii, *Gray.* 72 z.
Salea horsfieldii, *Gray.* Lizards. 72 x.
Salea jerdonii, *Gray.* S. horsfieldii, *Gray.* 72 x.
Schilay Pamboo, *Russell*, Cylindrophis rufus, *Gray.* 72 oo.
Scincus brachypus, *Schin.* Eumeces chalcides, *Gunth.* 72 p.
Scincus multifasciatus, *Kuhl.* Euprepes rufescens, *Gunth.* 72 n.
Scytale brachyorrhos, *Boien.* Aspidura brachyorrhos, *Wagl.* 72 gg.
Seps (part) et Ophisaurus, *Daudin*, Pseudopus, *Gunth.* 72 n.
Seps scincoides, *Cuv.* Eumeces punctatus, *Gunth.* 72 p.
Serpens cæcilia ceylonica, *Seba.* Epicrium glutinosum *D.* & *B.* 72 nnn.
Silybura elliotti, *Gray.* 72 ee.
Silybura ceylonica, *Pet.* S. elliotti, *Gray.* 72 ee.
Silybura elliotti, *Gray.* 72 ee.
Silybura nilgherriensis, *Beddome.*, S. elliotti, *Gray*, 72 ee.
Simotes albiventer 72 hh.
Simotes albocinctus *D.* & *B.* 72 ii.
Simotes binotatus, *D.* & *B.* 72 hh.
Spilotes hodgsonii, *Gunth.* Compsosoma hodgsonii, *Gunth.* 72 ll.
Simotes punctulatus. 72 ii.
Simotes purpurascens, *Var.* S. albiventer, *Gunth.* 72 hh.
Simotes purpurascens, *Var.* Simotes punctulatus, *Gunth.* 72 ii.
Simotes purpurascens, *Var* S. signatus, *Gunth.* 72 hh.
Simotes russelii, *D.* & *B.* 72 hh.
Simotes signatus. 72 hh.
Simotes trinotatus *Dum.* 72 ii
Sitana minor. 72 w.
Sitana ponticeriana, *Jerd.* Sitana minor, *Gunth.* 72 w.
Sphœrotheca strigata. G. *B.* S., Pyxicephalus breviceps, *Gunth.* 72 kkk.
Sphargis mercurialis, *Merr.* Sph. coriacea, *Gray.* Dermatochelys coriacea, *Gunth.* 72 j.
Sphecodes albofuscus, *Dum.* Ophites albofuscus, *Gunth.* 72 xx.
Spilotes melanurus, *Gunth* Compsosoma melanurum *D.* & *B.* 72 ll.
Spilotes reticularis, *Gunth.* Compsosoma reticulare, *Gunth.* 72 ll.
Spilotes vittatus, *Beddome* Tropidonotus beddomii, *Gunth.* 72 oo
Stellio indicus, *Blyth.* S. tuberculatus, *Gunth.* 72 z
Stellio platyurus, *Schneid.* Nycteridium schneideri, *Gunth.* 72 t.
Stellio salvator, *Laur.* Hydrosaurus salvator, *Gray.* 72 l.

Stellio tuberculatus, 72 z.
Stephanohydra fusca, *Tschudi.* Aipysurus fuscus, *Fischer.* 72 eee.
Stephanohydra fusca, *Gray.* Aipysurus lævis, *Lacep.* 72 eee.
Sternotherus trifasciatus, *Bell.* Cuora trifasciata 72 e.

T

Tachydromus, *Daud.*, 72 m.
Tachydromus quadrilineatus, *Daud.* T. sexlineatus, *Daud.* 72 m.
Tachydromus sexlineatus, *Daud.* 72 m.
Tachydromus typicus, *Gr.* T. sexlineatus, *Daud.* 72 m.
Tangahura, *Sp.* 72 f.
Teleopus luxatus, *Leconte*, Manouria emys, 72 e.
Terrapenes, 72 e.
Terrapene bicolor, *Bell*, Cuora Amboinensis, *Gray.* 72 e.
Testudo, *Sp.* 72 d.
Testudo actinodes, *Bell*, elegans, *Schœpff*, 72 d.
Testudo amboinensis, *Daud* Cuora Amboinensis, *Gray*, 72 e.
Testudo coriacea, *L.*, Dermatochelys coriacea, *Gunth*, 72 j.
Testudo elegans, *Schoepff.* 72 d.
Testudo elegans or starred tortoise, 72 d.
Testudo elongata, *Blyth*, T. Horsfieldii, *Gray*, 72 e.
Testudo emys, *Mull.* Manouria emys, 72 e.
Testudo geometrica, *Hutton.* elegans, *Schoepff.* 72d.
Testudo granosa, *Sch.* Emyda granosa, *Gunth.* 72 h.
Testudo Horsfieldii, *Gray*, Afghan Tortoise, 72 e.
Testudo megalopus, *Blyth.*
Testudo phayrei, *Blyth*, Manouria emys, 72 e.
Testudo squamata, *Bont.* Caretta squamata, *Gunth.* 72 i.
Testudo stellata, *Schweig.*, *Schoepff.* 72 d.
Testudo stellata, *Gray*, T elegans, *Schoepff.* 72 d.
Testudo thurgii, *Gray*, Emys thurgii, 72 f.
Tetragonosoma atropurpureum, 72 xx.
Tetragonosoma effrene, *Gunth.* 72 ww.
Tetraonyx affinis, *Cantor*, B. baska, 72 g.
Tetraonyx baska, *Dum.* Batagur baska, 72 g.
Tetraonyx affinis, *Cantor.* Batagur affinis, *Gunth.* 72 g.
Tetraonyx lessonii, *Dum.* Batagur baska, 72 g.
Tetraonyx longicollis, *Less.* Batagur baska, 72 g.
Tetrapedos smithii. Nessia monodactyla, *Gunth.* 72 q.
Thalassophis anguillæformis, *Schmidt.* Aipysurus anguillæformis. 72 ddd.
Thalassophis anomala, *Schmidt.* Hydrophis anomala, *Fischer*, 72 ggg.
Thalassophis microcephala *Schmidt.* Hydrophis gracilis, *Russell*, 72 fff.
Thalassophis murœnæformis, *Schmidt.* Aipysurus anguillæformis, *Gunth.* 72 eee.
Thalassophis schlegelii, *Schmidt.* Hydrophis ornata, *Gunth.* 72 fff.
Thalassophis viperina, *Sch.* Hydrophis viperina, *Gunth* 72 ggg.
Thalassophis merneri, *Schmidt.* Enhydrina bengalensis, *Gray*, 72 ggg.
Tic-polonga of Ceylon. Daboia russelli, *Gunth.* 72 iii.
Tic-polonga, *Russell*, Daboia russellii, *Gunth*, 72 iii
Tiliqua affinis, *Gray*, Euprepes rufescens, *Gth.* 72n.
Tiliqua carinata, *Gray*, Euprepes rufescens, *Gunth* 72 n.
Tiliqua chinensis, *Gray*, Mabouia chinensis, *Gunth.* 72 o.
Tiliqua reevesii, *Gray*, Eumeces reevesii, *Gunth.* 72 p
Tiliqua rubriventris, *Gray*, Euprepes rufescens, *Gunth* 72 n.
Tiliqua rugo-guttata, *Cant* Mabouia chinensis, *Gunth.* 72 o.
Tiliqua schlegelii, *Gunth.* Eumeces schlegelii, *Gunth* 72 o.
Tomogaster eydouxii, *Bibr.* Aipysurus anguillæformis *Gunth.* 72 eee.
Tomopterna (*Bibr*) Pyxicephalus, *Sp.* 72 kkk.
Tomopterna strigata, *Gunth* Pyxicephalus breviceps, *Gunth.* 72 kkk.
Tortoise ocellated, Emys ocellata, *Dum.* 72 f.
Tortoise speckled, Emys bealii, *Gray*, 72 f.
Tortoise, starred, Testudo elegans, *Schoeff.* 72 d.
Tortrix maculata, Oppel. Cylindrophis maculatus, *Wagl.* 72 dd.
Tortrix melanosticta, *Gray* Anguis melanosticta, *Russell*, 72 q.
Tortrix rufa. *Schleg.* Cylindrophis resplendens, *Wagl.* 72 cc.
Tortrix russellii, *Merr.*,
Tortrix xenopeltis, *Schleg.* Xenopeltis unicolor, *Gunth* 72 dd.
Typhlops braminus, *Gunth* 72 cc.
Trachischium fuscum, *Gunth.* Ablabes fuscus, *Gunth.* 72 jj.
Trachischium obscuro-striatum, *Gunth.* Ablabes fuscus, *Gunth.* 72 jj.
Trachischium rugosum, *Gunth.*, Ablabes fuscus, *Gunth.* 72 jj.
Tragops, *Wagl.*, body, and tail exceedingly slender, tail compressed, 72 vv.
Tragops dispar, *Gunth.* Males bright green ; females bronze coloured, 72 vv.
Tragops fronticinctus, *Gunth* T. disper. *Gth.* 72 vv
Tragops nasutus, *Wagl.* T. *Wagl.* 72 vv.
Trogops prasinus, *D. & B.* T. *Wagl.*
Triglyphodon cyaneum, *Dum.* Dipsas bubalina, *Seba.* 72 vv.
Triglyphodon dendrophilum, *Dum.* Dipsas dendrophila, *Wagl.* 72 vv.
Triglyphodon forsteni, *D. & B.* Dipsas forsteni, *Gunth.* 72 vv.
Trigonocephalus affinis, *Gray.* Halys blomhoffii, *Gunth.* 72 iii.
Trigonocephalus affinis, *Gunth.* Halys himalaganus, *Gunth.* 72 iii.
Trigonocephalus blomhoffi Halys blomhoffii, *Gth.* 72iii
Trigonocephalus elliotti, *Jerdon.* Halys elliotti, *Gunth.* 72 iii.
Trigonocephalus erythrurus, *C. P. Z. S.* Trimeresurus erythrurus, *Russ.* 72 hhh.
Trigonocephalus hypnale, *Wagl* Hypnale nepa, *Gunth.* 72 iii.
Trigonocephalus mucrosquamatus, *Cantor.* Trimeresurus mucrosquamatus, *Gunth.* 72 hhh.
Trigonocephalus neelgherriensis, *Jerdon.* Trimeresurus strigatus, *Gray.* 72 hhh.
Trigonocephalus nigromarginatus, *Schleg.* Trimeresurus trigonocephalus, *Gunth.* 72 hhh.
Trigonocephalus puniceus, *Cantor.* Trimeresurus burpureus, *Gr.* 72 hhh:
Trigonocephalus purpureomaculatus, *Gr.* Trimeresurus purpureus, *Gr.* 72hhh
Trigonocephalus rhodostoma, *Reinw.* Calloselasma rhodostoma, *Russ.* 72 hhh
Trigonocephalus sumatranus, *Cantor.* Trimeresurus wagleri, *Gunth.* 72hhh.
Trigonocephalus wagleri, *Gunth.* Trimeresurus wagleri, *Gunth.* 72 hhh.
Trigonocephalus zara, *Gray.* Hypnale nepa, *Gth.* 72iii.
Trigonoceph. viridis *Sch.*, Trimeresurus erythrurus, *Russell.* 72 hhh.
Trigonurus sieboldii, *Dum.* Ferania Sieboldii, *Gunth.* 72 ss.
Trimeresurus albo labris, *Gray.* Trimerythrurus, *Russell.* 72 hhh.
Trimeresurus bicolor, *Gr.*, T. carinatus, *Gray.* 72 hhh.
Trimeresurus carinatus, *Gray.* 72 hhh.
Trimeresurus elegans, *Gr.* T. gramineus, *Russell.* 72 hhh.
Trimeresurus erythrurus, *Russell* 72 hhh.
Trimeresurus gramineus, *Russell.* 72 hhh.
Trimeresurus monticola, *Gunth.* 72 hhh.
Trimeresurus mucrosquamatus, *Gunth*, 72 hhh.
Trimeresurus ophiophagus, *D. & B.* Ophiophagus elaps, *Gunth.* 72 hhh.
Trimeresurus porphyraceus, *Blyth.* T. carinatus, *Gray.* 72 hhh.
Trimeresurus purpureus, *Gr.* 72 hhh.
Trimeresurus strigatus, *Gray.* 72 hhh.
Trimeresurus sub-annulatus, *Gray.* Trimeresurus wagleri, *Gunth.* 72 hhh.
Trimeresurus trigonocephalus, *Gunth.* 72 hhh.
Trimeresurus viridis, *Gr.* T. gramineus, *Rus.* 72 hhh.
Trimeresurus wagleri, *Gunth.* 72 hhh.
Trimeresurus? ceylonensis *Gray.* Hypnale nepa, *Gunth.* 72 iii.
Trimeresurus formosus, *Gray.* Trimeresurus wagleri, *Gunth.* 72 hhh.
Trimeresurus macrolepis, *Beddome.* Peltopelor macrolepis, *Gunth.* 72 hhh.
Trimeresurus maculatus, *Gray.* Trimeresurus wagleri, *Gunth*, 72 hhh.
Trimeresurus sumatranus, *Gray.* Trimeresurus wagleri, *Gunth.* 72 hhh.
Trionycidæ. The Freshwater Turtle 72 g.
Trionyx 72 h.

Trionyx coromandelicus, *Geoffr.* Emyda granosa, *Gunth.* 22 h.
Trionyx cuvieri, *Gray.* Batagur baska 72 g
Trionyx frenatus, *Gray*, T. subplanus.
Trionyx gangeticus, *Cuv.* 72 h.
Trionyx granosus, *Gray.* Emyda granosa, G*th.* 72 h.
Trionyx gunther, *Mul.* 72 h.
Trionyx hurum, *Gray* T. gangeticus, *Cuv.* 72 h.
Trionyx javanicus, *Schweigg.* 72 h.
Trionyx ocellatus, *Gray.* T. Gangeticus, *Cuv.* 72 h.
Trionyx ornatus, *Gray.* 72 h
Trionyx perocellatus, *Gray.* T. sinensis, *Wiegm* 72 h,
Trionyx punctata, *Gray.* Emyda granosa, *Gunth*, 72h
Trionyx sinensis, *Wieg.* 72 h
Trionyx tuberculatus, *Cantor.* T. sinensis, *Wieg.* 72 h.

Tropidophis schistosus, *Gray.* Atretium schistosum, *Gunth.* 72 pp.

Tropidophorus cochin-chinensis.
Tropidiphorus, *Dum. & Biber.* 72 n.
Tropidiphorus microlepis, *Gunth.* 72 n.

Tropidococcyx perotteti, *Gunth.* 72 uu.

Tropidosaurus montanus, *Gray.*

Tropidonotus annularis, *Hallowell.* 72 nn.
Tropidonotus beddomii, *Gunth.* 72 oo.
Tropidonotus cerasogaster, *Cantor.* Xenochrophis cerasogaster, *Gunth.* 72pp
Tropidonotus ceylonensis *Gunth.* 72 oo.
Tropidonotus chinensis, *Jan.* Tropidonotus annularis, *Hallowell.* 72 nn.
Tropidonotus chrysargus, *Gunth.* T. ceylonensis, *Gunth.* 72 oo.
Tropidonotus dipsas, *Blyth.* T. Junceus *Cant.* 72oo
Tropidonotus dorsalis, *Gunth.* 72 oo.
Tropidonotus flavipunctatus *Gunth.* 72 pp,
Tropidonotus junceus, *Cant* 72 oo.
Tropidonotus lateralis, *Berthold.* T. tigrinus, *Gunth.* 72 pp.
Tropidonotus macrophthalmus, *Gunth.* 72 oo.
Tropidonotus mæstus et surgens, *Cantor.* Atretium schistosum, *Gunth.* 72 pp
Tropidonotus monticola, *Gunth.* 72 oo.
Tropidonotus orientalis, *Gth.* T. tigrinus, *Gth*, 72pp.
Tropidonotus plumbicolor. *Cantor.* 72 pp.
Tropidonotus quincunciatus, *Dum.* Coluber rectangulus, *Gray.* 72 nn.
Tropidonotus quinque-fasciatus, *Cantor.* Compsosoma radiatum, *Russ.* 72 ll.
Tropidonotus rufo-dorsatus, *Cantor.* Coluber rufodorsatus, *Gunth.* 72 kk.
Tropidonotus sauromates, *Eichw.* Elaphis sauromates, *Dum.* 72 kk.
Tropidonotus schistosus, *Schleg.* Atretium schistosum, *Gunth.* 72 pp.
Tropidonotus sub-miniatus *Sch* 72 oo
Tropidonotus tigrinus, *Gunth* 72 pp.
Tropidonotus umbratus, *Cantor.* Coluber rectangulus, *Gray.* 72 nn.

Tupinambis bengalensis *Daud.* Varanus dracæna, *Gunth* 72 l.
Tupinambis bivittatus, *Kuhl* Hydrosaurus salvator, *Gray.* 72 l.
Turttes 72 q.

Typhlinalis lineatum, *Gray*,
Typhlina lineata, *Gth.* 72 cc.
Typhlops bothriorhynchus, *Gunth.* 72 cc.
Typhlops bothriorhynchus, *Gunth.* T. horsfieldii, *Gunth.* 72 cc.
Typhlops braminus, *Gunth.* 72 cc.
Typhlops braminus, *Cuv.* T. braminus, *Gunth.* 72 cc.
Typhlops diardii, *Schleg.* Typhlops horsfieldii, *Gunth.* 72 cc.
Typhlops horsfieldii, *Gunth.* 72 cc,
Typhlina lineata, *Gth.* 72cc
Typhlops lineatus, *Boie.* Typhlina lineata, *Gth.* 72 cc
Typhlops oxyrhynchus, *Schneid.*, Rhinophis oxyrhynchus, *Hembr.* 72 dd.
Typhlops philippinus, *Cuv.* Rhinophis philippinus, *Mull.* 72 dd.
Typhlops russellii, *Gray* Onychocephalus acutus, *Dum.* 72 cc.
Typhlops russellii, *Schleg* T. braminus, *Gunth.* 72 cc.
Tyria fasciolata, *Cope.* Zamenis fasciolatus, *Rus.* 72 mm.
Tyxidea, *S p.* 72 e.

U

Uperodon, *Dum.* Cacopus, *Gthr.* 72 kkk.
Uperodon marmoratum. D.&B. Cacopus systoma, *Gunther.* 72 lll.
Tropidonotus monticola, *Gunth.* Tropidonotus monticola 72 oo.
Uromastix belliana, *Gray.*
Liolepis guttatus, *Cuv.* 72 y.
Uromastix hardwickii, *Gray* 72 z.
Uromastix reticulatus, *Cuv* U. hardwickii, *Gray.* 72 z
Uropeltis ceylonicus, *Cuv.* Silybura elliottii *Gr.* 72ee
Uropeltis grandis 72 ee.
Uropeltis philippinus, *Cuv* Uropeltis grandis, *Gunth.* 72 ee.
Uropeltis saffragamus, *Kelaart.* U. grandis. 72 ee

V

Valakadyen, *Russell.* Enhydrina bengalensis, *Gray.* 72 ggg.
Varanus bengalensis D. & B. Monitor heraldicus, *Gray.* 72 l.
Varanus bibroni, *Blyth.*
Monitor heraldicus, *Gr.* 72 l.
Varanus bivittatus, D. & *Bibr.* Hydrosaurus salvator, *Gray.* 72 l.
Varanus dracæna Common Indian Water Lizard. 72 l
Varanus flavescens, *Can. Gunth.* 72 l.
Varanus flavescens. Short toed Water Lizard 72 l
Varanus heraldicus, *Gray.*
Monitor heraldicus, Gr. 72 l.
Varanus lunatus, *Gray. Lizards.* 72 l.
Varanus nebulosus, *Dum.*. *Gunth.* 72 l
Varanus nebulosus Clouded Water Lizard. 72 l.
Varanus piquotii, D. & B. V. flavescens, *Gunth* 72 l.
Varanus punctatus *Merr* V. guttatus, *Merr.* 72 l
Varanus salvator Cant. Hydrosaurus salvator, *Gray.* 72 l.
Varanus vittatus, *Less.* Hydrosaurus salvator, *Gray.* 72 l.
Vipera bubalina, *Klein.*
Dipsas bubalina, *Seba* 72vv
Vipera daboia, *Daud.* Daboia russelli, *Gunth.* 77 iii.
Vipera elegans, *Daud*, Daboia russelli, *Gunth.* 72 iii.
Vipera gramineus, *Cantor.* Trimeresurus gramineus, *Russell.* 72 hhh.
Vipera trimaculata, *Daud.* Callophis trimaculatus, *Gunth.* 72 ddd.
Vipera viridis, *Daud.* Trimeresurus gramineus, *Russell.* 72 hhh.

X

Xenelaphis hexahonotus, *Gunth.* 72 mm.
Xenochrophis cerasogaster *Gunth.* 72 pp.
Xenodon dubium *Jer.* Simotes binotatus, D. & B. 72 hh.
Xenodon macrophthalmus, *Gunth.* Tropidonotus, dorsalis, *Gunth.* 72 oo.
Xenodon macrophthalmus, *Gunth*, Tropidonotus macrophthalmus, *Gunth.* 72 oo.
Xenodon purpurascens, *Cant.* Simotes trinotatus, *Dum.* 72 ii.
Xenodon venustus, *Gray.* 72 hh.
Xenodon venustum, *Jerd.* X. venustus, *Gray.* 72hh
Xenodon viridis, *Dum.* Tropidonotus plumbicolor, *Cantor.* 72 pp.
Xenopeltis unicolor. 72 dd.
Xenurelaps bungaroides, P. 72 ccc.

Z

Zamenis diadema, *Gunth.* 72 mm.
Zamenis fasciolatus, *Rus.* 72 mm.
Zamenis ventrimaculatus, *Gunth.* 72 mm.
Zaocys carinatus, *Gunth.* 72 nn.
Zaocys dhumnades, *Cope.* 72 nn.
Zaocys nigromarginatus, *Gunth.* 72 nn.

Dr. Hooker, Himalayan Journals, v. ii. p. 25, 35. *Dr. T. C. Jerdon, on the venomous serpents of the Peninsula of India in Bengal Asiatic Society's Journal, xvi.* 1044-6 ; *Mr. Blyth in Bengal As. Soc. Journ. xx.* 524 ; *Revd. Mr. Mason, Tenasserim, Dr. Gunther's Reptiles of British India in Ray. Society for* 1863. *Dr. Th. Cantor's Reptiles inhabiting the Malay Peninsula and Islands, in Bengal As. Soc. Journ. July & Oct.* 1847, *Nos.* 181, 183. *Dr. T. C. Jerdon, on the Reptiles of the Peninsula of India, Bengal As. Soc. Journal No. v. of* 1853, *pp.* 624-479. *Mr. Blyth, Reptiles new or little known in Bengal As. Soc. Journal No.* 7 *of 1853, pp.* 639 *to* 65 *and No.* 3 *of* 1854.

RERU. HIND. Acacoeia leucophlæa.

RERA of Central India, a hyena.

RESASS, also Abruz, ARAB. Tin.

RESEDACEÆ. *D.C.* The Mignonette tribe of plants comprising 1 genus, 6 species, of Reseda.

RESEN. See Nineveh.

RESHABAR. HIND. Aerial roots of Ficus indica, the banyan tree.

RESH or **RISH.** PERS. A bear.

RESHAD, properly Rashad, AR. Garden Cress, Lepidum sativum.

RESHA. PERS. Fibre. Resha-i-darakh-i-khurma. HIND. PERS. Date palm fibre.

RESHA-KHATMI. HIND. Fibre of Althæa rosea.

RESHAM BUTI, also Reshami. HIND. Berthelotia lanceolata.

RESHM-KI-KIRA. DUK. Silk worm.

RESHVAND. See Kazzilbash.

RESINS.

Rosin……… …..	ENG.	Gugal……………	HIND.
Dammar…… …	HIND.	Ral; Rala…….	„
Sung-chi… … …	CHIN.	Gugalam … ……	TAM.
„ hisng.. …	„	Gugalamu….. …	TEL.
Doona .. … …..	HIND.		

Resinous substances are found in greater or less abundance in most plants. Many of the resins exude naturally from fissures in the bark or in the wood, or they are obtained from incisions made in certain trees and shrubs. As they exude they are commonly mixed with an essential oil, which either evaporates on coming in contact with the air, or is resinified by the action of oxygen. Such mixtures of volatile or essential oil with resins are sometimes called *balsams*. When gum is mixed with resins another class of substances is produced, called *gum-resins*. The resins when pure and free from essential oil have no odour except when rubbed or heated. Their colours are pale, yellow or brown; they are good insulators, and become electric by friction. Most of them are heavier than water and insoluble in that fluid; they have little or no taste but those which have distinctive flavours derive them from minute portions of some non-resinous body. They are usually softened or even fused by being boiled in water, and some of them in such a case pass into hydrates. They are inflammable, burning in the air with a sooty flame, and yielding by dry distillation volatile liquids and inflammable gases. The natural resins are usually composed of two or more resinous substances which may be separated by the action of alcohol, in which most resins are soluble. When pure, they are soluble in alcohol and in oils, but not in water, in which respect they differ from gums. They are also mostly soluble in ether, in sulphuret of carbon, and in the fatty and volatile oils. Resins are solid, brittle, of a certain degree of transparency, and a colour commonly inclining to yellow. They are more or less acted upon by the alkalies. The generally known Indian resins, gum resins and balsams, are,

Copal (Soondroos, Piney)	Vateria Indica.
Anime … …… …… …	„ „
Dammer ral, dhoona …	Shorea robusta. Vateria Indica; Canariums trictum.
Mastic (mustakee,) …	Pistacia lentiscus.
Theetsee … … … … …	Melanorrhœa usitatissima
Wood oil, (gurjun) …	Dipterocarpus turbinatus, &c.
Benzoin (loban)… …	Styrax benzoin.
Liquid balsam or storax (rasa malios.) …	Liquidambar altingia.
Dammar……… ………	Canarium strictum.
„ ……… …………	„ commune.
Kini ……….. — ………	Pterocarpus marsupium.
Lac. ……. …………	Coccus lacca
Dikamalay……… ……	Gardenia lucida.
Benjamin.	
Myrrh.	
Poon-yet.	
Muttipal.	
Aloes….. …… ………	Aloes species.
Gamboge…. … … ……	Balsamadendron gambogioides.
Rosin…… . … ………	Abies Smithiana.
„ …….. .. … …….	Pinus excelsa.
„ ….. … ….. ……	„ longifolia.

The most important of all the solid resins produced in the East Indies are those which are included under the general name of "Dammer." The whole of the substances commonly called "Dammers," produced in the Madras presidency are obtained from trees of the genera Vateria, Canarium, and Shorea or Vatica. The two former, viz. Vateria, and Canarium, yield by far the largest part (if not the whole) of the dammers produced on the Western coast of the Peninsula, whilst the Shorea or Vatica trees yield the greater part of that collected in the northern and eastern districts.

Black Dammer of the Western Coast is the product of the Canarium strictum, the Karpoo conghilium of Ainslie, the Dammara nigra legitima of Rumphius and the Canari of the Malays. This occurs in large stalactytic-shaped masses, of a bright shining black color when viewed from a distance, but translucent and of a deep reddish brown when held in thin laminæ between the eye and the light. It is perfectly homogenous, and has a vitreous fracture. Its shape appears to be due to the fact of the balsam having exuded in a very fluid state and trickled down the trunk of the tree, where it gradually hardens by exposure to the sun, the fresh resin continuing to flow over that already hardened, gives rise to the stalactytic appearance of the huge lumps of resin, the outside of which much resembles the guttering of wax caused by placing a lighted candle in a draught. It is insoluble in cold, but partially soluble in boiling alcohol, on the addition of camphor: when powdered it is readily soluble in oil of turpentine. Powdered and burnt on the fire it emits a more resinous smell and burns with more smoke than white dammer. The size of the lumps of this resin, together with its color and the peculiarity of shape already mentioned suffice to distinguish it from other Indian resins.

White Dammer of the Western Coast of India, or Piney resin is from the Vateria indica and allied species of Linnæus and Wight, the Chloroxylon dupada of Buchanan and Ainslie, the Doopada resin of Mysore, and the Payanee or Piney of the Malabar people.

Vateria Indica...*Linn.*	**Chloroxylon dupada.** *Ham.*
Piney maram... TAM.	Chadacula... ....TAM.
Dupa maram....CAN.	Payanee..... ...MALABAR.

This is a very large and stately tree, a native of Malabar, and Mysore. The young shoots and all tender parts except the leaves are covered with fine stellate pubescence, leaves alternate, petioled, oblong, entire, from emarginate to obtuse, pointed, smooth, coriaceous, from four to eight inches long and two to four broad, petioles round, about an inch long; stipules oblong, panicles terminal, ramifications rather remote; flowers rather remote, pedicelled, pretty large; bractes oblong, one flowered; calyx five, cleft to the base, divisions oblong, obtuse, villous on the outside, corolla five petalled, petals oval, emarginate, broader but very little longer than divisions of the calyx, filaments from 40 to 50, short, broad inserted between the petals and the base of the germ, anthers linear with a single filiform beak; germ superior, conic, downy, three celled, cells containing 3 ovules each, attached to the top of the axis, style longer than the stamens, stigma acute, pericarpium acoriaceous, fleshy, oblong, obtuse, one-celled, three-valved capsule, general size about 2¼ inches long and 1¼ in diameter, seed solitary of same shape as the capsule. The substance called "East Indian copal" and sold in England as gum anime exudes abundantly from this tree. It occurs of all shades of color between pale green and deep yellow; the finest pieces are called kahruba, or amber, and sold as amber in the bazars of Bengal; the resin before it hardens is the Piney varnish of Malabar. Besides the uses already alluded to, candles are made of this resin in Malabar, which Dr. Wight informs us, diffuse, in burning an agreeable fragrance, give a fine clear light, with little smoke, and consume the wick without snuffing. These candles were at one time introduced into England, but a very high duty having been imposed, the trade ceased.

One variety of it, is the Compact Piney resin or first sort white dammer, of the Western Coast, and occurs in large lumps of all shapes and varying in color on the outside from a bright orange to a dull yellow, bearing evident marks of having adhered to the bark of the tree. It has a shining vitreous facture, is very hard and bears a great resemblance to amber. Its color (internally) is of all shades, from a light green to a light yellow, the green tint predominating in the generality of specimens. It is more soluble in alcohol than black dammer, and burns with less smoke and a more agreeable odour. It is easily distinguishable from all other Indian resins by its superior hardness, its colour and amber like appearance.

A second *variety* the Cellular Piney resin, or second or white dammer of the Western Coast, occurs either in small lumps or in large masses, generally of a shining appearance and balsamic smell and has a very cellular structure, which is attributable partly to the mode of collection, and partly to the age of the tree. Notches being cut in the trunk of the tree sloping inwards and downwards, the resin collects in the cavity and is either permitted to dry on the spot, or is collected and dried by the application of heat. It is of all shades from light green, to light yellow or white, and is usually translucent. Specimens are sometimes seen, in which, from the dessiccation having been irregularly conducted, the resin is more opaque, of a dull green color and full of air bubbles, presenting the appearance of having undergone a partial fermentation. This kind of resin may be recognized by its cellular appearance and balsamic smell—this latter, however, which is of course due to the volatile oil it contains, is gradually lost by long keeping or constant exposure to the air. On splitting open old and decayed trees portions of a dark colored resin, are often found having the solid consistence of first variety, but the inferior quality of the second. The inspissated juice of the Vateria indica tree is used for mixing with bees' wax in making candles. The fresh resin is called Pynie varnish. It is of a light grey colour, with a strong balsamic odour. The resin which first exudes is called "Chengilium" (this is white), that which flows subsequently is termed "Coongilium" (darker than the above), and when dried it is called Dammer (black.) He describes the three sorts as being the produce of the Paynee or Vateria indica tree.

Dammers of the northern and eastern Districts are the saul tree dammer, from Shorea robusta and other species. The Shorea robusta or Saul tree, of great size, is a native of Morung, the Paulghaut mountains, Northern Circars, &c.,

Calyx 5 sepalled, sepals afterwards changing into five long wings, petals 5, stamens 15, filaments capillary below the anthers, anther cell short, obtuse, connectum filiform, produced beyond the cells into a more or less elongated colored, deciduous, bristle, ovarium 3 celled, with two pendulous ovules in each cell. Seed solitary, cotyledons stalked, not crumbled, radicle superior, leaves coriaceous, oblong, obtuse, often emarginate at the base, panicles numerous from the axils of the fallen leaves, branches and pedicels glabrous.

The Shorea robusta, and indeed some other species, yield abundance of the resin called dammer, the superior kinds of which are efficient substitutes for the pine resin of the European Pharmacopœia. Captain Jenkins of Assam forwarded specimens of this resin perfectly transparent and colorless; in the bazaars, the color ranges from pale amber to dark brown. It is devoid of taste and smell. Sp. gr. 1·097 to 1·123, easily fusible, partially soluble in alcohol (83·1 per 1000), almost entirely in ether, perfectly in oil of turpentine and the fixed oils; sulphuric acid dissolves, and gives it a red color. Two parts of colorless dammer and 2½ parts of oil of turpentine, make the best varnish for lithographic drawings. This occurs in sticks much resembling in shape the black dammer, but differing widely in colour and consistency. In colour it varies from a light yellow to a dark brown, the two colours being very frequently blended in the same lump and giving it the appearance of having a regular "grain." It is friable and differs from the white dammer of the Western Coast in its inferior hardness, its opacity and its peculiar form, and from the black dammer in its colour. There are extensive tracts of Googulam (*Vatica*) jungles in the Goomsur and Cuttack provinces. The Khond and Urya races living in and near these jungles wound trees in several places. The resin issues and is collected when sufficiently solid. The dammer collected from the decayed parts of the tree is of a dark color, the tree is called "Guggilam" in Telugu and "Tala gotso" in Urya. The Khond and Urya races make the leaves into plates from which they eat their food, and also roll up tobacco in them to smoke like a cheroot. In time of famine the above tribes live on a soup made from the fruit of this tree. The dammer of the Northern Circars is chiefly produced by the varieties of the genus Shorea. The Shorea are also found growing, to a very limited extent on the Western coast, but do not appear to produce much, if indeed any, of the resin collected for sale. (*Roxb. Fl. Ind. Vol. iii, p* 137.)

Canarium commune, is a native of the continent of India, the Archipelago and Isle of France, where it is called "Bois de Colophane." It was brought from the Moluccas to the Calcutta Botanic garden, but in Roxburgh's time did not thrive, owing to the coldness of the winter months. The bark yields an abundance of limpid oil with a pungent turpentine smell, congealing into a buttery camphoraceous mass.

Canarium Bengalense, is a native of Sylhet and the adjacent mountainous countries. It flowers in May and June, yields a large quantity of very pure, clear, amber-colored resin which soon becomes hard and brittle, and is not unlike copal; yet the natives of Northern India are said set little or no value upon it. In the Calcutta bazaar it sells at 2 to 3 Rs. per maund of 86 lbs.

Dipterocarpeæ. The trees of this order growing in Madras are all natives of the hilly tracts of the Balaghaut. In Sylhet, Chittagong and Pegu where they abound, they occupy the plains. In Java, one species, the Dipterocarpus littoralis, is found on the sea shore. A Hopea and the Vateria indica also approach the coast in Malabar, but the latter, or perhaps a distinct species, is also plentiful in Mysore. Two or three species are found in Goomsur, forming extensive forests, and affording to the inhabitants incense, dammer and wood oil.

Doona Zeylanica, Thwaites, Doona dammer, is obtained from a Dipterocarpus tree, the Doona Zeylanica. In colour and appearance it much resembles pine resin.

Poon-yet—is a curious substance of Burmah, produced by a species of hymenopterous insect in holes in the ground and hollow trees. Its cellular structure much resembles that of a wasp's nest. On the western coast of India, a species of bee is exceedingly fond of the liquid dammer of the Canarium, this insect lives in holes in the ground, and it will probably be found on inspection that its cells are composed of a similar substance to the Poonyet.

Kino, from the Pterocarpus marsupium, is of a vitreous fracture and very deep red colour approaching to black.

Dragon's blood, lump and in reed, is used as a pigment.

Palas or Dhak kino, is from *Butea frondosa*.

Dikkamalay, resin, from Gardenia lucida,

Benjamin of Siam, appears to be superior in fragrance to the Sumatra product, although both possess a delightful aroma, they are of the amygdaloid kind, the latter being almost entirely composed of agglutinated white tears.

Gunda ferosa, from *Boswellia thurifera*, is largely used in India as an application to indolent ulcers and wounds and is supposed to form the chief ingredient of "Wroughton's ointment." It has the odour, taste and consistence of a balsam.

Theetsee is from Melanorrhœa usitata.

Xanthoxylon triphyllum. The resin obtained from this tree appears to be produced in too small quantities to be useful in a commercial point of view.

Semicarpus anacardium. The pericarp yields a resinous juice which is known as the black varnish of Sylhet. The black varnish of Malabar is from Holigarna longifolia; in China and Siam, Augia Chinensis yields a varnish, and in Japan, black varnishes are obtained from three species of Rhus, R. vernix, R, succeaaneum and R. verniciferum. In India, a varnish is obtained from the Buchanania latifolia, and another from the Odina wodier: the Martaban varnish is obtained from Melanorrhœa usitatissima. Stagmaria vernicifolia yields the Japan lacquer.

The *rosin* or *common resin* of Europe is obtained as a residuary matter in the process for obtaining oil of turpentine. Turpentine must be regarded as an oleo-resin. In their natural state resins are either solid or semi-fluid, the oil of turpentine being obtained by distillation of American turpentine with water. In the United States turpentine is procured " from the Pinus palustris: partly also from the Pinus tœda and perhaps some other species inhabiting the southern States. In former times large quantities were collected in New England; but the turpentine trees of that section of the Union are said to be nearly exhausted; and European commerce is almost exclusively supplied from North Carolina and the south-eastern part of Virginia. In collecting this turpentine a hollow is cut in the tree a few inches above the ground, and the bark removed for the space of about eighteen inches above it. The turpentine runs into this excavation from about March to October; more rapidly, of course, during the warmer months. It is transferred from these hollows into casks. Old and concrete American turpentine is often sold as frankincense Resins soluble in spirit of turpentine, are used for the most part in preparing dyes, varnishes, lacquers, sealing wax, &c., &c. Guggilam or Bdellium, is the same name as Gugal, and in combination when applied to a tree, indicates particular plants as Guggilam chettu, Ægiceras fragrans, *Kon.* Guggulu or Sala, is Vatica robusta and Gugilapu chettu, is Boswellia glabra. The combinations of the word Gugal, being applied to trees yielding resins.—*Elliot Fl. Andhr. Lt. Hawkes in M. E. J. R.*

RESINA ELASTIÇA. Caoutchouç.

RESTIACEAE.—*R. Br.*, Sub-Ord. of plants comprised in 19 species of Eriocaulon.

RESM also Reshm. GUZ. HIND. Silk.

RESO. JAPAN. Mirabilis jalapa.

RESEPH. See Ken

RESIDENCY, in British India, a political agency at a Native Court. In Netherlands India, a province.

RET also Reti. HIND. Sand.

RETANGUN. See Tangun.

RETE KA JHAR. HIND. Sapindus emarginatus. Rete ki Binj, properly Ret'he, its seed.

RETEON HIND. Rhamnus virgatus.

RETI. See Kama.

RETLI. Sandy soil.

RETTI. HIND. Seeds of Abrus precatorius.

RETTI-PAMA-RATTI. TAM. Anisomeles Malabarica.—*R. Br.*

REUN. HIND. Rottlera tinctoria.

REUS. HIND. Cotoneaster obtusa.

REVACHIL is the ancient designation of an important range in the geography of Saurashtra.

REVATI DULA GONDI or Dula Gondi. TEL. Tragia cannabina, *L.*—Dulagonda is a term used generally for a stinging plant, and the addition of Revati more particularly refers to Tragia, while Pedda dulagoudi is more properly applied to Mucuna pruriens.

REVA. TEL. Poa procera, *R. i.* 332.

REVALENTA ARABICA is lentil bread from the Ervum lens. These two words formed the term "ervalenta," and from it the term "revalenta."

REVI. HIND. Red powder from fruit of the Rottleria tinctoria.

REVATI, daughter of rajah Raivata, was married to Balarama, the elder brother of Krishna.—*Wh. H.* of *I.*

REVENUE BOARD. In British India, in Calcutta and Madras, a Board of three Members who control the revenues of the country. There is no Revenue Board in Bombay, but there are two Revenue Commissioners, between whom the Collectorates are divided. The Revenue Commissioner there corresponds immediately with Government and is also Police Commissioner of his Division.

REWAH. The head quarters of the feudatory territory, consisting of 71 states, supervised by the Central Indian Agency, at Indore, forms three grand divisions. The north-east division comprises the native states of Bundelcund and Rewah. The Northern division consists of the northern and central districts of the Gwalior States. The south-west division comprises the table land known in modern times as Malwa, though far within the ancient limits of the province of that name, and the submontane territory between it and the Nerbudda, as also a considerable tract south of that river, extending to the Kandesh frontier. The first, extending from the Bengal Presidency in the east, to the Gwalior State in the west, includes Rewah and 35 other states and petty chiefships. Its area is about 22,400 square miles; its population about 3,170,000 souls, and its public revenues aggregate about Rupees 63,58,000. The 2nd or northern division extends from Bundelcund and the Saugor district, and has an area of about 19,505 square miles; its population is about 1,180,000 souls, and its public revenue about Rupees 67,65,000. The 3rd or south-west division goes on, westward, to the Bombay Presidency, and contains the remainder of Gwalior, Holkar's states, Bhopal, Dhar and Dewas and other small states. The area of this division is about 41,700 square miles, its population about 3,320,000 souls and its public revenues about Rs. 1,30,00,000. The states and petty chiefships in Central India, form a political and are in a natural division of British India, and include an area of 83,600 square miles and a population of 7,670,000. This territory is divided amongst 71 native states, viz :—

	Principal states.	Secondary.	Minor and Petty.	Total.
Mahratta ...	2	2	—	4
Mahomedan..	1	2	4	7
Bundela .	—	6	11	1
Rajput ..	1	12	20	—
Brahmins &c.	—	1	3	—
	4	23	44	71

with a total revenue of rupees 2,61,23,000. Rewah is almost unknown to Europeans. It possesses great mineral wealth. Its plains are fertile but the valley of the Soane to the south of the Kymore range, desolate. The people of Rewah are described as indolent and untrustworthy; and they, and the country generally, are certainly far less civilized than the neighbouring state and people of Bundelcund. Though widely different in other respects, there is one characteristic common to the Baghel of Rewah, the Boondela of Bundelcund, and the Rajpoot of Gwalior and Malwa,—a dislike to labour or service away from their homes, so that they do not generally take an active part in the business of tilling the soil, such being, as a rule, left to the inferior and servile classes. They are throughout the territory generally regarded as the local heads of society or of the village communities to which they belong, and many of them possess much influence amongst those around them as the representative of the ancient families of the respective clans, but the condition of the Rajpoots in the States of Central India is most miserable and pitiable. The numerous settlements mediated under Sir J. Malcolm's authority, were principally on behalf of the hereditary claims of the heads of these classes, who having been dispossessed of their estates, and in many instances driven to the jungles, were at that period (under the designation of "Grassiah" and "Londiah") the local, as the Pindaree were the general, pests of the country, their whole subsistence being obtained by violence and marauding. In Bundelcund and Rewah—differing in this respect from Central India, there is no decadence among the clansmen, the old families still hold the land. Their armies are,

	Ordnance.				
	Guns.	Gunners.	Cavalry.	Infantry.	Police.
Rewah and Bundelcund. ..	368	967	3,111	26,821	1,368
The Gwalior State	48	480	6,000	6,000	3,000
The States of Malwa. ...	119	761	5,279	11,305	4,124
Omitting the Gwalior districts ...	...	...	...	...	...
Total...	535	2,208	14,390	43,126	4,888

Trade is chiefly carried on in Malwa and at Gwalior. In Malwa the principal marts are Indore, Bhopal, Oojein, Mundissore, Rutlam, Dhar, Jowra, Augur, Neemuch, Shoojawulpoor, and Bhilsa. Opium chiefly is sold in Rewa, its chief is of the Baghel race. The rajah Rama, Baghel, protected Hamayun's wife, mother of the emperor Akbar. The Baghel are of the Solunki rajput race. The four Agnikula or fire-born rajput tribes, the Chohan, Solunki, Powar or Prumar, and the Purihar, are now mainly found in the tract from Ujain to Rewah near Benares. The unnamed progenitors of these races seem to have been invaders who sided with the brahmins in their warfares, partly with the old Khetri, partly with increasing schismatics and partly with Græco-Bactrians, and whose warlike merit as well as timely aid and subsequent conformity, got them enrolled as "fireborn," in contra-distinction to the solar and lunar families. The Agnikula are now mainly found in the tract of country extending from Oojein to Rewah near Benares, and Mount Aboo is asserted to be the place of their miraculous birth or appearance. Vikramajeet, the champion of brahminism, according to common accounts, was a Powar Rajpoot.—*Capt. Cunningham's History of the Sikhs, p.* 13. *Ann. Ind. Adm. Vol. XI, pp.* 312, 343.

REWA. Hind. Acacia rewa.

REWAH, a river of Malwa and running near Oosarah Mullargunge in Gwalior.

REWA KANTA. In this territory, the language is Kol.

REWAN. Hind. of Kaghan, Picea Webbiana, also Picea pindrow, the silver fir.

REWAND. Ar. Pers. also Rewand-chini, and Sira. Guz. Rhubarb. Rheum Moorcroftianum,

REWAND CHINI. Hind. Verbascum thapsus also Eremostachys Vicaryi, Rheum emodi and in Guzerat also Hebradendron gambogioides *Graham*.

REWARI. Hind. Picea Webbiana.

REWEN. Rus. Rhubarb.

REYGATTI. Tel. Capparis grandis.

REYLA. Tel. Poinciana pulcherrima. *Linn.*, also Cathartocarpus fistula.

REYYI KADA, or Ravakáda Tel. Salsola nudiflora *Willd.*

REYYI PAPPU, or Jaji. Tel. Grislea tomentosa, *R.* ii 233.

RHABARBER. Ger. Rhubarb.

RHACOPHORUS, the Flying frog of Borneo, a species of Rhacophorus, has very long and fully webbed toes, which it spreads out when leaping. It is a tree frog, and by spreading out its membrane can descend from very high trees to the ground.—*Wallace.*

RHADIKA, also Rhadia, mistress of Krishna.

RHADOONI. Beng. Apium involucratum.—*Roxb.*

RHAGÆ See Arians..

RHAGES, founded by Ismael, the Samanian, in A. D. 906, conquered in 1037 by Mahmud. See Rhe.

RHAIRA GARH. The most important of the Chhattisgarh feudatory states. It consists of four pergunnahs or sub-divisions, with 585 villages, mostly lying in the richest part of the Chhatisgarh plain.

RHAMNACEÆ. *Lindl.* The Buckthorn tribe of plants comprising 10 gen. 28 sp. viz, 14 Zizyphus; 1 Berchemia; 2 Sageretia; 1 Ventilago; 2 Rhamnus; 1 Scutia; 1 Hovenia; 3 Colubrina; 1 Vitmannia; 2 Gouania.

RHAMNUS, a genus of plants of the natural order Rhamnaceæ, of which several species grow in the Himalaya and China. In Europe the juices of the unripe fruits of Rhamnus infectorius, catharticus and virgatus, known as Turkey or French berries, are used for dyeing leather yellow. When mixed with lime and evaporated to dryness, it forms the color called sap-green. M. Rondot's book entitled *Notice du Vert de Chine*, contains specimens of calico and silk dyed with 'green,' and engravings of two plants, Rhamnus utilis and Rhamnus chlorophorus, from which it is derived. These plants were new to European cultivators; they are, however, allies of the Rhamnus theezans which has long been known as a tree from which the poorest class of Chinese pluck the leaves to use as a substitute for tea. The color of the dyed silk is remarkably bright, a blue green, one of that class of colors which increase in brilliance in the light. It contains, in fact, some immediate principle which can only be developed by light, and it was a nice task for chemists to discover what this is. M. Persoz says that light will have to be more and more regarded as an industrial agent; and of the Chinese green he remarks that it is *sui generis*, containing neither yellow nor blue. By experiments made at Lyons, it appears that six species of the European Rhamnus will yield a green dye. Fortune, says of the "green indigo," that a portion of cotton cloth obtained in China by the French manufacturers being greatly admired on account of the peculiar green of its dye, was submitted to the celebrated chemist, M. Persoz, with a request that he would endeavour to ascertain the composition of the green color. The following is a summary of his report upon this subject to the Academy of Sciences. Every attempt that I made upon the specimen to detect evidence of the presence of a blue or yellow failed, and I was led to the conviction, by isolating the coloring principle, that the green was produced by a dyeing material of a peculiar nature and *sui generis* It further was evident.

That the coloring matter was an organic product of vegetable origin.

That the fabric on which it was fixed was charged with a strong dose of alum and a little oxide of iron and lime, bodies, the presence of which necessarily implied that mordants had been used in dyeing the calico.

These results were so positive, and at the same time so opposed not only to everything known in Europe regarding the composition of green color, but also to all that is recorded by writers regarding the dyeing processes employed in China for the production of green, that I was induced to go into a more detailed investigation of the subject; and about the end of last November I applied to Mr. Forbes, the American Consul at Canton, for some of this valuable material. I am indebted to his kindness for a specimen weighing about one gramme (15½ grains). The substance is met with in thin plates of a blue color, having a strong analogy with that of Java indigo, but of a finer cake and differing besides from indigo both in its composition and in all its chemical properties. On infusing a small fragment of the substance in water, the liquid speedily became colored of a deep blue with a shade of green. After the temperature had been raised to the boiling point, a piece of calico, prepared for printing with mordants of alum and oxide of iron, was dipped in it and a true dye was the result. The following appearances were observed. The portion of the fabric to which alum had been applied showed a deep green, of more or less intensity, according to the strength of the mordant. The portions charged with both alum and oxide of iron yielded a deep green, with a shade of olive. The portions charged with oxide of iron alone yielded a deep olive. The parts of the cloth where no mordant had been applied remained sensibly paler. The colors thus obtained were treated with all the re-agents to which the Chinese calico had in the first instance been subjected, and they behaved in precisely the same manner. From these experiments it may be inferred,

That the Chinese possess a dye-stuff presenting the physical aspect of indigo, which dyes green with mordants of alum and iron.

That this dye stuff contains neither indigo nor any thing derived from that dyeing principle.

Mons. Legentil, President of the Chamber of Commerce of Paris, having perceived the importance of France being speedily put in possession of this valuable material, with a view to the interests of science and of industry, took the necessary steps for procuring a suitable quantity with the least possible delay, and at the same time to have inquiries made as to its origin and mode of preparation. Mr. Fortune adds, that the flowers of the Whi-mei (Sophora japonica) were sent home as of the "green indigo," but this plant yields a yellow dye and even when mixed with blue to make a green, the green is not that kind noticed by the French manufacturers. At another place, he says, here I found fields under cultivation with a kind of Rhamnus apparently. The Chinese farmer called it "Loh-zah, or "Soh-loh-shoeo" and showed me samples of the cloth which had been dyed with it. To my delight these samples corresponded exactly with those sent back from France, one of which was in my possession, but he told me that two kinds were necessary —namely the variety they cultivated in their fields and one which grew wild on the hills— in order to produce the dye in question. The former they called the yellow kind and the latter the white kind. The dye itself was not extracted by them, they were merely the growers, and therefore I could get no information as to its manufacture. I however secured a good supply of plants and seeds of both kinds, which were afterwards sent to India and England. My further inquiries on the subject of the manufacture of the "green indigo" were conducted in connection with Dr. Lockhart and the Rev. J. Edkins, of Shanghae. We found that a considerable portion of this dye was made near a city called Kia-hing-foo, situated a few miles west from Shanghae, and Mr. Edkins procured a bundle of chips there which exhibited the state in which the article is sold in the market. Since I left China I have received the following interesting letter from Dr. Lockhart, which throws much light on the subject. The information was procured by Mr. Edkins and may therefore be fully relied upon. "The bark of two kinds of the tree known as the 'green shrub' (Luk-char), one wild, which is called the white, and another cultivated, which is called the yellow, are used to obtain the dye. The white bark tree grows abundantly in the neighbourhoods of Kea-hing and Ningpo ; the yellow is produced at Tsah-kou-pang, where the dye is manufactured. This place is two or three miles west from Wang-steen, a market-town situated a little to the south of Kea-hing. The two kinds are placed together in iron pans and thoroughly boiled. The residuum is left undisturbed for three days, after which it is placed in larger earthenware vessels, and cotton cloth, prepared with lime, is dyed with it several times. After five or six immersions the coloring matter is washed from the cloth with water and placed in iron pans to be again boiled. It is then taken upon cotton yarn several times in succession and when absorbed in this way it is next washed off and sprinkled on thin paper. When half dry the paper is pasted on light screens and strongly exposed to the sun. The product is called Luk-kaon. In dyeing cotton cloth with it ten parts are mixed with three parts of sub-carbonate of potash in boiling water. The dye made at Tsah-kou-pang is not used to dye silk fabrics, because it is only a rough surface which takes it readily. To color silk with it so much of the material must be used that it will not pay. All cotton fabrics, also grass cloths, take the color readily. The dye does not fade with washing, which gives it a superiority over other greens. It is sent from Kea hing as far as Shan-ting. It is also made in the province of Hoonan and at Ningpo, but the dye at these places is said to be of an inferior quality. It has long been used by painters in water-colors, but the application of it to dye cloth was first made only about A. D. 1825. If some method could be discovered of applying it to silk fabrics it would become still more useful. The above information obtained by Mr Edkins on this subject is, no doubt, perfectly correct. It agrees, says Mr. Fortune, in the most important particulars with what I had gleaned from time to time amongst the Chinese in various parts of the country. The chips he brought with him from Keahing were identical with the ' Soh-loh," or " Loh-zah," (Rhamnus sp.) which I have already mentioned, and his statement that two varieties of the plant are used to produce the dye agrees with my own observations. The mode of extracting the dye from the bark or wood, for both seem to be used, as practised by the Chinese, appears to be slow and tedious but with our superior knowledge of chemistry this might possibly be improved From these investigations it would appear that two coloring principles are necessary to the production of this dye. This however, will not effect the value of it as a rich and permanent green, a quality which has been appreciated by the French manufacturers, and which is also well known to the Chinese. At another place he mentions that the Rhamnus producing the (so called) green indigo has been discovered and introduced both to England and to India. The Revd. Dr. Smith also tells us that the bark of a species of Rhamnus, brought from Cheh-kiang, is used in that province (Hang-chan-fu) in the manufacture of a beautiful green dye. It is called Luh t'san by Dr. Williams and is probably the Rhamnus infecterius of botanical works. From one of this genus, the Rhamnus cathartious of Europe, the pigment called Sap green or Bladder-green is obtained. Voigt gives Rhamnus incanus and R. virgatus as plants of India.—*Fortune's Res. among the Chinese, pp.* 146 *and* 167. *Smith's Chinese Materia Medica, page* 44. *M. Persos, on the green dye of China.*

RHAMNUS INCANUS.—*Roxb.* A tree of the Moluccas with small greenish yellow flowers.—*Roxb. I.* 603. *Voigt.* 146.

RHAMNUS INFECTORIUS, Fustic. See Dyes.

RHAMNUS JUJUBA. *Linn. Rheede.* Syn. of Zizyphus jujuba.—*Lam.*

RHAMNUS NABECA, Forsk. The fruit, called Nebek, is eaten, and the leaves are used for the purpose of washing dead bodies.—*Burton's Pilgrimage to Meccah, Vol. II. p.* 105.

RHAMNUS NERIJA, *Spreng.* Syn. of Elæodendron Roxburghii, *W. & A.*

RHAMNUS OLEOIDES. See Fustic.

RHAMNUS PAUCIFLORA, and R. Staddo in Abyssinia, yields an ardent spirit.

RHAMNUS PERSICA. *Boiss.*

Kukai ....Tr. Indus
Wurak.......... ,, ,,
Nikki Kander
Jalidar... Ravi. Sutlej.

A common shrub at 2,000 to 5,000 feet on the Salt Range and the low hills beyond the Indus. Its small black fruit is said to be sweet, but when eaten in excess to affect the head.—*Dr. J. L. Stewart, p.* 41-42.

RHAMNUS PURPUREUS.—*Royle.*

Kari ; Tadru......Chenab.
Memarari .... ,,
Bal : Sinjal,... ...Jhelum.
Kunje ; Tunde.. Ravi.
Tunaua ; Madana ,,
Chaterui ...... Sutlej.

This tree is common up to near the Indus at from 4,500 to 9,500 feet. In Hazara its fruit is used as a purgative.—*Dr. J. L. Stewart, p.* 42.

RHAMNUS VIRGATUS.—*Roxb.*

Reteon ; sindrol, ..Beas
Mamral... ... .Chenab.
Phipui ; dadru...Jhelum.
Tudur ; Seta pajja ,,
Nar; Tadru; dadur Kanga.
Mutte ; Romusk.Sutlej.
Niar ; Chatbr...... ,,

A small tree of Kaghan common on all the Punjab rivers up to near the Indus at from 4,000 to 9,500 feet, grows along the Himalaya and on the Neilgherries. Fruit bitter ; and when eaten causes diarrhœa.—*Voigt.* 146. *Dr. J. L Stewart,* 462.—*Cleghorn.*

RHAMNUS WIGHTII. *W. & A.*

Rugt-rorar... ... ...Bombay.

RHAMNUS XYLOPYRUS, Retz. Syn. of Zizyphus xylopyra —*Willd.*

RHAMNUS ZEYLANICUS, Burm. Syn. of Phyllanthus multiflorus. *Willd.*

RHANGKUL. See Kuki.

RHAPIS FLABELLIFORMIS. *Ait.* A tree of China and Japan.

RHAZYA STRICTA.—*Dne.*

Sanwar...... ... ...Hind.
Vena......Sutlej. Ravi.
Gaudera... .. Tr. Indus.
Ganera.......... ,, ,,

Grows all over the hill sides at Attock, fruit applied to boils.—*Powell's Hand-Book, Vol.* 1. *p.* 361.—*Dr. J. L. Stewart,* M. D.

RHE or RHEI. The ruins of the ancient city of Rhe, the Rhages of the Apocrypha, are a few miles south of the city of Teheran. They cover a vast extent of ground, and have supplied materials for the modern capital of Persia. The scriptural accounts of Rhe, Rhei or Rhages, during the captivity of the Jews in this part of the Babylonian empire, fully proves that Rhei was a very considerable city, at least two hundred years before their deliverance,—*Porter's Travels, Vol. I. p.* 357. —*Markham's Embassy, p.* 99. See Rhages.

RHEBARI. See Rajpoots.

RHEEA of Assam, is the Bœhmeria nivea, from which the China grass fibre is obtained, and is called in China, Chu-ma or Tchou-ma. The preparation of the fibre is tedious, and is what causes the difficulty of sending the fibre at a cheaper rate into market. Major Hannay writes, "when the stalks have become brown, for about six inches above the roots, the top is seized with the left-hand and the leaves are stripped off by passing the right-hand to the ground, near which the stalk is cut. The outer bark has first to be scraped off with a blunt-edged knife, when the exposed fibres still attached to the woody part of the stalk is exposed to the hot sun to dry. On the third morning, after being exposed to the dew for several hours, the fibre is drawn off. This is done by breaking the woody stalk right through towards the thicker end, and then separating the fibre therefrom, drawing it off slowly towards the small end, and repeating the process as often as necessary, though much of the fibre remains and may be taken off at a second breaking. The fibres now require to be carefully washed. The hanks of fibre are then separately twisted at the upper end and tied up in bundles. When the threads are required for spinning, they are prepared by drawing the single hanks several times with a blunt-edged slip of bamboo held in the right hand, when they are easily opened out to the required fineness with the fingers and thumb nails. Dr. MacGowan, of Ningpo, states that in China the last cutting is made in September, from which the finest cloth is made, the first being inferior, coarse and hard. On being cut, the leaves are carefully taken off on the spot; the stocks taken to the house and soaked in water for an hour. In cold weather the water should be tepid. After this the plant is broken in the middle, by which the fibrous portion is loosened and raised from the stalk. Into the interstice thus made, the operator thrusts the finger nails and separates the fibre from the centre to one extremity and then to the other. The stripping process is very easy. The next process is scraping the hemp, to facilitate which the fibre is first soaked in water. The strips of hemp are drawn over the blade of a small knife or scraper from within outwards, and being pressed upon by the thumb, the fibrous portion of one surface, and the mucilaginous part of the other are thus taken off. The hemp is then wiped dry and the whitest selected for fine cloth. It is afterwards bleached.

The following directions for peeling the Chu-ma or Tchou-ma in China, are translated from the Chinese. When the stems are all got in, they are split longitudinally with knives of iron or of bamboo. The bark is first removed, then the lower layer (which is white and covered with a shrivelled pellicle which comes off by itself) is scraped off with a knife. The interior fibres are then seen; they are to be removed and softened in boiling water. If the Tchou-ma be peeled in winter, the stems must be previously steeped in tepid water, in order that they may be the more easily split. The first layer of Tchou-ma is coarse and hard, and is only good for making common materials; the second is a little more supple and fine; the third, which is the best, is used for making extremely fine light articles.

Ban Rheea, or Bun Rheea, or Bon rheea, is the Jungle Rheea, of the Lepchah of Nepaul, and is supposed by some to be the Dom Rheea or China Nettle in an uncultivated or wild state. But of this there is no proof, and it is more than probable that it is a distinct species of Boehmeria, possessed of many of the same properties as the Ramee or Rheea Nettle. It grows very common, in all the Assam province, but it is cultivated largely by the Hill tribes, on the west of Yunnan and to a small extent by the Singpoo and Dhoannea tribes, of the north eastern frontier of India, to be fabricated into a coarse cloth, but chiefly for nets. A five inch rope of Rheea fibre and one of Bon Rheea each broke within a few pounds of each other, after sustaining a weight of more than nine tons. It is reported to be all that can be desired for either canvas or lines, and only requires to be known to be generally used for that purpose. The Bon Rheea thrives best in the vicinity of water or of running streams; when unmolested it grows into a tree, but by proper management of it, any quantity of young shoots can be obtained, and as the divided roots of the plant afford numerous shoots it can be propagated by slips as well as by the seed. This fibre is about five feet in length, brown in colour, strong and flexible—*Royle's Fib. Plants. Dr. McGowan.*

RHEEDE, VAN, Governor of the Dutch possessions in Malabar: at his suggestion the Hortus Malabaricus was prepared in 12 Vols. folio. This botanical work was undertaken at the suggestion of Henry Von Rheede, a Dutch Governor of Malabar: the specimens were collected in 1674 and 1675 by brahmans, and sent to Cochin, where drawings of them were executed by Mathæus, a Carmelite and missionary; corresponding descriptions were at the same time made in the Malabar language, which were afterwards translated into Portuguese by Emanuel Carneiro, a Cochin interpreter, and from that in Latin by Hermann van Douep, the Secretary to the city of Cochin: the whole was under the superintendence of Casearius, a missionary there. The work was at length published at Amsterdam between 1686 and 1703, in 12 volumes folio with 794 plates, and was edited by Commelyn, who added occasional remarks on the plants. —*Wight's Prodromus Floræ, Vol. I. p. vii. H. et Th. p.* 45.

RHEMBA, in Hindu mythology, one of Indra's court, who corresponds with Venus, the goddess of beauty. Rhemba was produced from the froth of the churned ocean. See Kurma.

RHEONJ. HIND. Acacia rheonj.

RHETSAMARAM. TEL. Xanthoxylon rhetsa, *D. C.*

RHEUM, a genus of plants belonging to the natural order Polygonaceæ, of which several species grow in the N. W. Himalaya, the roots of which known as rhubarb are valuable in medicine. One species grows in Kaghan, where it is known under the name of Chotial. R. capsicum, *Fischer*, is a plant of the Altai, R. compactum, *Linn*, grows in Tartary and China, R. crassinervium, *Fischer*, has heart-shaped leaves. R. leucorrhizon, *Pallas*, a plant of Tartary, is supposed to yield some of the best rhubarb of commerce, R. palmatum, *Linn*, grows near the great wall of China and in the Himalaya ; R. rhaphonicum, *L.* grows north of the Caspian. R. ribes, is the Riwash of Persia ; R. spiciforme, *Royle*, grows in Kunawar and in the N. W. Himalaya ; M. undulatum, *Lam.* is a plant of China and Siberia. R. Webbianum, *Royle*, grows at 12,000 feet on the Chur mountain. Dr. J. L. Stewart says that at least two species of rhubarb are frequent in parts of the Punjab Himalaya, from 6,200 to 14,000 feet, R. Moorcroftianum occurring still higher from 15,000 to 17,000 feet. The officinal ribas of the Punjab drug-sellers consists of the dried stalks from Kabul, which may partly be produced by the Rivas, or R. ribes, Gron, a native of Carmel, &c., Eastern Persia and the Hindu Kush. In Affghanistan the plant is always wild, and appears to grow abundantly in many parts. When green, the leaf stalks are rawish, and, when blanched by heaping up stones and gravel, round them, are called chukri ; when fresh (in which state they are sometimes brought to Peshawar in spring), they are eaten either raw or cooked, and they are also dried for use to be eaten with other food, and are sometimes made into a preserve. The root is imported into Affghanistan and India to be used as a purgative. It is stated by Moorcroft that the Bhotia of Garhwal apply the powdered root to wounds and bruises, and that they use it with Rubia majistha, and potash for dyeing red. R. emodi, *Wall.* R. Moorcroftianum *Meisn* ; R. spiciforme, *Royle*, all yield the officinal rhubarb root.—*Dr. J. L. Stewart, M. D. Royle's Ill. Him. Bot. Moorcroft's Travels.*

Rheum emodi, *Wall*, is a plant of the N. W. Himalaya : it is less active as a purgative, and more spongy in texture. Honigberger mentions that Rheum australe, *Don*, Rheum emodi, *Wall*, the common or small stalked rhubarb, vegetates in wild luxuriance on the Cashmerian mountains. It is considered as one of the best rhubarbs, notwithstanding the coarse appearance of its exterior : it can be had fresh and cheap in any quantity, and at any time.—*Thirty-five years in the East by Dr. Honigberger, p.* 83. *Cleghorn's Punjab Report. Kullu and Kangra, p.* 81.

RHEUM MOORCROFTIANUM. *Meisn.* A plant found by Moorcroft near the Niti pass in the Himalaya at an elevation of 12,000 feet.

RHEUM PALMATUM.—*W.*

Ta-rok-tsha-Khagi	...BURM. ARAB.
Rhubarb....	...ENG.
Rewand Chini......	HIND.
Rewand...............	,,
Chukri......	...PUNJAB.
Ribas......... ...	,,
Rewand......	......PERS.
Variatu Kalung	..TAM.

The stalks are extensively eaten in Kabul. The root is used largely by Europeans as a stomachic and astringent in small doses, and as a purgative in larger ones, especially in dyspepsia, and strumous affections.—*Powell's Hand-Book, Vol. I. p.* 369.

RHINACANTHUS COMMUNIS. *Nees. W. Ic.*

Justicia nasuta, *Roxb. Rh.*

Jui pani	BENG.
Jui pona.	,,
Palek Julu......... ...	HIND.
Kabutar Ki-jar Ki-jar	,,
Pul-Colli......	MALEAL.
Puekolli ..	,,
Naga mulli...	TAM.
Pilkolu	TEL.

Grows throughout British India, where it is used as a remedy in snake bite and the root as an excitant.—*O'Shaughnessy's Bengal Dispensary, pp.* 8, 481. *Riddell. Irvine, Gen. Med. Top. p.* 173.

RHIND, a great race dwelling in Beluchistan, the number of whose branches is forty-four. Though reckoned Balooch they are not of the Brahui stock, and their traditions allege that they immigrated ages ago from Damascus and Aleppo. Their language is the Jetki, in common with that of the other inhabitants of Cutch Gandava and mard-i-Rhind, means a brave man. The Rhind of Cutch Gandava are of the Utanzye division. Other Rhind tribes reside as under :

Utanzye, at Suran.
Dumbki, at Lehri.
Jakrani, at ,,
Doda Marri, at Kahan.
Mandarari, at Rodbar.
Bugti, hills east of Lehrat.
Sing Soloh at Teriki.
Homorari, at Tambu.
Push, at Johan.
Jamali, at Rojan.
Kallui, at Lup.
Kuchik, at Kirta.
Pugh, at Kajuri.

The Bugti are on the west bank of the Indus near Shikarpore in the east of Lehrat. Of these Rhind tribes, the Dumbki, Jakrani, Bugti and Doda Murri, have always been distinguished by their rebellious and predatory habits. The Murri tribe is considerable and inhabit the eastern portion of Kutch Gandava, and a peaceful and obedient portion of the tribe are in the hills west of the province below Jell. A large portion are at Adam-marri, on the S. E. Frontier of Sindh. The Marri of Kutch Gandava are notorious for their lawless habits. They and the Maghazzi seem to have emigrated from Mekran to Kutch Gandava, at different periods and to have become incorporated with the Jut cultivators. The Magazzi are probably of the same race as the Rhind. See Rind.

RHINOBATIS, a genus of fishes belonging to the family Squatinorajoidæ which comprises 3 Pristis ; 2 Rhinobatis ; 1 Raja ; and 1 Urogymnus.

RHINOCEROS, a genus of mammals belonging to the Family Rhinocerotidæ, of which four or five species occur in Africa and three species in the East Indies, viz. R. Indicus, the great Indian Rhinoceros ; R. Sondaicus, the lesser Indian Rhinoceros ; and R. sumatranus of Assam, Sandoway and Sumatra. The Rhinoceros was in Sindh and the Punjab at least as late as Jordanus's time, and in Peshawur province two hundred years later. According to Captain Smith, the Rhinoceros uses its tusches like the boar, in attacking animals. These are the weapons it brings into deadly play and not the horn as many people believe. On one occasion he witnessed a Rhinoceros in Nepaul destroy an elephant with its tusches. The rhinoceros has been found fossil in Ava, and Perim. Rhinoceros' hide is made into sword handles and ramrods, and its horn into goblets, and drinking cups, Mr. Blyth has identified the two-horned Rhinoceros of the Tenasserim provinces with Rh. Crossii, *Gray*, and he refers the species to Rh. Sumatranus, auctorum, which attains a development of horn hitherto unsuspected. The skull of a one-horned Rhinoceros shot by Dr. Hook near Tavoy Point, where there is a small isolated colony of the species, is that of Rh. Indicus and not Rh. Sondaicus ; seemingly all the species of Rhinoceros attack the watch-fires of travellers. Fine horns of the Asiatic two-horned Rhinoceros are difficult to procure, as they are bought up at extravagant prices by the Chinese who call them Si-koh, and their skins Si-pi. The inhabitants of the forests of Chantaburi chase wild beasts with fire-arms and nets; but they attack the Rhinoceros armed with solid bamboos, of which one end has been hardened by exposure to the fire and sharpened ; they invite the animal by loud cries and clapping their hands to meet them, which he is wont to do by rushing violently upon them, opening and closing his wide mouth ; they attack him in front, and drive the bamboos violently into his throat with surprising dexterity, taking flight on all sides. The animal, in its agony, throws itself on the ground, and becoming exhausted by the effusion of blood and the extremity of its suffering, it soon becomes the prey of its courageous assailants. In their hunting expeditious, all the passages to a district are closed with nets, and fire being applied to the jungle, the wild animals are destroyed as they seek to escape.—*Ibn Batuta, iii.* 100. *Baber, pp.* 292, 316. *Journ. Asiat. Soc. i. tom. ix.* 201. *Petis de la Croix, Timur, p.* 158, *in Yule, Cathay, I. p.* 194. *Mr. Blyth in Journal of the Asiatic Society of Bengal, p.* 193-194. —*Bowring's Siam, Vol. I. p.* 26. *Gray P. Z. L.* 1854, *p.* 250. *Phil. Tran. LXXXIII.* (1793) *tab. II. Smith's Five Years in Nepaul. Smith's Chin. Mat. Med.*

RHINOCEROS INDICUS, *Cuv. Blyth.*

R. unicornis... ... .*L.*	R. Asiaticus, *Blumenb.*
R. inermis ....*Lep.*	
Genda, Gonda, Ganda, Genra ...HIND.	Gor... ....ASSAM.

The great Indian rhinoceros or small horned rhinoceros, has one horn ; it is found in the forest swamps and dense jungles at the foot of the Himalaya, in the Terai from Rohilcund, in the Nepal Terai and Sikkim Terai from Bhutan to Nepal, but is most abundant in Assam and the Bhutan Dooar. Its length is from 9 to 12 feet and its height 4½ to 5 feet, horn occasionally 2 feet.

RHINOCEROS SONDAICUS.—*Sol. Muller, Blyth.*

R. Javanicus. F. CUV.	Lesser Indian Rhinoceros.
Warak.... .... JAV.	Badak ... ... MALAY.

This species has one horn and is 7 or 8 feet long, and 3½ to 3¾ feet high. It inhabits the Bengal Sunderbuns in the forest tract along the Mahanuddy river, and extending northwards towards Midnapore and on the northern edge of the Rajmahal hills near the Ganges. It occurs also abundantly in Burmah and through the Malayan peninsula to Java and Borneo.

RHINOCEROS SUMATRANUS, *Raffles.*

R. Sumatrensis...CUV.

The Sumatran rhinoceros is not confined to that island, but occurs in the Indo Chinese territories, in Assam and from Sandoway, in Lat. 23° N. to Sumatra. It has two horns. Dr. Oldham while with the embassy to Ava shot one which attacked his watch-fire.—*Blyth in Journ. Ben. As. Soc. Jerdon's Mammals, pp.* 233, 234, 235. *Horsfield, p.* 195. *Wallace's Archipelago.*

RHINOLOPHUS, a genus of bats of which several species occur, in the East Indies. Drs. Jerdon, Kelaart and Horsfield mention the following :

R. affinis *var* rubidus, *Kel.* Ceylon.
R. brevitarsus, *Blyth.* Darjeeling.
R. fulvidus.
R. macrotis, *Blyth.* Nepal, Mussoori.
R. mitratus, *Blyth.* Central India, Mussoori.
R. Pearsoni, *Horsf.* Darjeeling, Mussoori.
R. per-niger, *Hodgs.* Malabar, Himalaya ?
R. rouxi, *Blyth.* All India.
R sub-badius *Hodgs.* Nepal Himalaya.
R. tragatus, *Hodgs.* Nepal, Mussoori. See Cheiroptera.

RHINOLOPHUS FULVIDUS, *var* rubidus, *Kelaart.* Head and body of a deep orange red colour. Membrane pale brown. Inter-femoral membrane enclosing the whole tail, and the free edge running almost in a straight line rounded off near the tail. Length of head and body 1⅓ in ; tail ¾ in. ; expanse 8 in. This beautiful bat is seen at Kadugavana at 2,000 feet, only for a few days in the month of August.

RHINOLOPHUS, n. s. ? Rufescent-brown ; face slightly fulvous. Round the ear and on the sides of the posterior half of the body bright fulvous. Tail enclosed in the inter-femoral membrane. Head and body 2½ in. ; tail 1 in. ; expanse 11 in. Only one dried specimen procured from Kadugavana, none seen since.

RHINOPOMA HARDWICKII.—*Gray*, *Blyth*.

The long tailed leaf bat is found over almost all India, in Burmah and Malayana in old ruins, caves and clefts of rocks,—*Jerdon's Mammals of India.* See Cheiroptera Mammalia.

RHIO, a Dutch Settlement on the Eastern side of the Malay Peninsula, was obtained by them about the year 1817, from the king of Johore. for a payment of 4,000 guilders a month. Rhio Island, bordering the Straits of Rhio, is about 8 or 9 miles in circumference, and being separated from the mainland of Bintang by a very narrow channel appears to form part of it. The town of Rhio stands on its north-west point, and was formerly a port of great trade, and seems still to enjoy a considerable traffic by small vessels. It has a well built fort on a hill commanding the tower. Rhio was made a free port, with a view to encourage the natives of the Archipelago to visit it for the disposal of their produce, but the object proved an entire failure, since the native vessels from the eastward all pass it and proceed to Singapore, which is only forty miles distant. Exemption from port duties will not alone induce the natives to visit Rhio, enterprising merchants, in whom they can put confidence, being also required. The European population consists entirely of individuals in the employ of the Government, not a single European merchant being established there. The little trade enjoyed by the settlement is chiefly with Java, several native vessels arriving annually from that island, which bring rice for the supply of the inhabitants, gambier being taken in exchange. Rhio Strait, is formed on the east by the island of Bintang, and on the west by the chain of islands of which Battam, Gampang and Gollat are the chief, numerous small islets and shoals fronting the main shores on each side and very much contracting the navigable channel.

RHIPIDURA, one of the fly-catchers of India, the white fronted flycatcher, is Rhipidura albofrontata, in habits it resembles the broad-tailed species, but the clearness of the white on its body and forehead suffice to distinguish it from the broad-tailed flycatcher, Rhipidura fuscoventris is plentiful in gardens and wooded localities. It is not shy, for its size, but is bold and fearless, and will attack birds much larger than itself. The song of the male consists of a few loud and pleasing notes, uttered while the little creature is dancing along the branch with tail and wings expanded like a fan. —*Adams.* See Birds.

RHIZOBOLACEÆ. See Caryocar.

RHIZOMYS SUMATRENSIS, Raffles, var. cinereus, *McClelland.*

RHIZOPHORACEÆ, *Lindl.* The Mangrove tribe of plants, consists of trees, rarely shrubs, natives of salt swamps and marshes of the tropics, where they root in the mud, forming dense, most unhealthy jungles down to the very edge of the ocean.—

The mangrove tribe comprises 5 Genera, 9 species, viz., 2 Rhizophora ; 1 Ceriops, 1 Kandelia, 2 Bruguiera ; 3 Carallia. The coasts of the Bay of Bengal and of the Indian Islands abound in the mangrove, which is found also at the mouths of the Indus. Its bark has been used for tanning purposes, for which it is probably more suitable than for cordage. The bark of Kandelia Rheedii from the mangrove swamps is used by the Tavoy. women in dying red, but Mason thinks as a mordant. A species of Ceylon, called Kadol, by the Singhalese, is a leafy mangrove found in the western and northern provinces of Ceylon, chiefly near the mouths of the rivers. The wood weighs lbs. 65 to the cubic foot, and is used for common house building purposes. It is calculated to last 20 years. A dye is extracted from the bark, and used for colouring leather, nets, sails, &c. Another species Hiri-koddol, SINGH, is a mangrove which grows in the western and northern provinces of Ceylon, and is used for common house building purposes. A cubic foot weighs lbs. 49, and it is estimated to last 35 years. A dye is extracted from the bark.—*Royle's Fib. Pl. p.* 301.—*Mason.*—*Mr. Adrian Mendis. Roxburgh, Fl. Ind. Voigt. p* 40.

RHIZOPHORA CANDEL. *Linn. Roxb.* Syn. of Kandelia Rheedii, *W. & A.*

RHIZOPHORA CASEOLARIS. *Linn.* Syn. of Sonneratia acida.

RHIZOPHORA CONJUGATA. *Linn.*

Rhizophora candelaria, *W. & A.* ; *Blume.*
Pyu ......BURM.

A small tree of Ceylon, Malabar, Tenasserim and Java. Fl. middle-sized, white, faintly scented.—*Thwaites, p.* 120. *Voigt, p.* 41.

RHIZOPHORA CORNICULATA. *Linn.* Syn. of Ægiceras fragrans.—*Kon.*

RHIZOPHORA DECANDRA. *Roxb.*
Syn. of Ceriops roxburghianus.—*Arn.*

RHIZOPHORA GYMNORHIZA.—*Rheede.*

Kayu-api-api... MALAY.
Handeb kakora, Delta of Ganges.

This tree grows to a considerable size where the spring-tides rise over it, as in the delta of the Ganges. The wood has a sulphurous smell, and burns with a vivid light. The pith of the wood, boiled in palm wine or with fish is used as food. Trunk generally dividing before it reaches the ground like a parcel of hop poles piled up in form of a cone; the seeds hang down from their apex proceeds the root. It attains a considerable magnitude in places over which the spring tides rise. The wood is of a yellowish colour, hard and durable; its chief use is for burning and for posts with which to construct the houses of the natives. It is used for fuel in the Archipelago. The seeds of Rhizophora, gymnorhiza and R. Mangli, salt-water living trees, germinate on the branches and after increasing to a considerable length, fall into the mud where they stick with their sharp point buried in the mud, and soon take root. The roots of these trees, springing from the trunk and lower branches form a complicated series of loops and arches from five to ten feet high making an incomparable breakwater. The bark and roots of both these species serve for tanning leather as a black dye.—*Hartwig's Tropical World, p.* 97.—*Crawfurd's Dictionary. Rohde's MS. S.*

RHIZOPHORA MANGLE. *Rheede.*

Pukandel.. ...	TEL. TAM.	Manggi-Manggi.	MALAY.
Oopoopoma......	BENG.	Bhora, ...	BENG.

The Bhora of the Delta of the Ganges, the common black mangrove, is abundant on the shores of the ocean, and within the delta of the Ganges, where it grows to a considerable size. It is procured in plenty at Arracan, Malabar and Singapore, also in the east, in the Indian Archipelago it is used in tanning. The wood is dark-red, hard, and durable, and the bark is used for tanning leather. This tree forms a striking feature in the physical geography of the archipelago as it does indeed of all tropical countries, for a belt of it as deep as the reach of the tide is always found wherever there is a shallow and muddy shore. The tree rises to the height of forty or fifty feet, and is invariably found in such situations constituting a dense, and almost impenetrable forest. Each tree stands in a cradle of its own roots from five to six feet high, bare at low water but at high water covered so as to give the appearance of trees growing in the sea. The Mangrove jungle is the favorite resort of musquitos and crocodiles, and affords a convenient and almost inaccessible retreat to the pirate. The bark is used to dye chocolate color. This was one of the colors introduced by Dr. Bancroft, and for the exclusive use of which he obtained an Act of Parliament. The great length of the seed of this species gives, in a very short time a young tree, for if the apex from which the root issues is only stuck a little way into wet soil or mud, the leaves quickly unfold at the opposite end.—*Eng. Cyc.*—*Crawfurd, p.* 266. *Simmonds.*—*Rohde's MS. S. Wight's Icon. Roxb. Voigt, p.* 245—9-41.

RHIZOPHORA MUCRONATA, *Lam.*:
Rh. mangle, *Linn. Roxb.?*
,, candelaria, *W. & A.*
,, macrorrhiza, *Griff.*

Bhora....	BENG.	Pukandel....	TAM.
Uppu-ponna? ..	BENG.	Adavi ponna.	TEL.
Manggi-manggi?	MALAY.	Pukandel.	,,
Kayu api api?	,,	Uppu ponna.	,,

Grows in Madagascar, Mauritius, Arabia, at Trincomalie, Calpentyn, Negumbo and other parts of the Ceylon coast, along with R. conjugata,—also in Malabar, the Sunderbuns and Java. The wood is dark reddish, hard and durable. The flowers are large, white and sweet scented. Bark used for tanning.—*Roxb. Voigt, p.* 41. *Thw. p.* 120. *W. Ic.*

RHIZOSTOMA, one of the Medusæ, of the Acalephæ. Physalia is also one of the Acalephæ, its filaments touching the skin, impart a stinging pain. Sea water, in the deep, is of a deep violet blue. But often, in the ocean, are luminous sparks or points of light; also a soft, liquid, general, and wide spread effulgence. Occasionally are moon shaped patches of steady light and instantaneous recurrent flashes, and a milky sea is often seen. There are many minute ocean creatures, Entomostraca and others, which are luminous at night. Often the globular noctilucæ are to be seen, they are 1-275 to 1-325 of an inch in diameter and pyrosoma are also supposed to be its causes. The cause of a milky sea is not known, but a bucket of water brought from one had small Entomostraca, Megalopas, minute Medusæ, small Porpitæ, Pteropods, Annelids, and Globigerinæ, and all night the crustaceæ gave forth bright spots of luminous light. It is the small crustacea (Entomostraca) and small Medusæ (Medusidæ) which seem to exhibit the more prominent luminous properties, the larger Medusæ (Lucernaridæ) as Aurelia, Pelagia, Rhizostoma, &c., the Physophoridæ, the Porpita or Velella or the Physalia, or Portuguese man of war. The Protozoa, Noctilucæ however retain their luminosity so long as they retain organic contractility. In the majority of cases of luminous annelids, the light manifests itself in scintillations along the course of the muscles alone and only during their contraction. With the glow worm or Lampyris, there is neither combustion nor phosphorus, but the light is the product of a nervous apparatus and dependent on the will of the animal. *M. de Quatrefagese. Kulliker* quoted by *Dr. Collingwood, Figuier.*

RHODA. Guz. Hind. Catgut.

RHODIA, an out-caste race in Ceylon, little numerous, forbidden to approach a temple, or any of the higher castes. According to one tradition, these scarcely civilized beings were hunters who, on the eve of a solemn occasion, failing to obtain game, &c., murdered a child and sent its dismembered body for the king; but another tradition is to the effect that this caste persisted in eating beef after its use as food had been prohibited. The native laws forbade a Rhodia to approach a temple of Buddha or the gods, to build houses, or to live in any abode enclosed within walls, and even to this day, their dwellings are mere sheds, nor even to cultivate the soil or possess land They were forbidden to approach much less to touch or breathe upon a caste man, and all things they touch are unclean. The men wander about in parties or tribes seeking their precarious subsistence. Their women perform feats of leger-de-main, and tell fortunes, their want of chastity being proverbial. Their numbers do not exceed a thousand, and they are principally in the Kandyan province, at Saffragam, Dombera, Wallepane, &c. Nominally buddhists they are also devil worshippers. Rodeya or Rodda, in Singhalese, literally means filth. In their social degradation, they resemble the Cagots and Caqueax, who from time immemorial, have been held in abhorrence in the valleys of the Pyrenees and the plains of Bretagne, Poitou and Guienne.—*Sirr, vol. ii. p.* 215. *Ceylon.*

RHODANTHE. This beautiful annual flowering plant is a native of the Swan river in Australia. It grows to a large size, and is covered with innumerable blossoms of rose and yellow colour; when grown from seed, the plants require to be continually shifted into larger pots and the blossom buds at first pinched off; the shifting may be repeated five or six times until the plants have acquired a shrubby character, when the flowers will all expand, and continue in succession for some time.—*Riddell.*

RHODODENDRON, a genus of plants belonging to the Ericaceæ, of which many species occur in the mountainous regions of the E. Indies, the better known, being R. anthopogon, arboreum; campanulatum; puniceum; and purpureum. Perhaps the most gorgeous of the native plants of Borneo are the various species of Rhododendron, which there assume a peculiar form, being found epiphytal upon the trunks of trees. A species known as Brah in the N. W. Himalaya bears a bright red flower. Its wood is soft, used for charcoal and in zemindar's buildings. Dr. Wight gives in his Icones, Rhododendron arboreum, formosum, grande, and Griffithianum. Rhododendrons are very numerous at Lagshep, near Tumloong, and Dr. Hooker gathered, in two days, seeds of twenty-four kinds. These occurred in the following order in ascending,—

Commencing at 6,000 feet.

dalhousiæ,
vaccinioides,
camelliæflorum,
arboreum.

Above 8,000 feet.

argenteum,
falconeri,
barbatum,
campbelliæ,
edgeworthii,
niveum,
thomsoni,
cinnabarinum.
glaucum.

Above 10,500 feet.

lanatum,
virgatum,
campylocarpum,
ciliatum,
hodgsoni,
campanulatum.

Above 12,000 feet.

lepidotum,
fulgens,
wightianum,
anthropogon,
setosum.

No rhododendron grows at Churra, but several species occur a little further north. On the hill above Choongtam village, in Sikkim, Dr. Hooker gathered, at 5,000 to 6,000 feet, Rhododendron arboreum and Dalhousiæ, which do not generally grow at Darjeeling below 7,590 feet. Dr. Hooker collected here ten kinds of rhododendron, which, however, are not the social plants that they become at greater elevations. Still, in the delicacy and beauty of their flowers, four of them, perhaps, excel any other, they are R. Aucklandi, whose flowers are five inches and a half in diameter; R. Maddeni, R. Dalhousiæ and R. Edgeworthii all white flowered bushes, of which the two first rise to the height of small trees. In the Tonglo mountains, in Sikkim, the trees in order of prevalence were,—the scarlet Rhododendron arboreum and barbatum, the latter thirty to forty feet high as large bushy trees, both loaded with beautiful flowers and luxuriant foliage; R. Falconeri, in point of foliage, the most superb of all the Himalayan species, with trunks thirty feet high, and branches bearing at their ends only, leaves eighteen inches long: these are deep green above, and covered beneath with a rich brown down. Next in abundance to these were shrubs of Skimmia, Laureola, Symplocos, and Hydrangea, and there were still a few purple magnolias, very large Pyri, like mountain ash, and the common English yew, eighteen feet in circumference, the red bark of which is used in Nepal as a dye, and for staining the foreheads of brahmins.—*Dr. J. L. Stewart,* 133. *Voigt,* 333. *Low's Sarawak, p.* 65. *Hooker's Him. Journ. Vol. I. p.* 167. *Vol. II. pages* 25, 197, 282.

RHODODENDRON ANTHROPOGON, *Hooker*, and R. setosum, are two dwarf species with strongly scented leaves which occur at an elevation of 12,000 feet, near Wallanchoon in East Nepal.—*Hooker, Vol. I. p.* 220.

RHODODENDRON ARBOREUM. *Sm.*

Tree Rhododendron. Eng.
Brah, Bras, Broa, Chicheon.. ... ... Beas.
Mandal Chenab
Buraus... ... ... Hind.
Ardawal.. ......Jhelum.
Urvail .. „
Chiu, Dru......... Ravi.
Trikh : Gandere. Tr. Indus.

Grows up to 8,000 feet in the Alpine Punjab, and has a very wide range in India. It has lanceolate leaves, acute silvery beneath, tapering to the base; peduncles and calyxes woolly; segments of corolla 8-lobed, with crenulating, curled, margins, capsule 10-celled, tomentose. It is a native of the warmer parts of India, and is one of the most beautiful of all trees, but too delicate to bear the open air in England. It is very common all over the Neilgherry hills, either forming small clumps or dotted about. It grows 20 feet high, having a gnarled trunk and deep crimson flowers, in masses. A steep ascent in the Ryott valley in Sikkim, led through large trees of Rhododendron arboreum. The variety roseum, of R. arboreum, grows to the height of thirty and forty feet, in Sikkim, bears bright, red, sub-acid flowers, which are made into jelly, wood brown, soft, used for charcoal and in zemindars' buildings, tree gives posts 6 inch in diameter.—*Cleghorn's Punjab Report, Kullu and Kangra. Powell's Hand-book. Hooker's Him. Journ. Vol. I. p.* 167. *Vol. II. p.* 190.

RHODODENDRON ARGENTEUM. The white flowered rhododendron is found in Sikkim, at an elevation of 8,671 feet. It is a tree 30 feet high, having leaves very beautiful in the leaf buds, erect and silky. The flowers are 2 to 3 inches long, 2 to 2½ inches in diameter, always white.—*Eng. Cyc.*

RHODODENDRON AROMATICUM. Its leaves, called "talesfur" are highly fragrant and stimulating; they are brought from Cabul. *Royle's Illustrations, p.* 259.—*O'Shaughnessy, page* 425.

RHODODENDRON BARBATUM.—*Royle.* A tree from 40 to 60 feet high, branched from the base. It is one of the most beautiful of the Himalayan species, and is readily distinguished by its having bristly petioles and numerous branches floriferous at their apices. Dr. Adams observes that as he toiled up the steep ascent above his previous nights' encampment, it was a beautiful sight to behold the hill sides covered with the scarlet flowered Rhododendron barbatum, in full blossom.—*Dr. Adams' Naturalist in India. Eng. Cyc.*

RHODODENDRON CAMPANULATUM. —*D. Don.*

Shargar...... ... .. Beas.
Gaggaryurmi... Kangra.
Chumreah... ... Punjab.
Simber.. ... „
Sirngar .... Ravi.
Shinwala... „
Sim-rung ... ... Sutlej.

Leaves.

Tamaku... .... Hind.
Hulas...... ... Kashm.
Talespatr... „
Nik... „
Barg-i-tibet.. ...Kashm.
Putti .. „
Patr. ... „ !

Is found in the Sutlej valley between Rampur and Sungnam at an elevation of 10,000 to 14,000 feet. It vegetates on the Kashmir mountains; its leaves are officinal in Kashmiri and Lahore, where they are administered as errhine, to produce sneezing. The leaves are imported from Tibet and Kashmir, under the names Burg-i-tibbut and Hoolas-i-Kashmiri, and are used by the Kashmir natives as a snuff.—*Cleghorn's Punjab Report, p.* 67. *Dr. J. L. Stewart. O'Shaughnessy, p.* 425. *Thirty-five years in the East by Dr. Honig, p.* 335.

RHODODENDRON CINNABARINUM, is the "Kema Kechoong," of the Lepcha, Kema signifying Rhododendron: this species alone is said to be poisonous; and when used as fuel, it causes the face to swell and the eyes to inflame; of this Dr. Hooker observed several instances.—*Hooker.*

RHODODENDRON CAMPANULATUM, Bre or Kath of Tibet. Its bark is used for paper making in the jail at Dharmsalla, the plant is very abundant.—*Cleghorn's Punjab Report. Kullu and Kangra, p.* 80.

RHODODENDRON FALCONERI, is a white flowered species, never occurring at less than 10,000 feet above the level of the sea, is one of the most striking and distinct of the genus. It occurs in East Nepal, and in point of foliage, this is the most superb of all the Himalayan species, with trunks forty feet high, and branches bearing at their ends only with leaves nineteen inches long. These are deep green above and covered beneath with a rich brown down.—*Eng. Cyc. Hooker, Vol. I. p.* 272.

RHODODENDRON HODGSONI. Its foliage is of a beautiful bright green, with leaves sixteen inches long: its bark is as delicate as tissue paper and of a pale flesh colour. —*Hooker, Vol.* 1, *p.* 950.

RHODODENDRON EFIDOTUM.

Alpine rhododendron. Eng.
Talesfar............. N. India.
Talsur......... . ... Punjab.
Tsaluma......Punjab.
Tsuma of...Bhoteah.

This is found in the Sutlej valley between Rampur and Sungnam at an elevation of 10,000 to 14,000 feet. Leaves highly stimulant.—*Cleghorn's Punjab Report, p.* 67.

RHODODENDRON NIVALE. This, the most alpine rhododendron, spreads its small rigid branches close to the ground. It is the most alpine of woody plants, and was found by Dr. Hooker, at an elevation of 17,000 feet.—*Hooker's Him. Jour. V. II. p.* 135.

RHODODENDRON PUNICEUM.

Kaephul....Hind.

A common tree on the lower ranges of the Himalaya: the bark, called Kaephul, is brought to Ajmere, from Delhi and Mirzapoor, and is used as a rubefacient and sternutatory. Dr. Irvine found Kaephul and pounded ginger, mixed, the best substance with which to rub cholera patients to promote reaction: one maund costs five rupees. The fresh flowers are pleasantly acid, and are eaten by the hill men to quench thirst during their ascent of the hills, the flowers are also made into a jelly.—*Irvine's Gen. Med. Top.*

RHODODENDRON WALLICHII, is a very distinct and handsome species, with lilac-coloured flowers. Its leaves are quite unlike any Indian species, and the flowers in colour and size resemble those of the much cultivated R. Ponticum.—*Eng. Cyc.*

RHODYMENIACEÆ, an order of Algæ, the best known species of which is the Gracilaria spinosa, the Agar Agar of the Chinese. which is largely collected both for culinary purposes and as a component part of one of the strongest Chinese glües. It has recently been imported into England, and is occasionally used instead of carrageen moss in making jellies and blancmange.—*Eng. Cyc.*

RHOMBUS, a genus of fishes, of the order Pleuronectidæ.

RHONDUR. See India.

RHOOSKEE, Qu ? Bhooskee, a native salt obtained from the saline waters of the Loonar lake.

RHUBARB.

Rawund Sini,	Ar. Pers.	Reon........	Gr. of Dios.
Ta-hwang, ...	Chin.	Rawuncheni.	Guz. Hind.
Hwang-liang, ...	,,	Reobarbaro,...	It.
Ho-san................	,,	Rheum radix Rheum.	L.
Tahoan,......	Coch-Chin.	Ruibarbo, ...	Port. Sp.
Rhubarber, ...	Dut.	Rewen	Rus.
Rhubarbe,............	Fr.	Variattu Kalaugu,.	Tam.
Rhabarber............	Ger.		

The rhubarb of commerce is obtained from a wide extent of country, from Ladak, in L. 77½ E. to the Chinese province of Shensi, 29 degrees further east, and it receives distinguishing names according to the country from which it is imported. In the years 1846 to 1850, the imports into Britain ranged from 44 to 42 tons, and the re-exports from 64 to 99 tons priced per lb., from 6*d.* to 12*s*. 6*d.* Between 1826 and 1849 the imports ranged from 4 to 17 tons.

The Turkey Rhubarb of commerce, is called also Russian rhubarb, but in Russia is called Chinese rhubarb, it is imported into the frontier town of Kiachta, thence into Moscow and St. Petersburgh, whence it is distributed to the rest of Europe.

Bucharian Rhubarb makes its way to Vienna by Brody and Nischny and is supposed to be the inferior sorts of Turkey rhubarb.

Chinese Rhubarb, called also East Indian rhubarb, is produced in the mountains of Kan-su, but comes into the market in the three forms of Dutch trimmed or Batavian rhubarb; Half trimmed or Chinese Rhubarb; and Canton stick rhubarb.

Siberian Rhubarb, called also Siberian Rhapontic root, is supposed to be the product of R. rhaponticum.

Himalayan Rhubarb, is a product yielded by R. Moorcroftianum, *Royle*; also by R. Webbianum, *Royle*, and R. spiciferum, *Royle*. A variety of rhubarb termed rawash, is more or less plentiful in all the hills from Kalat in Baluchistan to Kandahar, and again from that place to Kabul. Attention is only paid to its growth by the inhabitants of Lughman, who supply the bazaars of the city of Kabul. They surround the choicer plants with conical coverings of stones, so as to exclude light and air, and thereby produce that whiteness of stem so much prized. The unblanched plant is called chukri, and is also exposed to sale. It makes an excellent preserve, by being first saturated in a solution of lime and then boiled with shirar, or the inspissated juice of grapes, losing, however, in this case, its characteristic flavour. Rhubarb grows in abundance, and to a large size in Barmor, and the valley through which the Ravi and its tributaries flow before reaching Dalhousie. A smaller variety deemed by the natives to be superior in quality grows in the crevices of the gneiss rocks, forming the peaks above Dharmsala. The common dock Rumex obtusifolius is not so conspicuous in the waste places of a highland glen as is the officinal rhubarb on the bare rocks in the valley of Aerang. It extends 5 or 6 miles down the valley, and ascends the slope to 500 feet above the river's bed. Captain Houchen and the Lama of Aerang said that it is equally abundant in the adjoining valley of Dingering. As it is improbable from the nature of the country that the best rhubarb is confined within very narrow limits, it becomes interesting to ascertain how near it approaches the British territories in India in order to share in the trade or attempt the cultivation. The following are four Himalyan species;

R. emodi (*Wall*), Pindree glacier, &c.
R. Webbianum (*Royle*), Choor mountain.
R. spiciforme (*Royle*), Werang pass.
R. Moorcroftianum (*Royle*), Niti pass.

The above four species yield part of the Himalayan rhubarb. The Pen-ts'au, a Chinese work on medicines, places rhubarb at the very head of poisonous plants, and, undoubtedly, Chinese rhubarb, in China, is a very poisonous drug, causing severe purging and some prostration. It grows in Kink-chau-fu in Hupeli; Sui-teh-chau in the N. E. of Shen-si; Lungsi-hien in Kan-suh; Mau-chau and Ching-tu-fu in Sech-uen. *Smith's Mat. Med. V. II. p.* 485.

RHUS. Of this genus of plants some species are poisonous, as R. veneuata, perniciosa, radicans, and toxicodendron; R. suaveolens and aromatica, exhale a pleasant odour; and some have acid berries as R. coriaria; R. bucki-amela, and Schinus molle. Rhus cotinus or Red sumach, has wood, called young fustick, which, as well as the berries, is astringent, and R. coriaria, known by the name of Sumach, is a powerful astringent, chiefly employed in tanning leather. The seed of R. parviflora, tuntereck, is frequently substituted in India for that of the sumach. R. glabra is considered a febrifuge. Rhus vernix, a Japanese tree, exudes a whitish resinous juice, which soon becomes black in the air. R. succedania and vernicifera, both common to the Himalaya and Japan, are said, in the latter, to yield a similar product. Species of other genera, as of Schinus, contain a resinous matter. A Rhus, the Coongilliya maram, of the Tamils, grows in Coimbatore very nearly allied to Roxburgh's R. Buckiamela, but distinct. The qualities of the timber are unknown. The outer sap-wood is white, fine grained and heavy, apparently very good. Two species of Rhus, Tetri and Arkhar, HIND. are plants of Kaghan. There are several species in the E. Indies. viz.:

R. semialata, *Murr.*	R. vernicifera, *D'C*
R Javanica, L. *(cult.)*	R. toxicodendron, *L.*
R. succedanea, *L.*	R. venenata.
R. sylvestris, *S. & Z.*	R. bucki-amela.
R. glabra	R. copallina &c...

—*Royle's Il. Him. Bot. p.* 179. *Wight in M. E. J. R. Thunberg.*

RHUS ACUMINATA, *D'C.*

Arkhar, Rikhul ...BEAS.	Kakur-singi. KANAWAR
Lakhar, Titar ...CHENAB.	Arkhol... ...KANGRA.
Sumach tree ...ENG.	Titri : Arkhar. RAVI.
Kakkar, Kurku, Kanawar.	

Fruit.

Hub-ul khizra.

These valuable trees are found sparingly on the Tonse river bank, below the jhula or rope bridge; the best have been removed: also in the Sutlej valley between Rampur and Sungnam at an elevation of 5,000 feet. Wood, beautiful and prized for furniture. It is frequent on the Pabur river bank below Raeenghur, many trees were seen which would yield planks 6 to 8 feet long by 2 to 2½ feet broad. The name Kakur-Singhi is given from the long curved excrescences.—*Cleghorn's Punjab Report, p.* 6, 8 *and* 64.

RHUS BUCKI-AMELA, *Roxb.*

R. amela, *G. Don.*
,, semialata, β Roxburghii, *D'C.*

Hulashing... ... KASH.	Tetri... ... ...HIND.
Rashin...... KANAWAR.	

Grows in Kumaon, Shreenuggur and the peninsula of India; Dr. Gibson says, it is not found in the Bombay presidency.—*Voigt. Drs. Wight and Gibson.*

RHUS CORIARIA.

Tumtum ...AR.	Mutchlee H'sot. HIND.
Sumach ...ENG.	Tatri ...PAN.
Elm-leaved Sumach ,,	Shumuk ...PERS.
Hide Sumach .. ,,	Mahi ... ,,

A native of Persia, Syria, Palestine, and the south of Europe, about 8 or 10 feet high, divided into numerous irregular branches. All parts of this plant have a styptic taste; to the abundance of tannic acid it owes its properties and value in the arts. The leaves are extensively used in England for tanning purposes. M. Tromsdorf found in the berries a large quantity of bimalate of lime. Used by natives in cholera and indigestion.—*O'Shaughnessy, page* 282. *Powell's Hand-book, Vol. I. p.* 339.

RHUS COPALINA. *Linn.* See Gums.

RHUS COTINUS.—*Linn.*

Baura, Tung; Titri Baghuna......CHENAB.	Paan : Bhan, Bana Manu; Ban. JHELUM. KANGRA.
Venus Sumach ... ENG.	Tung............... RAVI.
Wild olive ... ... ,,	Larga............ SUTLEJ.

A tree of Kaghan, Himalaya, Salt Range, from 2,300 to 6,000 feet, grows three feet in girth. Wood yellowish, resembles that of Pistacia integerrima, but small twigs used for baskets, leaves and bark in tanning.—*Cleghorn's Punjab Report. Dr. J. L. Stewart, Punjab Plants.*

RHUS DECIPIENS. *Wight.*

Pehunbive ... ... SINGH.	Kattu puvarasu maram... TAM.

Grows in the central province of Ceylon and in the south of India. Dr. Wight says it yields a very fine, close-grained, light coloured wood, and, if procurable of good size, the wood must be of considerable value. In Ceylon, Mr. Mendis says a cubic foot of it weighs 68 lbs., and it is used there for buildings, lasting 50 years.—*Dr. Wight. Mr. Mendis. M. E. J. R.*

RHUS KAKRASINGHEE.—*Royle.*

Kakur ...HIND	Kakra ...HIND.

Occurs in Kangra and in the outer ranges of the Himalaya, and valleys of the interior of Kumaon. The wood is handsome, yellowish brown, darkly veined, hard, heavy, fine grained, very durable, takes a good polish and is much esteemed for making into furniture. A gall is raised on it, which is used as a yellow dye. The horn-like excrescences, called Kakra-singhee, formed probably in consequence of the deposition of the ova of some insect, have long constituted a famed article of Hindoo medicine; they are found in the Deyra Dhoon and every where in the hills, at moderate elevations. Dr. Royle refers the specimens contained in his collection, which are identical with the above, to Rhus Kakra-singhee, but it has been doubted whether these galls are produced by a species of Rhus, as they are nearly identical with those found on Pistacia terebinthus.—*Mr. Thompson, MS.S. Cat. Ex.* 1862.

RHUS MYSORENSIS. The chief representative of its tribe in the barren hills of the Mysore territory; a scrubby shrub fit only for firewood.—*Dr. Gibson.*

RHUS PARVIFLORA.—*Roxb.*

Sumach. .... ENG.
Kakur................PANJ.
Toong.... ... ... PUNJABI.

This is found in the Sutlej valley between Rampur and Sungnam at an elevation of 5,000 feet. Wood, hard and yellow. Both this and R. acuminata, yield beautiful wood, the native name "Kakur Singhi," is from the long curved excrescences. The fruit of this species is called tantarik and is used as medicine by the hindus. This is found in the Sutlej valley between Rampur and Sungnam, at 5,000 feet.—*Dr. J. L. Stewart, Punjab Plants. Cleghorn's Punjab Report on Kullu and Kangra, p.* 64, 81.

RHUS SEMIALATA.—?

Sumach............ENG.
Hulug; Butairi. PANJ.
Titri............... ,,
Tung................PUNJABI.
Titar.. .... ,,

A tree of the N. W. Himalaya. Not procurable in any quantity. Not so ornamental as other woods of this family. *Cleghorn's Punjab Report.*

RHUS SUCCEDANEA.—*Linn.*

Choklu; Halashi; CHENAB
Nu-Ching .... CHIN.
Titar; Tatri .....JHELUM.
Hula; Halai, Halashi RAVI.
Kakrin; Kulashing. ,,

This tree appears to be found on most of the great rivers of the Punjab from 3,000 up to 8,000 feet. It does not grow to a great size, nor is its wood valued. The juice of its leaves it is stated blisters the skin. In Bombay, a varnish is said to be yielded by this species. Its seed yields, on being pressed, an oil which soon congeals to the consistence of tallow, and from which in Japan candles are prepared as also from the coagulated oil of the Laurus camphora, and glauca, of the Rhus vernix, and the Melia azedarach. For burning in lamps again, to light up their rooms in winter, the Japanese make use of several sorts of oil, as for instance, that of the Dryandra cordata, &c. but especially and most commonly, the Brassica orientalis. On the other hand, they use in the kitchen the finer oil of sesamum, for frying fish, and dressing other dishes.

Rhus succedanea, is said by Simmonds and the Rev. Dr. Smith to furnish the Japan wax, a substance of medium consistence between bees' wax and the ordinary vegetable tallows. It is softer, more brittle and fatty than bees' wax, easily kneaded and melts between 40° and 42° C. It contains twice as much oxygen as bees' wax and has a different composition consisting of palmitic acid united with oxide of glycerile. It has been used in England as a substitute for wax and for hard neutral fat, and after conversion with the acid both for candles and night lights. *Cleghorn's Punjab Report. Oliphant. Thunberg's Travels, Vol. IV. p.* 93. *Smith's Mat. Med.*

RHUS VENENATA, *D. C.* Poison Sumach, Swamp Sumach. is a native of North America and Japan. This plant is so exceedingly poisonous that it is said to affect some persons by merely smelling it. A touch will sometimes produce violent inflammation. It is a beautiful shrub, and well worthy of cultivation, but great care should be taken to prevent its being carelessly handled.

RHUS VERNICIA. It is from this species that the Japanese prepare their lacquer which is so fine as to resist the action of hot water.

RHUS VERNICIFERA, *D. C.*

Rhus juglandifolia—*Wall.*
Varnish bearing Sumach. | Japan varnish-tree.

The varnish tree of Japan is common in the Himalaya, in Kumaon, Nepaul and Gurhwal. Its leaves are very large and beautiful, rendering it one of the handsomest of shrubs. According to Thunberg, this is the plant which yields the celebrated Japan varnish.—*Royle's Ill. Him. Bot.*

RHUS VERNIX.—?

Rhus vernicia .....
Orrosino-ki...JAB.
Chinese Varnish Tree.

When Mr. Fortune prepared to take up his residence in China, his attention was directed by the Calcutta Agricultural Society, to the Chinese varnish tree, Rhus species, the wax insect tree, Fraxinus species, to the soap bean tree, Cœsalpinia species, and to the various trees valuable for their fruit or timber and ornamental plants: but above all to the green indigo (so called), Rhamnus species, which yielded a dye that was at that time attracting much attention in France. He says, the tree which yields the Chinese varnish is a species of Rhus which although producing an article of great value, largely used in the country for giving a fine polish to tables and chairs used in the houses of the wealthy, yet is extremely dangerous to use. The beautiful lacquerware so extensively exported from Canton to foreign countries, and which is so well known and justly admired, is produced by the varnish from this tree. It has the valuable property of being less liable than French polish to be injured by a heated vessel which may be placed upon it, but it is very poisonous and requires to be handled with great care by the workmen who use it. Indeed, even after furniture is dry it is very unsafe for certain constitutions until it has been in use for some time and the smell entirely gone. Mr. Jones, American consul at Foochow-foo, used some furniture which had been lacquered some time and was apparently quite dry and yet he was very ill for a long time from its effects, so ill that he thought he should be obliged to leave the country and go home, and Mr. Fortune had known several persons suffer most severely from the same cause.—Williams says, the beautiful appearance of the lacquerware of China owes its lustrous coloring to a composition of lamp black, andthe clarified juice obtained from a species of sumach, called Rhus vernix or R. vernicia. Wood-oils are obtained from other plants of the same family, and the different qualities of lacquer ware are owing to the use of these inferior ingredients. The real varnish tree is described by De Guignes as resembling the ash in its foliage and bark, it is about fifteen feet in height, and furnishes the sap when seven years old, which is carefully collected from incisions in the trunk opened in the summer nights. The body of the ware is wood partially smoothed, or pasteboard, upon which two or three coats of a composition of lime, paper and gum are first laid and thoroughly dried and rubbed. The surface of the wood is also hardened by rubbing coarse clay upon it, and afterwards scraping it off when dry. Two coatings of lamp black and wood oil, or in the finer articles, of lamp black and varnish, are laid upon the prepared wood, and after drying, the clear varnish is brushed on, one coating after another, with the utmost care, in close and darkened rooms, allowing it to dry well between the several coats. The articles are then laid by to be painted and gilded according to the fancy of customers, after which a last coating is given them. The varnish is brought to market in brownish cakes, and reduced to its proper fluidity by boiling; it is applied to many purposes of both a varnish and paint, when it is commonly mixed with a red or brown colour. A beautiful fabric of lacquered-ware is made by inlaying the nacre of fresh and saltwater shells in a rough mosaic of flowers, animals, &c. into the composition, and then varnishing it. Another kind, highly prized by the Chinese, is made by covering the wood with a coating of red varnish three or four lines in thickness, and then carving figures upon it in relief. The great labor necessary to produce this ware renders it expensive. A common substitute for the true varnish is the oils of the Dryandra, Jatropha, Croton, and other members of Euphorbiaceous family, expressed from their seeds by a variety of simple machines, consisting for the most part of different applications of power to cylinders and pestles by which the seeds are pressed or pounded. According to De Guignes the oil after pressing is boiled with Spanish-white in the proportion of one ounce to half a pound of oil; as it begins to thicken, it is taken off and poured into close vessels. It dissolves in turpentine, and is used as a varnish, either clear or mixed with different colors; it defends wood work from injury for a long time, and forms a good painter's oil. Boiled with iron rust, it forms a reddish brown-varnish. In order to prevent its penetrating into the wood when used clear, and to increase the lustre, a priming of lime and hog's blood simmered together into a paste is previously laid on.

Thunberg likewise says that this plant is said to yield the varnish used in Japan to lacquer. It is said to be procured from incisions made on stems that are three years old, from which it oozes like the milk of the India Rubber tree. It is tinted in a great variety of colours with colouring matter, which is rubbed into it on a copper plate, it is then laid on in successive coats and heavily embossed in gold or silver. The most common designs are the three emblems of longevity, the tortoise, the stork and the pine tree. The Varnish-tree, the Camphor-tree (Laurus camphora), the Pine (Pinus sylvestris), the Tea-tree (Thea bohea), the Cedar (Cupressus japonica), and the Bamboo cane, or reed (Arundo bambos), do not only grow wild in every part of the country, but are likewise cultivated in several places. The varnish-tree, he says, contains a milky juice, which is the best of all gums for lacquering. The camphor-tree grows wild in great abundance in the neighbourhood of Satsuma, and and on the Gotbo islands. From this tree was prepared the chief part of the camphor that was used in Europe. The Japanese split the wood and roots into very fine pieces, boil it up with water in an iron pot, covered with a wooden lid, which has a deep concavity on the inside. In this concavity they fasten a piece of straw or hay, so that the camphor, when it rises, may adhere to it. The gum camphor, on being separated from the straw, is in grains, and was packed up in wooden casks, and sold to the Dutch Company by weight.—*Thun-*

berg's Travels, Vol. IV. p. 91, 92. *William's Middle Kingdom, Vol.* I. *p.* 121. *Fortune's Residence in China, p.* 146.

RHUSA-GHADDA. TEL. Solanum verbascifolium.

RHYSICOSIA VESTITA, a beautiful purple flowered leguminous plant with small tuberous roots, cultivated to some extent in the Khasia hills.—*Hooker's Him. Jour. Vol.* II. *p.* 287. *Oliphant, Vol. ii. p.* 186.

RHYZOMYS CHINENSIS. The Chinese bamboo rat or chuck-shu is found in the western part of Kwangtung.—*William's Middle Kingdom, p.* 267.

RI. JAPAN, a league, about 30 go to a degree of latitude.—*Simmond's Dict.*

RI. HIND. Cotoneaster obtusa, also Jasminum officinale.

RI. HIND. of Kanawar, Pinus Gerardiana, Gerrard's pine.

RIAL. In Turkish Arabia and Persia, a silver coin nearly equivalent to two French francs, or about twenty pence English—*Ouseley's Travels, Vol. II. p.* 218.

RIAN. HIND. Tetranthera monopetala.

RIANG. HIND. Quercus lanata, also Q. vellanuginosa.

RIAUL. HIND. Mimosa rubicaulis.

RIAUNGI. HIND. Solanum nigrum. *R.*

RIBAS. HIND. Rheum emodi, also R. Moorcroftianum.

RIBBED FACED DEER, Pennant, Cervulus vaginalis.—*Bod. Gray.* The Barking deer, of Europeans. It dwells in the plains of India, is the " Baiker" or " Bekra" of the Mahrattas according to Sykes and Elliot, the " Ratva" and " Kaker" of the Indian continent of Hodgson, the Cervus muntjak of Sykes and the Stylocerus ratwa of Hodgson.

RIBBON.

Ruben de Soie ...... FR.
Band..................... GER.
Pheet.........GUZ. HIND.
Nastro di seta.. ......IT.
Cinte de Seda.........SP.

Silken bands of various widths and colours, both plain and flowered, and distinguished into sarsenet, satin, &c. according to the manner in which they are made: used for trimming bonnets, caps, and other purposes.—*Faulkner.*

RIBBON ISINGLASS. See Gelatine.

RIBEIRO or Ribeyro, Author of a History of Ceylon, which he presented to the king of Portugal in 1685. Abbe Le Grand prepared from it, and in 1685 published a French version. The work was first published in Portuguese in 1836.—*Tennant.*

RIBES, a genus of plants belonging to the Natural order Grossulariæ, including the goose berry, the currants. The species known in the East Indies are

R. glaciale.
R. grossularia, *L.*
R. leptostachyum, *Dne.*
R. nubicola.
R. rubrum.

Dr. Cleghorn mentions two species of Kaghan under the native names of Gwal-dakh and Gul-dagh. R. nubicola, R. glacialis and R. grossularia, the currant and gooseberry, grow in N. W. Himalaya at 11,000 and 10,000 feet; but the fruit is tasteless. Dr. Cleghorn also mentions a small, sour woolly gooseberry, called " bilitsi" in Lahaul. To these species belong the " gwaldakh," or gooseberry of Kaghan, and the " rasta" or currant of Lahaul. R. Leptostachyum, *Dne,* the yellow currant, and R. nigrum, the black currant, are not uncommon from 7,000 to 14,000 feet in the Himalaya, and the former at least grows in Tibet and was found by Dr. Bellew at about 10,000 feet near the Sufed Koh. The fruit of the latter is very like the cultivated black currant, and very fair eating. Ribes nigrum is used in preparing the liquor called ratafia.—*Faulkner. Powell's Hand-book. Cleghorn's Punjab Report, p.* 65. *Dr. J. L. Stewart, M. D. Punjab Plants.*

RIBES GLACIALE.—*Wall.* This currant is found in the Sutlej valley between Rampur and Sungnam at an elevation of 11,000 feet. Several varieties occur but the fruits are without flavour.—*Dr. Hugh Cleghorn's Punjab Report, p.* 65.

RIBES GROSSULARIA,—*L.*

R. Himalensis, *Royle.*

Gooseberry...............ENG.
Amlanch; Kansi ; pilsa: Teila.....CHENAB.
Sur-ka-Chup..SUTLEJ.

This is found on the upper Sutlej, Chenab and Jhelum ; in Tibet, in the Sutlej valley between Rampur and Sungnam at an elevation of 8,000 to 12,000 feet. Also near the Safed Koh at 10,000 feet.—*Royle, fig in Jacq., c. t.* 77.—*Cleghorn's Punjab Report, p.* 65. *Dr. J. L. Stewart, Punjab Plants.*

RIBES NUBICOLA. *Cleghorn.*

Currant.......ENG.

RIBES RUBRUM.—*Linn.*

R. Himalense.—*Dne.*

Hadar, Khadri. ... BEAS.
Rade : Ans : Phulanch Nangke. CHENAB.
Red Currant.......ENG.
Dak. Ragh ...JHELUM.
Warawane. TR. INDUS.

Occurs frequently in the Punjab, Himalaya from 5,800 to 11,000 feet, up to the Indus, and probably beyond it has a sweet acid nearly worthless fruit.—*Dr. J. L. Stewart, M. D. Punjab Plants.*

RIB FACED DEER, *Pennant* ; Cervulus moschatus.—*De Blain.* See ribbed faced deer.

RIBHUS. See Hindu.

RI-BONG. TIB. Lepus pallipes, *Hodgson.*

RIC, an ancient title applied to the highest class of priests ; Ric, Ricsha, Riciswara, were applied to royalty in old times.

RICE.

Aruz	AR.	Ryst	DUT.
Tau	CHIN.	Riz	FR.
Mi	„	Reiss	GER.
Lua	COCH-CHIN.	Chuka	GUZ.
Riis	DAN.	Padi	MALAY.

Parboiled in the husk.

Ubala chanwal.

Husked and cleaned.

Chanwal	HIND.	Birinj	PERS.
Riso	IT.	Arroz	PORT. SP.
Motsj, Gome, Ko,	JAP.	Vrihi	SANSC.
Tandul	MAHR.	Arisi	TAM.
Bras	MALAY.	Byum	TEL.
Aris	MALEAL.		

Cooked or boiled.

Khuska	HIND.	Nasi	MALAY.

Glutinous.

No	CHIN.	Padi	MALAY.

In the husk.

Dhan	HIND.	Nelluo	TAM.
Gabah	MALAY.	Udlu	TEL.

This is one of the most extensively diffused and useful of grain crops, and supports a great number of the human race. Its cultivation prevails in all the river valleys and on all the coasts of eastern and southern Asia : it is a common article of subsistence in various countries bordering on the Mediterranean : it is grown in the Japan Islands, on all the sea coasts of China, the Philippine and other large Islands of the Indian Archipelago, in Ceylon, Siam, India, on both shores of the Red Sea, in Egypt, on the shores of the Mozambique Channel, in Madagascar, in some parts of Western Africa, South Carolina, and Central America. Three species only are enumerated by Lindley.—Oryza sativa, the common rice, a native of the East : O. latifolia, a species having its habitat in South America ; and O. Nepalensis, common in Nepal. But there are a host of varieties known in the East Indies ; which, however, may for all practical purposes, be resolved into two kinds—the upland or mountain rice (O. Nepalensis, the O. mutica, of Roxburgh), and the low land or aquatic species O. sativa, *Linn.* It is always substituted by the physician, when practicable, as the food best adapted to the laborer, in season of diarrhœa and other similar diseases, is preferred before any other grain by the negro ; and if the clean rice be ground and bolted, a meal is produced which can be made up into various forms of cake and other bread, of unrivalled sweetness and delicacy.

Rice possesses the advantage attending wheat, maize, and other grains, of preserving plenty during the fluctuations of trade, and is also susceptible of cultivation on land too low and moist for the production of most other useful plants. Although cultivated principally within the tropics, it flourishes well beyond, producing even heavier and better filled grain. The chief variety of this cereal is cultivated throughout the torrid zone, wherever there is a plentiful supply of water, and it will mature, under favorable circumstances, in the Old World, as high as the 45th parallel of north latitude, and as far south as the 38th. Also, on the Atlantic side of the Western continent, it will flourish as far north as latitude 38 degrees, and to a corresponding parallel south. On the Western coast of America, it will grow so far north as 40 or more degrees. Its general culture is principally confined to the sea coasts and river valleys of India, China, Japan, Ceylon, Madagascar, Eastern Africa, the south of Europe, the Southern portions of the United States, the Spanish Main, Brazil, and the valley of Parana and Uruguay. At the Industrial Exhibition in London, in 1851, there were displayed many curious specimens and varieties of rice, grown without irrigation, at elevations of three thousand to six thousand feet on the Himalaya, where the dampness of the summer months compensates for the want of artificial moisture. At the exhibition of 1851, American rice received honorable mention for its very superior quality, and the Carolina rice was pronounced by the jury "magnificent in size, color, and clearness," and was awarded a prize medal. The jury also admitted that the American rice, though originally imported from the Old World, is now much the finest in quality. This has, however, long been known and during the years 1840 to 1870, the Governments of India introduced several of the American varieties into the Madras Presidency and several of the Himalaya rices into Lower Bengal and Oudh.

Rice being an aquatic plant, is best grown in low moist lands, that are easily inundated. The ground is ploughed superficially, and divided into squares of from twenty to thirty yards in the sides, separated from each other by dykes of earth one to two feet in height, and sufficiently broad for a man to walk upon. These dykes are for retaining the water when it is required, and to permit of its being drawn off when the inundation is no longer necessary. The ground being prepared, the water is let on, and kept at a certain height in the several compartments of the rice field, and the seedsman goes to work. The rice that is to be used as seed must have been kept in the husk ; it is first put into a sack, which is immersed in water until the grain swells and shows signs of germination ; the seedsman, walking through the inundated field, scatters the seed with his hand, as usual ; the rice immediately sinks to the bottom, and many even penetrate to a certain depth in the mud.

Rice culture in the States of America dates from the latter end of the 17th or beginning of the 18th century. The quality of American rice is of two kinds—the red and the white, from the colour of the pellicle which encloses the seed, on the removal of which both are alike white. The former was accidentally introduced by a ship captain from Madagascar, and the latter was transmitted to America by a Mr. Doubois, treasurer of those days to the E. I. Company; the former is considered the better, and so kindly did it take to the soil, and so much was it then, and ever since, thought of, that the captain aforesaid was presented with a handsome gratuity. The cultivation is carried on in South Carolina in the marshy flats which are periodically covered by the floodings of the rivers, and for such culture that State possesses peculiar advantages which not only enable the cultivator to produce his grain at a trifling cost of labor, but also of a much finer quality than in those lands which are artificially irrigated. Carolina rice has a finer, handsomer grain than that which is grown in the country of its original production. The growth of rice in North America is almost wholly confined to two States nine-tenths of the whole product, indeed, being raised in the States of Carolina and Georgia; a little is grown in North Carolina, Florida, Alabama, Texas, Lousiana, and Mississippi. The aggregate crop, for 1843, amounted to 89,879,185 lbs., while in 1847 it had risen to 103,000,000 lbs. The largest rice crop grown in South Carolina for thirty years, was in 1847 when 192,462 tierces were raised; 140,000 to 150,000 is about the average, and it has only exceeded 170,000 on four occasions. The American crop of rice in 1848, reached 162,058 tierces in market, and of these 160,330 tierces were exported from South Carolina. The yield per acre, varies in S. Carolina from twenty to sixty bushels, weighing from forty-five to forty-eight pounds when cleaned. Under favorable circumstances as many as ninety bushels to an acre have been raised. A variety is cultivated in America to a limited extent, called Cochin-China, dry, or mountain rice, from its adaptation to a dry soil without irrigation. It will grow several degrees further north or south than the Carolina rice, and has been cultivated with success in the Northern provinces of Hungary, China, Westphalia, Virginia and Maryland; but the yield is much less than that already stated, being only fifteen to twenty bushels to an acre. It was first introduced into Charleston, from Canton, by John Brodly Blake, in 1772. The rice grown about New Orleans is as sweet, if not sweeter, than that of South Carolina, but it is deficient in hardness and brightness when ready for market. Rice in Carolina is sowed as soon as it conveniently can be after the vernal equinox, from which period until the middle, and even the last of May, is the usual time of putting it in the ground. It grows best in low marshy land, and should be sowed in furrows twelve inches asunder; it requires to be flooded, and thrives best if six inches under water; is occasionally drained off, and turned on again to overflow it, for three or four times. When ripe the straw becomes yellow, and it is either reaped with a sickle, or cut down with a scythe and cradle, some time in the month of September; after which it is raked and bound, or got up loose, and threshed or trodden out, and winnowed in the same manner as wheat or barley.

Husking of rice, in America, is performed by means of a mill, constructed of two large flat wooden cylinders, formed like mill-stones, with channels or furrows cut therein, diverging in an oblique direction from the centre to the circumference, made of a heavy and exceedingly hard timber, called lightwood, which is the knots of the pitch pine. This is turned with the hand, like the common hand-mill. After the rice is thus cleared of the husks, it is again winnowed, when it is fit for exportation.

A bushel of rice will weigh about sixty-six pounds, and an acre of middling land will produce twenty-five bushels.

The dry, or mountain rice, is raised in some parts of Europe on the sides of hills. It is said to thrive well in Cochin China, in dry light soil, not requiring more moisture than the usual rains or dews supply. By long culture, the German rice, raised by the aid of water, is stated to have acquired a remarkable degree of hardiness and adaptation to the climate. The upland rice of the United States will grow on high and poor land, and produce more than Indian corn on the same land would do, even fifteen bushels, when the corn is but seven bushels. The swamp rice is more productive in the swamp, in the proportion, as is said, of twenty to sixty bushels per acre; and the use of water likewise, it is stated, makes it easier of cultivation, by enabling the planter to kill the grasses. It is thought that on rich high land, rice may be made to produce twenty-five or thirty bushels to an acre in a good season. A new variety of rice is mentioned as having been discovered in South Carolina, in 1838, called the big-grained rice. It has been proved to be unusually productive. One farmer, in 1840, planted not quite half an acre with this seed, which yielded forty-nine and a half bushels of clean winnowed rice. In 1842 he planted 400 acres, and in 1843, he sowed his whole crop with this seed. His first parcel when milled, was eighty barrels, and netted half a dollar per cwt. over the primest rice sold on the same day. Another cultivator also planted two fields in 1839, which yielded seventy-three bushels per acre. The average crop before from the same fields of fifteen and ten acres, had only been thirty-three bushels per acre. The experiment of cultivating rice in France appears to have succeeded perfectly. A piece of ground of 100 hectares in extent (250 acres) was sown with rice in 1851, in the lands of Arcachon, near Bordeaux, and the crop proved a highly satisfactory one. The seed is sown about the middle of April, and almost immediately appears above ground. Rice may be kept a very long period in the rough—perhaps a life-time. After being cleaned, if it be prime rice, and well milled, it will keep a long time in any climate ; only when about to be used (if old) it requires more careful washing to get rid of the must, which accumulates upon it. Some planters prefer for table use, rice a year old to the new. The grain is superior to any other provisions in this respect. If rice, happen to get wet, only open it to the sun and air, and it will soon dry, and be not at all injured. Rough rice may remain under water twenty-four hours without injury, if dried soon after.

At Munzo, in New Granada, the paddy fields which are not inundated, under the influence of a mean temperature of 26 deg. centrigrade (79·0 deg. Fahrenheit), yield 100 to 1.

In Piedmont, where the sowing takes place at the beginning of April, they generally use about fifty-five pounds of seed per acre, and the usual return of a rice field is reckoned at about fifty for one.

Passing eastward, towards Asia, rice is found cultivated in Egypt, becomes more general in Northern India, and holds undisputed rule in the sea boards of the two peninsulas of India, China, Japan, and some of the Eastern islands—shares in the west coasts of Africa with maize, which, on the other hand, is the exclusively cultivated corn plant of the greatest part of tropical America, with only some unimportant exceptions. On the coast of Africa rice ripens in three months ; they put it underwater when cut, where it keeps sound and good for some time.

Rice is the staple commodity of Bourbon, and it forms, together with maize and mandioc, the principal article of food amongst the negroes and colored people.

In the Isle of France or Mauritius, rice is cultivated in very damp soils, upon which a great deal of rain falls, but which are not flooded, as in other tropical countries : but the process is not so certain nor the crop so great, as when inundation is employed.

Pulses occupy an important position in the food of the people of the interior plains and plateaux of India. They are eaten with, and supply to the nitrogenous or flesh forming material in which rice and some other cereals, are defective.

Of the pea tribe, Bengal gram or Cicer arietinum, or chick pea, occupies an important position. It is largely used by the people, and constitutes, besides, the chief horse food of Northern and Western India. It can be used for this purpose for a length of time without causing heating : or the other deleterious effects ordinarily produced by the too exclusive employment of peas and beans, other pulses, known as dhal or dhol, are also very largely eaten in northern India, along with rice.

In India generally, rice is produced in every variety of soil, at every altitude and in every latitude. To name a tithe of the varieties grown would prove a tedious and useless task, for they vary with every district in which they grow and the rice of America has also been introduced. The finest is the Bengal table rice, it is inferior to the Carolina kind, and the great bulk of the Indian varieties would be unmarketable in Europe, from their poverty of body and the slovenly manner in which they are prepared. The Arracan rice is a greyish opaque grain, used in England only for manufacturing starch. Copious irrigation is required for all the varieties, the Himalaya and other hill rices alone requiring no such aid, their elevation, at times as much as 6,000 feet, securing them from the great heat to which the other varieties are exposed. Within the province of Bengal, as well as in the Madras low lying districts along the valleys of rivers and near great tanks the principal cultivation is that of rice. In most other districts this vegetable is comparatively rare. There are many varieties of the grain differing widely in colour, shape, and weight; but the ordinary description grown does not extend beyond three or four varieties. The first sowing takes place between the end of March and the latter part of May ; and as it matures and ripens within a period of about ninety days, it follows that the harvest takes place between the end of July and the middle of September. This crop is taken from sloping ground not subject to inundation, and is by far the safest, though not by any means the most abundant.

Another sowing takes place on low alluvial tracts between the middle of May and the end of June, and, requiring five months to reach maturity, will be cut between November and January. This is usually the most profitable harvest, although, from the position of the land, liable at certain times to be seriously damaged by inundations ; when, indeed, it is not an unusual thing for entire fields to be swept into the rivers. With some cultivators a practice prevails of planting out their rice from nurseries reared near their dwellings. In this case the plant is removed, when about eight or nine inches high, carried carefully to its destination, which will be some spot that was, perhaps, not available at the proper sowing time; and there the young stalks will be planted in rows, and pressed down about the roots with an inclination towards the direction whence the prevailing wind blows. These plants are said to thrive remarkably if properly placed, and to attain maturity in an incredibly short space of time. Sometimes a heavy flood will unexpectedly sweep away his first planting in which case the ryot repeats the task, knowing well that if it thrive it will amply repay him for his labour by its heavy crops. After the rice-harvest of British India the ground will be sown with some of the innumerable grains grown as cold weather crops.

In the South of India, and along the sea coasts, rice is the favourite food, but from the expenses attending the necessary irrigation it is dearer than other cereals, and the great mass of the labouring people in the interior live on dry grains and pulses. But these again take more time to prepare, more firewood to cook, and so strongly are the people of Southern India impressed with the superior character of rice as food that it indicates their well-to do or impoverished condition by their telling that they can have rice twice or only once daily or once weekly. Nevertheless, for the labouring man, the value of the dry grains, wheats, pulses and millets are far above rice, as food, and in the Peninsula the health of the jail prisoners has undoubtedly greatly improved by their introduction on Dr. Cornish's recommendation, about the year 1864.

A hill rice grows on the edge of the Himalaya mountains. The mountain rices of India are grown without irrigation, at elevations of 3,000 to 6,000 feet on the Himalaya, where the dampness of the summer months compensates for the want of artificial moisture. But it is also abundantly grown at 6,000 and even 7,000 feet on the Siwalik tract and up the valleys of N. W. Himalaya. The varieties of the hill rice are named O. mutica and O. glutinosa, and it has been recommended to introduce them into all the mountain ranges of India. Seed is to be had from the Himalaya, (Sikkim,) from Ceylon, Burmah, Cochin-China, Java, &c. Both varieties would be highly appreciated by this staple of food. The former has been reared successfully on the banks of the Thames, near Windsor; and if well up and firmly rooted it will grow through snow.

In *Kashmir*, rice is the staple of cultivation. It is sown in the beginning of May, and is fit to cut about the end of August. The grain is either sown broadcast in the place where it is intended to stand till it is ripe, or thickly in beds, from which it is transplanted when the blade is about a foot high. As soon as the season will admit, after the 21st of March, the land is opened by one or more ploughings, according to its strength, and the clods are broken down by blows with wooden mattocks, managed in general by women, with great regularity and address; after which water is let in upon the soil, which, for the most part of a reddish clay, or foxy earthy, is converted into a smooth soft mud. The seed grain, put into a sack of woven grass; is submerged in a running stream until it begins to sprout, which happens sooner or later, according to the temperature of the water and of the atmosphere, but ordinarily takes place in three or four days. This precaution is adapted for the purpose of getting the young shoots as quickly as possible out of the way of a small snail, which abounds in some of the watered lands of Kashmir, but sometimes proves insufficient to defend it against the activity of this destructive enemy. When the farmer suspects, by the scanty appearance of the plants above the water in which the grain has been sown, and by the presence of the snail drawn up in the mud, that his hopes of a crop are likely to be disappointed, he repeats the sowing, throwing into the water some fresh leaves of the Prangos plant, which either poison the snails or cause them to descend out of the reach of its influence. The seed is for the most part thrown broadcast into about four or five inches of water, which depth is endeavoured to be maintained. Differences of practice exist as to watering, but it seems generally agreed that rice can scarcely have too much, provided it be not submerged, except for a few days before it ripens, when a dried state is supposed to hasten and to perfect the maturity, whilst it improves the quality of the grain. In Kashmir it is customary to manure the rice-lands, which is never done in Hindusthan. This manure, for the most part, consists of rice straw rejected by the cattle, and mixed with cowdung. It is conveyed from the home-stead to the fields by women, in small wicker baskets, and is set on the land with more liberality than might have been expected from the distance it is carried. Many of the rice lands are situated much higher than might be thought convenient in Hindusthan and are rather pressed into this species of culture than naturally inviting, but still yield good crops, through the facility with which water is brought upon them from the streams which fall down the face of the neighbouring hills. In common seasons the return of grain is from thirty to forty for one, on an average, besides the straw.

In the *Punjab*, rice is grown in many of the plain districts especially along the banks of the rivers. The rices of the Kangra valley and of Peshawur are celebrated. And the varieties of it are very numerous, the best being the odorous kind called bas-mati or bas-marti. It is abundantly grown up to 6,000 and 7,000 feet in the Siwslik tract and up the valleys. In Kullu and Lahoul a kind of beer is stated to be prepared from rice, and on the Sutlej it is mixed with the Hordeum hexastichon barley for making beer.

In *Lower Sindh* the bhull rice is grown. Like all large rivers which flow through an alluvial soil, for a very lengthened course, the Indus has a tendency to throw up patches of alluvial deposit at its mouth; these are in Sindh called bhull, and are in general very valuable for the cultivation of the red rice of the country. The bhull are large tracts of very muddy swampy land, almost on a level with the sea, and exposed equally to be flooded both by it and the fresh water; indeed on this depends much of the value of the soil, as a bhull which is not at certain times well covered with salt water, is unfit for cultivation. They exist on both sides of the principal mouths of the Indus, in the Gorabaree and Shahbunder pergunnahs, which part of the province is called by the natives "Kukralla," and was in olden days, before the era of Goolam Shah, Kalora, a small state almost independent of the amirs of Sindh. On the left bank of the mouths of the river these bhull are very numerous and form by far the most fertile portion of the surrounding district. They bear a most dreary, desolate, and swampy appearance—are intersected in all directions by streams of salt and brackish water, and are generally surrounded by low dykes or embankments, in order to regulate the influx and reflux of the river and sea. Yet from these dreary swamps a very considerable portion of the rice consumed in Sind is produced; and the zemindars, who hold them, are esteemed amongst the most respectable and wealthy in Lower Sind. To visit a bhull the only way is to go by boat, in which it is advisable to take at least one day's provisions and water, as the time occupied in the inspection will be regulated entirely by the state of the tide and weather. To land on any of these places, is difficult, the mud being generally two or three feet deep, and it is only here and there that a footing can be secured, on the embankment surrounding the field. These islands, floating as it were in the ocean, and deriving benefit both from it and the mighty river itself, whose offspring they are, are thus cultivated. Should the river during the high season have thrown up a bhull, the zemindar selecting it for cultivation, first surrounds it with a low bund of mud, which is generally about three feet in height. These bhull being formed during the inundation, are often considerably removed from the river branches during the low season, when the river has receded to its cold weather level and the bhull is free of fresh water, he takes advantage of the first high spring tide, opens the bund and allows the whole to be covered with the salt water. This is generally done in December. The sea water remains on the land for about nine weeks, or till the middle of February, which is the proper time for sowing the seed. The salt water is now let out, and as the ground cannot, on account of the mud, be ploughed, buffaloes are driven over every part of the field, and a few seeds of the rice thrown into every footmark; the men employed in sowing being obliged to crawl along the surface on their bellies, with the basket of seed on their backs; for were they to assume an upright position, they would inevitably be bogged in the deep swamp. The holes containing the seed are not covered up, but people are placed on the bunds to drive away birds, until the young grain has well sprung up. The land is not manured, the stagnant salt water remaining on it being sufficient to renovate the soil. The rice seed is steeped in water, and then in dung and earth for three or four days and is not sown until it begins to sprout. The farmer has now safely got over his sowing, and as this rice is not as in other cases transplanted, his next anxiety is to get a supply of fresh water; and for this he watches for the freshes which usually come down the river about the middle and end of February, and if the river then reaches his bhull, he opens his bund, and fills the enclosure with the fresh water. The sooner he gets this supply the better, for the young rice will not grow in salt water, and soon withers if left entirely dry. The welfare of the crop now depends entirely on the supply of fresh water. A very high inundation does not injure the bhull cultivation, as here the water has free space to spread about. In fact the more fresh water the better. If, however, the river remains low in June, July, and August, and the south-west monsoon sets in heavily on the coast, the sea is frequently driven over the bhulls and destroys the crops. It is in fact a continual struggle between the salt water and the fresh. When the river runs out strong and full the bhulls prosper, and the sea is kept at a distance. On the other hand, the salt water obtains the supremacy when the river is low, and then the farmer suffers. Much bhull crop is destroyed in the monsoons and during heavy gales. The rice is subject to attacks, also, of a small black sea crab, called by natives Kookaee, and which, without any apparent object, cuts down the growing grain in large quantities, and often occasions much loss.

If all goes well, the crop ripens well about the third week in September, and is reaped in the water by men, either in boats, or on large masses of straw rudely shaped like a boat, and which being made very tight and close, will float for a considerable time. The rice is carried ashore to the high land, where it is dried, and put through the usual harvest process of division, &c.: and the bhull is then on the fall of the river again ready for its annual inundation by sea water.

In *Ceylon*, in the Kandian country, when the paddy is to be cultivated in mud, a piece of ground is enclosed in a series of squares or terraces, by ridges raised with mud and turf; a quantity of water is directed into the field from an adjacent stream or tank; and is allowed to remain on it for fifteen days, at the expiration of this time the field is ploughed with a yoke of buffaloes, which operation is repeated at the end of fifteen days more, when, by the rotting of the weeds and other matter, the field has become manured. After another interval of fifteen days the field is again ploughed and the broken ridges are repaired. Eight days after, the field is harrowed, and subsequently rolled or levelled; and when the water has been let out the seed is sown, having in most instances been previously made to germinate, by being spread on platforms and kept wet. The water is turned in during the night, to prevent crabs and insects from destroying the seedlings, and let out during the day; and this they continue to do till the plants attain the height of one foot. Water is only retained in the field until the ears are half ripe, otherwise they would ripen indifferently and be destroyed by vermin. A variety of coast paddy, called "moottoo samboo," was introduced into the Kandian province in 1832, which was found to produce a more abundant crop, by one-third, than the native. It is of six months' growth.

The *Madras* wild rice, from which all the cultivated varieties of this grain have sprung, is found in the Madras Presidency, in and on the borders of lakes in the Circars, on the Marine lagoons of Travancore near Allepey and other places. This wild rice is never cultivated, though the richer classes near Rajahmundry gather and eat it as a great dainty. It is white, palatable and wholesome and sells at a high price.

In *Travancore* and *Tinnevelly*, the rice fields are manured with cow dung, ashes and tree leaves. Rice seed is usually sown broadcast thickly and about 40 days or upwards transplanted, and the usual time from the planting out to the reaping season is about sixty days. When sown broadcast, thinly, to remain, in the same field, that is generally done about 15 days before the rains set in. It is generally supposed that while growing, the plants cannot have too much water, but as the ears come to maturity, the water is drawn off and the crop lies down under the weight of the ears. Every village has eight or ten varieties, there are 40 or 50 enumerated in the Peninsula of India and Mr. Moon enumerates 161 growing in Ceylon. In South India, generally there are two great crops the Kaar and the Sumbah or Peshanum. The latter is reaped in February and March, and its produce is preferred to that of the Kaar crop which is reaped in October. In the Teling Circars the two crops are designated Poona or early and Pedda worloo or great.

Cuttack.—In Cuttack, rice is the staple. It is used for food, for man, beast, and bird; for the manufacture of starch, the distillation of spirits, &c. Its varieties are as numerous as its uses. There are, in this Province, three distinct crops; the first, grown on somewhat high ground, is the early crop, sown for the most part in June, and reaped in August and September.

Ganjam.—The exclusive culture of rice in Ganjam, Cuttack and northwards into lower Bengal has been a cause of much misery and great losses of lives from famines occurring through the failures of the periodical rains, and Mr. Thornhill in 1872 counselled the partial culture of other cereals, pulses and millet.

When the field is prepared by being reduced to soft liquid mud, it is astonishing to see how soon a few labourers will plant a field, after which to keep the plants supplied with a suitable quantity of water is all that is needed, and some sorts need very little but others a great deal. After being cut down with the sickle, the produce is carried to a dry spot where it is trodden out by cattle or temporarily stacked.

The *rice of Bengal*, by the exercise of some care and skill, had been, by the middle of the 19th Century, so far improved as nearly to equal that of the Carolinas. Dr. Falconer introduced the numerous and fine varieties of rice cultivated in the Himayala; of these some of the best sort were at his suggestion distributed to cultivators along the Doab canal. The early, or "aous" rice is sown generally on high, light, and sandy soils from March to May, as showers may be favorable. It is cut variously from the end of July to the middle or end of September, and in six weeks' time, it is succeeded by what is known as 'cold weather' crop, which may be mustard, vetches, pulse, millet, sola, or gram, barley, oats, and the like. The "aumon" rice is sown in rich, deep, and loamy soils from April to June, and is reaped any time between the beginning of December and the end of January. It has richer, stronger, and every way a better crop than the "aous," but it is more exposed to inundation, and is not followed by any second crop within the year. Occasionally the early and the late crops are sown on the same land, and cut without injury to each other at different periods. A large part of the late rice is planted with the hand in rows, on land carefully ploughed, cleaned, and smoothed for the purpose. It is everywhere known as the "roa," and yields an abundant harvest. A third kind of rice, unknown in high and dry tracts of country, but very common in extensive marshy districts, is called the "boru," and from its proximity to water, is sown and grown from the month of January to the end of May. It is cultivated in places where there is too great a depth of water during the heavy rains, and consequently abundance to keep the plant moist during the fierce heat of summer. The early rice, in the most favorable season, from both grain and straw, cannot give more than five rupees per beegah. In bad seasons it may not yield more than one rupee. As much as ten or even fifteen rupees may be got from the aumon crop in good seasons; but when heavy rains, or unexpected inundations from large rivers, drown the young plants, as was the case during 1855 and 1856, and may be the case again at any time, the return is positively nothing. The "boru" rice may be expected to yield seven or eight rupees per beegah. And on these three crops, over some hundreds of miles, the hopes and anxieties of some millions hang for a large part of the year. The condition of those who live by such crops, we have found to be as follows:—Take a large plain, a crowded bazaar on market day, or a high road between two towns or villages of any importance, and it will generally be found that the men at work on the one, or buying and selling in the other, or sturdily strutting along the third, have some title, or right, or interest, or occupancy in the soil. Nearly every man has his "jumma," which is his tenant-right of occupancy, or of proprietorship. The extent of this jumma is, in conversation, and for all practical purposes, indicated not by the acreage, for few can tell the area of their possession, but by the rent demanded, for every man well knows how much he is expected to pay. A "jumma" or "jote" may then vary from five rupees to one hundred rupees. It will usually be found to be from about twelve to thirty. Obviously, the possibility of a man's paying such rent, and yet finding enough to support him, will depend, apart from all fluctuations of climate, on the rent, compared to the productiveness and extent of the tenure, on the number of months which he has to support in his own homestead, and on the number of sharers who have a joint hold on the land. The shareholders in a large jumma of eighty or one hundred rupees have been known to reach to ten, and there are often as many as four or five on a small holding of twenty rupees. This is an inevitable consequence of the law of subdivision, but it is remarkable how constantly this terminates, after two or three generations, in a separation of cousins, and a division of the inheritance into two or more shares, no longer to be held in common: and it is still more remarkable how this universal custom is rudely set to rights by the progress of disease by fever, cholera, small pox, and other scourges, which clear off whole families, and cause the inheritance to revert to the hands of a single member. If on the one hand, numerous instances may be found of families branching out, till they seem to weigh down the minute holding,—on the other, cases as frequent will occur, where father and uncles, with their offspring, have all been swept away, and the patrimonial inheritance has reverted to a single individual, with, it may be, the surviving female relations all dependent upon his exertions for bread. The jumma or holding will naturally be divided between a homestead, or "beeta," with, it may be, some garden land attached to it, and the outfield in the plain, with its early or late rice, or both. The main question relative to outfield and infield will, of course, be the average amount of rent. Few Bengal ryots really know the extent of their holdings in actual beegahs. This is the case, in many instances, where the land has never been measured, when it will be loosely stated at twenty or thirty beegahs; but if it has been measured, the ryot unluckily knows its extent but too well. There is in every pergunnah a variable rate of assessment, but one well understood.

There is, however a general understanding, expectation, or regular consent, given, or implied, that it shall not be enhanced without some very special reason. And the question to which we now come, and which is one of the last importance, is, what is the usual average, and is it a fair one? On this point, custom and opinions vary so much, in different places, and according to the different views of payers and receivers, that it is with some difficulty, and after a great deal of research, that we have arrived at a definite conclusion. Even in villages, a higher rate on the homestead and the garden, is universal. It may be as low as Rs. 2, or as high as Rs. 3-8 or Rs. 4 but the average may be taken as Rs. 2-8 or Rs. 2-12. Such rate, in itself, is nothing intolerable. What is a fair rent for the land which yields one splendid crop, or two average crops in the year? We find that the rent ot this land varies from as low as 8 annas a beegah to Rs. 2-13 and even Rs. 3, which is pretty much the same as saying that rent in England ranges from eighteen shillings or one pound an acre to fifty and fifty-five shillings. In Bengal the extremes are rare. The land may be too sandy, or too low, or too sterile, or impregnated with salt, or culturable only after a rest for a year or ten months, and in these cases, a rate of from ten to fourteen annas is quite as much as it can bear. If rich and loamy, it may well bear from eighteen to twenty annas. But repeated investigation has shown, that a ryot holding a jote of twenty beegahs, composed of homestead, high land, and deep land, pays on the whole a higher rate than this. Were the whole of the twenty beegahs assessed at no more than a rupee per beegah, we should have little to say in favor of a reduction. But when the homestead pays Rs. 2-8 or Rs. 3, the deep rice land Rs. 1-8, to 1-12 or Rs. 2, and the lighter soils from twelve annas to Rs. 1-2, as they do pay repeatedly, it is clear that the ryot has a burden laid on him, which it requires constant exertion, without intermission from sickness, litigation, or any other cause, as well as a succession of favorable seasons to enable him to support. In round numbers one rupee a beegah, or Rs. 1-2 and perhaps Rs. 1-4 in very favorablel ocalities, would be a fair and equitable assessment. But we find in some pergunnahs, that Rs. 1-4, and in others that Rs. 1-6. and Rs. 1-12, or Rs. 2 are the regular rates. Add to this occasional cesses, with an increasing family, and the families of other shareholders increasing as well, and it is very conceivable that the ryot has no easy task to perform.

To meet the rent, the ryot or tenant proprietor cultivates his land in one of the three following ways: 1, by his own thews and sinews: 2, by the labour of hired servants: 3, by the system of barga. By far the greater part of the rice crop is sown and grown by those to whom the holding belongs. The ploughing, crushing, and harrowing, the casting of the seed, the weeding during the rainy season, the cutting and carting, are most frequently all done by the holders of the jote. Hired labour is, obviously, an indication of some advance in civilization or of some substance and well being. It is the frequent resource of men who have taken service under Government, or under Zemindars, or who, with an under tenure, comprising one or more villages, retain in their own hands a small home farm. The third method of cultivation is very frequent. The proprietor having neither the skill, nor the time, nor the muscle, to sow and plough himself calls in a person whom he terms the bargadar. This person brings his own plough, bullocks, and seed and his own person and goes through all the agricultural operations, which commence in April and end in December. Having done this without any advances from the proprietor, —who does not always give one-half the seed, as stated by Mr. Wilson in his glossary,— the bargadar, at harvest-time, gets for his pains, just one-half the crop. The arrangement suits the convenience of both parties. The tenant is saved the exertion of cultivating and can follow any other business. The bargadar, who may work in one village this year, and in another the next, is saved anxieties about leases, exertions, bonuses, and payments of rent, &c. In the very worst of seasons, he has lost nothing beyond his seed and his labour. But of the three methods of cultivation, the most frequent as well as the most successful, is the first. Ryots admit that, if a man want careful ploughing, sowing, and planting, the young plant to be well weeded, and the surplus water to be regularly carried off, with a first-rate crop at the end of all, there is nothing for it but to do everything himself. The tools are primitive, the ryot is often lazy, and there is little change in the system of cropping from one year to another; but not in any part of England itself, with all the elaborate ploughs of modern invention, are there to be shown such specimens of finished and successful husbandry, as in Bengal.

A knowledge of the best system of rotation, and of the best and simplest ways of manuring and irrigating such crops, is what the ryot has not got, and what it would be well to give him; fruit trees and vegetables, if properly looked to, would become more valuable. And there is little doubt that as railways are extended through eastern and northern Bengal, there will be many more inducements to the ryot to cultivate those productions, which find a ready sale only in large stations and prosperous cities. But, with all this, a very large surface of ground will ever remain fitted for rice cultivation alone. This must be the case until scientific men shall discover some means of draining off the accumulation of water of the rainy seasons, which the thousand natural outlets of the country have yet failed to do; or some article of general consumption be found, which possesses the peculiar faculty of growing in from six inches to six feet of water, and which, with a fair chance given it will beat Neptune in a race for life or death. There may be several places, where, by cutting a canal and letting the water run off into some deep river, having its exit in the Sunderbunds, a good many acres of land might be saved from annual inundation, and bear crops of rice, instead of jungle with a broad blade. But such places are suited to engineering and not to agricultural triumphs; and it is everywhere recognized that persons intending to teach the ryot some parts of his trade, would be rather surprised to find how very much they had yet to learn. His knowledge of seed-time, and of harvest, and the general water-shed of his part of the country, is hardly susceptible of improvement; while the pains and labour, though unwilling, with which considerable patches of ground are cleaned and smoothed for the reception of rice plants, dibbled in by rows, with the hand, after being grown in a sort of nursery as well as the results of these divers operations, would be worthy of all praise in an agricultural show in England. The implements, by which these gratifying results are attained are a Bengali plough, a rude implement, suited to the means and capacity of the ryot, and to the bullocks which are to draw it. The ryot finds his baubul wood, preferred for its hardness, as well as the piece of iron for the share, and the carpenter of the village, for a remuneration of four annas, will "fix" him a plough. It is usual to give the village carpenter a general retainer for the year, in the shape of a maund of rice in the husk, in consideration of which he is to make and repair the plough and other agricultural weapons; or the ryot may buy his plough ready made. In any case the whole expense will not exceed Rs. 1-4 or 1-8 for wood, iron, and workmanship; and the article may last one, two, or even three years. The prices of bullocks, which draw the plough or the cart, vary according to the size and strength of this animal. A young and vigorous bullock will fetch from eight to ten, twelve, and even sixteen rupees. Twenty rupees for a good pair is not an uncommon price. Weak and puny animals, or those whose best days are past, will cost four, five, or six rupees each. Eight rupees is about an average price. The arrow is nothing more or less than two bamboos tied parallel to each other by cross pieces of wood, so as to form a regular ladder about eight feet long. The bullocks being harnessed, a couple of men take their stands on the ladder, so as to increase its weight, when it is dragged repeatedly over the field on which the seed has been cast, till every clod is pulverised, and the whole surface is perfectly smooth. We might term this a clod-crusher; the natives call it a "bida" or "bichara." It costs about two annas, and may be put together by the ryot himself. The instrument which resembles a harrow, in that it shows one single row of wooden teeth, is not employed till the seed has shot up some inches above the ground, when it performs somewhat of the duty which the 'scuffler' performs in Britain preventing the soil from caking and hardening, without tearing up the young and tender plant. This instrument may be purchased for about six annas. Add to this a small hand-spud for weeding, which costs about three pice: a fish basket to catch, rather than to carry fish, which costs about three annas; a triangular fish net, which is worth about five annas; a kodali or mattock, which, however is not universally needed, worth little more than a rupee; a dao or bill-hook worth about eight or ten annas, —and we have the complete stock in trade of a very considerable portion of the labouring population of Bengal. Of acute misery, helpless indigence, and downright wretchedness, there is really very little amongst the ryots of Bengal. Heat is at least as bearable as extreme cold. The poor man has in Bengal, like the poor man elsewhere, a certain amount of inevitable hardship. Agricultural operations demand considerable, not to say severe, labour. A ryot, we will say, gets up in the morning, when he eats his pan and supari, or betelnut and leaf, if he can afford it, or takes a few whiffs of his hookah. Going to the field about eight, nine, or ten o'clock, he comes home for his mid-day meal, except at ploughing-time, when if delay be highly objectionable, his food is sent out to him by one of his sons or nephews. After eating, he returns to work again, often till past sunset. An active limbed man will plough one beegah a day, but will drive the clod-crusher or the harrow over eight or ten times that extent. It is a very good day's work, when weeds are plentiful, to clear one quarter of a beegah of rice land if so much. And to plant a whole beegah with rice sprouts sown elsewhere and transplanted at a favorable moment, is enough for three men in a day. This latter operation is especially fatiguing, as the workman is constantly in a stooping position. Weeding is comparatively easy, though the feet and ancles are soaked in mud and water for hours, because the ryot literally squats down with an umbrella of matting fixed tightly over his head, without a handle, and moves on gradually as he clears a little circle round him. A pleasing feature in these operations is the invariable custom of the ryots to help each other. Half the village turn out and weed the plot of Gopal one day, of Tin Kouri the next, and of Panchoo on the third. The rice gets thus a regular clearing on one and the same date, and two or three clearings are enough for an ordinary crop.

Oudh.—Very many varieties of rice are grown in Oudh. A heavy soil and plenty of water suits them best. There are five kinds which are considered among the best; Mihee and Bansee are foremost. The peculiarity in the cultivation of these two kinds is that they are transplanted and placed about 5 inches apart. And, by this method, if the soil is good, they grow to the height of an ordinary sized man, and produce a much larger quantity than if otherwise treated. The odour and flavour of these two kinds, when cooked, are superior to those of any other kind. They are only used by those who can afford to buy them. As the labour in cultivating them makes them dearer than the other sorts, the three other varieties which are considered good are the Bateesa, the —— ? and the Phool Birinj. They are sown broadcast in June, and left so, and they are the kinds mostly used by natives. The first two mentioned, when new, sell for 10 or 12 seers per rupee, and become dearer according as they become older. The other three kinds sell for about 19 seers per rupee, and are dearer if older. Some consider Phool Birinj the best, as it swells in boiling, and has an agreeable odour.

Assam.—In the Assam valley, in the sea board of Chittagong, Arracan, Pegu, the valleys of the Burmah and Pegu rivers, in Amherst, the Tenasserim Provinces, Province Wellesley, Siam, Cochin-China, Cambodia, China, and the great Islands of the Archipelago rice is the chief grain food.

Arracan.—The fertility of this province is very great, its soil being fit for the culture of nearly all tropical productions; rice, however, is alone cultivated to any great extent; the low alluvial soil which extends over the whole country, from the foot of the mountains to the sea, being admirably suited for its growth. About 115 square miles are under culture with rice. The export trade in rice of the district from 1831 to 1843 ranged between 400,000 and 2,600,000 maunds, valued at from £130,591 to £1,131,087.

In *Burmah and Tenasserim*. A rice is universally cultivated, and cultivation has produced many varieties. The Karens have distinctive names for more than forty, and Karen mountain rice is preferred by many to that which is raised by the Burmese on the low lands; yet it is said not to be so nutritious, and on this account bears a less price in the bazaar. It is of all colors from ivory-white to coal-black. Of the black rice the Karens prepare a kind of bread, which to them supplies the place of ginger bread. A portion of seethed rice is poured into a large mortar with a prodigious quantity of sesamum seeds. Two women then take their strong ebony pestles and pound it, striking alternately until it becomes a light bounding mass. It is then thrown upon the eating stand, when the whole family seat themselves around it in oriental style, and dissever it with their sabres. The Karens have another mode of preparing this kind of rice, which is particularly convenient for travellers. A quantity unboiled is thrust into joints of small bamboos, a little water added, and the orifice closed up. It is then roasted, and if eaten with a little butter and salt it is most delicious. The Karen select only two varieties of bamboo for this purpose, and these impart to the rice a sweet delicate flavor. The Burmese rear nearly a hundred varieties of rice, but the principal distinctions between the different kinds are as follows :—Hard grain, soft grain, glutinous rice. The "Natsung" is the hardest grain, and is the rice which is prinicipally exported to Europe. The "Meedo," is the chief of the soft grain varieties. It is much preferred by the Burmese to the hard grained sorts, and it is certainly superior in taste when cooked; but the hard grained rice is chiefly purchased by the merchants for export, as it keeps better, and the soft grained rice is too much broken by European machinery in cleaning. Latterly, on the continent, this last objection appears to have been overcome, and a greater demand is consequently springing up for the Meedo rice for the markets of foreign Europe. The *Koungnyeen*, or hill rice of Burmah and Tenasserim, is called glutinous rice by Europeans, from the property it possesses when cooked, the grains all adhering in a thick glutinous mass. It is the chief article of food with the Karen and other hill tribes, but is not much eaten by the inhabitants of the low swampy plains, where the common rice is grown.

Province Wellesley.—Rice land gives an average return of 117½ fold; the maximum degree of productiveness being 600 guntang of paddy to an orlong of well flooded, alluvial land, or 150 fold, equal to 330 guntang of clean rice, weighing nearly 4,520 English pounds. The present average produce has been very moderately estimated at 470 guntang the orlong of paddy. The quantity of seed invariably allotted for an orlong of land is four guntang. In Siam, forty fold is estimated a good average produce. At Tavoy, on the Tenasserim coast, the maximum rate of productiveness of the rice land was, in 1825, and is still believed to be, nearly the same as the average of Siam; while their average was only twenty-fold.

Siam.—Rice is used by the Siamese poor as the main aliment of life; by the opulent, as an accompaniment to their meals, as bread in Europe. Glutinous rice is employed either in flour or grains. A favorite cake is thus prepared:—the rice is cooked without water or steam; it is then sprinkled with condiments consisting of ginger and other spices; it is divided into small parcels which are wrapped up in plantain leaves, and in twenty-four hours a sweet and vinous liquor exudes, when the cake is fit for eating, if kept longer they become intoxicating.

and if distilled produce arak, which, subject to re-distillation, gives a strong and fragrant drink.

In Cochin-China, rice is the "staff of life," and forms the main article of culture. There are six different sorts grown ; two on the uplands, used for confectionery, and yielding only one crop annually ; the other sorts affording from two to five crops a year ; but generally two, one in April and another in October ; or three when the inundations have been profuse.

China.—The late Dr. Gutzlaff stated, at a meeting of the Statistical Society of London, that the population of China was about 367,000,000 and the returns of the land subject to taxes used in rice cultivation there, gave nearly half an acre to each living person ; and he further stated that in the southern and well watered provinces, it is anything but uncommon to take two crops of rice, one of wheat and one of pulse, from the same land in a single season. Rice is the only article the Chinese ever offer a bounty for ; the price fluctuates according to the season, from one and three-quarter dollars to eight dollars per picul. Siam and the India Islands, particularly Bali and Lombok, supply the empire occasionally with large quantities. The price of rice in China varies according to the state of the canals leading to the interior; if they are full of water the prices rise ; if on the contrary they are low, prices fall in proportion at the producing districts. The amount of consumption is controlled, in a considerable degree, by the cost of transit ; when this is cheap prices rise from the general demand ; but when land carriage to any extent has to be resorted to, they fall ; it raises prices so much at any great distance, that rice must be used very sparingly, from its enhanced price. It is obvious that if the waters are sufficiently high to allow a boat to pass fully loaded, she does so at an expense of nearly 50 per cent less than she would do, if, from want of water, she could only take half the quantity ; when transport is cheap every one obtains a full supply ; when it is dear the rice districts have more than they can consume. In Europe, people are so much accustomed to the facilities of transit offered by railroads, boats, &c., that they do not readily take into consideration, that in China, except by water, all articles are conveyed from one place to another on men's shoulders. Taking the population of Canton at the usual estimate of a million, and allowing to each a catty a day, the quantity of rice required for one day's consumption alone in that city would be 10,000 piculs, of 133 lbs. each = 1,340,000 lbs.

In China, during the growth of the rice the fields are always kept flooded when water can be obtained. The terraces near the base of the hills are supplied by the mountain streams, and the fields which are above the level of any adjoining river or canal are flooded by the celebrated water wheel, which is in use all over the country. These machines are of three kinds. The principle in all of them is the same, the only difference being in the mode of applying the moving power, one is worked by the hand, another by the feet and the third by an animal of some kind, generally a buffalo or bullock. The rice lands are kept flooded in this way until the crops are nearly ripe, when the water is no longer necessary. It is also necessary or at least advantageous to go over the ground once or twice during the summer, and stir the soil up well amongst the roots, at the same time removing any weeds which may have sprung up. If the weather is wet, the fields retain the water for a considerable time, and then it is not an uncommon sight to see the natives wading nearly up to the knees in mud and water, when they are gathering in the harvest. In the island of Chusan, and over all the rice country of Cheking and keangsoo, there are two plants cultivated in the winter months, almost exclusively for manure ; the one is a species of Coronilla ; the other is trefoil, or clover. Large ridges not unlike those where gardeners grow celery, are thrown upon the wet rice-fields in the autumn, and the seeds of the plants are dropt in, in patches at five inches apart, on the surface of the ridges. In a few days germination commences, and long before the winter is past the tops of the ridges are covered with luxuriant herbage. This goes on growing until April, when it is necessary to prepare the ground for the rice. The ridges are then levelled and the manure plants are scattered in a fresh state over the surface of the ground. The fields are flooded, and the plough and harrow are employed to turn up and pulverise the soil. The manure thus scattered over the ground and half buried amongst the mud and water, begins to decay immediately, and gives out a most disagreeable putrid smell. This mode of manuring is generally adopted in all the rice lands in this part of China, and the young paddy doubtless derives strong nourishment from the ammonia given out in the decomposition of this fresh manure. Firewood is so scarce in the country that a great portion of the straw, cotton stalks, and grass which would go to manure the fields, is used for firing, and therefore, the plan of growing manure for the land is forced upon the farmers by necessity. The plan of using manure in a fresh state, instead of allowing it first to decay, has doubtless been found from long experience to be the best for the young paddy. The Chinese farmer is not a chemist, he knows little or nothing of vegetable physiology, but his forefathers have hit accidentally upon certain systems which are found in practice to succeed, and to these he himself adheres and hands them down unchanged to his children. The glutinous rice of the Chinese, contains much dextrine and is preferred for making conjee, dumplings and wine. The Chinese of Honan, Shen-si, Shan-si and Shantung prefer wheat to rice.

Java is the granary of plenty for all the Eastern Archipelago ; and the Dutch East India Company occupies itself in this culture with solicitude, well persuaded that a scarcity of rice might be fatal to its power. Ordinances to encourage and increase this branch of agriculture, have been promulgated at different times by an authority called to watch over the physical well-being of many millions of inhabitants. As an evident proof that the culture of rice, of which it would be difficult to fix the quantity produced annually, increases considerably, it may be mentioned that the exportation from Java, in 1840, was 1,488,350 piculs of 125 Dutch lbs. Rice is cultivated in Java in three systems. The name of "Sawah" is given to the rice fields, which can be irrigated artificially ; tepar, or tagal, are elevated but level grounds ; and gagah, or ladang, are cleared forest grounds. The two last only give one crop ; a second crop may be obtained from the sawah, which then most commonly consists of katjang, from which oil is extracted, in kapus or fine cotton, and in ubie, a kind of potato. There are, says Mr. Crawfurd, two distinct descriptions of rice cultivated throughout the Indian islands, one which grows without the help of immersion in water, and another for which that immersion is indispensably requisite. In external character there is very little difference between them, and in intrinsic value not much. The marsh rice generally brings a somewhat higher price in the market. The great advantage of this latter consists in its superior fecundity. Two very important varieties of each are well known to the Javanese husbandman, one being a large, productive, but delicate, grain, which requires about seven months to ripen, and the other a small, hardy and less fruitful one, which takes little more than five months. The first we constantly find cultivated in rich lands, where one annual crop only is taken ; and the last in well watered lands, but of inferior fertility, where the two crops may be raised. Both of these, but particularly the marsh rice, is divided into a great number of sub-varieties, characterised by being awned or otherwise, having a long or round grain, or being in color black, red, or white. The Oryza glutinosa, of Rumphius, is never used as bread, but commonly prepared as a sweetmeat.

The rudest, and probably the earliest practised mode of cultivating rice, consists in taking from forest lands a fugitive crop, after burning the trees, grass, and underwood. The ground is turned up with the mattock, and the seeds planted by dibbling between the stumps of trees. The period of sowing is the commencement of the rains, and of reaping that of the dry seasons. The rice is of course of that description which does not require immersion. The second description of tillage consists also in growing mountain or dry land rice. This mode is usually adopted on the common upland arable lands, which cannot conveniently be irrigated. The grain is sown in the middle of the dry season, either broadcast or by dibbling, and reaped in seven or five months, as the grain happens to be the larger or the smaller variety. The culture of rice by the aid of the periodical rains forms the third mode. The grain being that kind which requires submersion, the process of sowing and reaping is determined with precision by the seasons. With the first fall of the rains the lands are ploughed and harrowed. The seed is sown in beds, usually by strewing very thickly the corn in the ear. From these beds the plants, when 12 or 14 days old, are removed into the fields and thinly set by the hand. They are then kept constantly immersed in water until within a fortnight of the harvest, when it is drawn off to facilitate the ripening of the grain. The fourth mode of cultivating rice is by forcing a crop by artificial irrigation, at any time of the year ; thus, in one field, in various plots, the operations of sowing, ploughing, transplanting, and reaping may be seen at the same period. Mr. Crawfurd, says he had seen lands which had produced, from time beyond the memory of any living person, two yearly crops of rice. When this practice is pursued, it is always the five months grain which is grown. The rapid growth of this variety, has, indeed, enabled the Javanese husbandman, in a few happy situations, to urge the culture to the amount of six crops in two years and a half. Rice cultivated in a virgin soil, where the wood has been burnt off, will, under favorable circumstances, give a return of twenty-five and thirty fold. Of mountain rice, cultivated in ordinary upland arable lands, fifteen fold may be looked upon as a good return. In fertile soils, when one crop only is taken in the year, marsh rice will yield a return of twenty-five seeds. When a double crop is taken, not more than fifteen or sixteen can be expected. In the fine province of Kadu, an English acre of good land, yielding annually one green crop and a crop of rice, was found to produce of the latter 941lbs. of clean grain. In the light sandy, but well watered lands of the province of Mataram, where it is the common practice to exact two crops of rice yearly without any fallow, an acre was found to yield no more than 285 lbs. of clean rice, or an annual produce of 560 lbs.

Celebes.—Rice is grown to some extent in the Dutch portion of Celebes; it yields at a minimum one hundred and fifty fold. The average annual delivery of rice to the Government pays sixty cents for a measure of forty pounds. That which is sold for the consumption of the inhabitants may be procured at the public warehouse for a guilder at 35½ lbs.; and that which is sold for export may be had at public auction for 125 florins the coyan of 3,000 lbs.

In the Philippines, nine varieties of rice are cultivated, distinguished as under,

Binambang	Malagcquit (b)	Quinanda
Lamuyo	Bontal Cabayo	Bolohan
Malagcquit (a)	Dumali	Tang-i

The Lamuyo forms the principal article of food of the inhabitants of the coast, the malagcquit (a) is glutinous and used for making sweetmeats and fancy dishes.

Rough rice, "paddy," or grain, as it comes from the ear, is composed, first, of a rough, silicious outer covering, impervious to water, which is very useful in the neighbourhood of cities, for filling up low lots or pools, for horse beds, and for packing crockery and ice, being far better for the latter purpose than saw-dust; second, a brown flour or bran, lying directly under the outer covering; and third, the clean or white rice. The outer flour, or brown bran, which is separated from the chaff is known as "rice flour," and corresponds to the "bran" of wheat, it is a most excellent food for horses, poultry, pigs and milch cows, and always commands a ready sale. It is used extensively for these purposes at and around Charleston, and is shipped thence, by the cargo, to Boston and other Northern ports of N. America.

Rice is exported to Europe from Brazil, Java, Bengal, Arracan and Pegu. That from Arracan is generally exported unshelled, as paddy. The exports from India, were mostly from Bengal and Madras.

1850-51	Qrs. 771,572	£ 672,438
1851-52	921,555	777,030
1852-53	1,013,553	804,470
1853-54	2,464,399	1,261,806
1854-55	26,861,058	1,562,320
1855-56	32,014,220	2,598,746
1856-57	28,305,712	2,301,183
1857-58	21,199,640	3,449,173
1858-59	20,004,667	2,433,146
1859-60	22,338,640	2,276,295
1860-61	24,491,714	2,673,340

The imports into Great Britain from 1847 to 1857, ranged from 38,529 to 78,658 tons.

The people in the N. W. Himalaya make a wine from rice, and from rice and barley they prepare a beer. In making the arrack of the south of the Peninsula of India, rice forms an ingredient. The Lau spirit of the Siamese, the Badek and Brom of the Javanese, the Saki, sam-su and san-chu of the Chinese are all made from rice.—*McCulloch's Com. Dic. p.* 985. *Neilgherriensis, Ootacamund, 4th May* 1861. *Dr. J. L. Stewart. Punjab Plants, p.* 257. *Capper's Three Presidencies of India. Simmond's Colonial Magazine, Vol. x, p.* 180; *Vol. xi. p.* 92; *xii, p.* 462. *Hogg's Vegetable Kingdom, pp.* 815-817. *Drury's Useful Plants, p,* 3[illegible] *Voigt. Hortus Suburbanus. Calcuttensis,* [illegible]11. *Dr. F. P. Smith's Contributions to Materia Medica and Natural History of China,* [illegible]. *Roxb. Flora. Indica. Ainslie's Materia Indica and Materia Medica. Calcutta Review, Vol. ix. Art.* 1. *Calcutta Catalogue of the Exhibition of* 1862. *Dr. Mason's Tenasserim. Simmond's Commercial Products. Bowring's Siam, Vol. I. p.* 3. *Fortune's Wanderings in China, p.* 308. *Crawfurd's History of the Archipelago. Journal of the Indian Archipelago. Bonynge's America, p.* 45. *Poole's Statistics of Commerce. Hooker and Thomson's Flora Indica. Colonel Low on the Straits Settlements. Fortune's Wanderings in China, p.* 308. *Powell's Handbook of the Punjab Products.*

RICE BIRD. Loxia oryzivora. *Linn.*

Java Sparrow,	Glate .... JAV.
Paddy Bird... ...ENG.	Burung pipi.... SUMAT.

A bird of the East Indies.

RICE FLOUR, is ground rice. The seeds of rice contain a much less proportion of nitrogenized compounds than the other cereal grains, and particularly wheat: viz., about seven per cent:—the quantity of fatty matter is also less, and, though much difference of opinion has prevailed in reference to the value of rice as an article of diet, analysis clearly proves that it is the least nutritious of all the cereal grasses. This difference of opinion has probably arisen from the fact that rice is seldom eaten by itself, but is partaken of usually with milk, butter, or sugar, the nutritious properties of which substances have been attributed to the rice itself. The Chinese prepare a flour Mi-fen, by boiling rice and drying it in the sun and the clear grains are ground into a flour which makes an excellent gruel.—*Hassell's Adulterations of Food. Dr. Smith's Materia Medica of China.*

RICE GLUE, or Japanese Cement is made by mixing rice flour intimately with cold water, and boiling the mixture. It is white, and dries nearly transparent, hence its use in making many articles in paper. When made with a smaller quantity of water, models, busts, &c., may be formed of it.—*Tomlinson.*

RICE MILL, various machines have been contrived for cleaning rice, one of which, secured by patent to Mr. M. Wilson, in 1826, consists of an oblong hollow cylinder, laid in an inclined position, having a great many teeth stuck in its internal surface, and a central shaft, also furnished with teeth. By the rapid revolution of the shaft, its teeth are carried across the intervals of those of the cylinder, with the effect of parting the grains of rice, and detaching whatever husks or impurities may adhere to them. A hopper is set above to receive the rice, and conduct it down into the clear cylinder. About eighty teeth are supposed to be set in the cylinder, projecting so as to reach very nearly the central shaft, in which there is a corresponding number of teeth, that pass freely between the former. The cylinder may also be placed upright, or horizontal if preferred, and mounted in any convenient frame work. The central shaft should be put in rapid rotation, while the cylinder receives a slow motion in the opposite direction. The rice, as cleaned by that action, is discharged at the lower end of the cylinder, where it falls into a shute, and is conducted to the ground. The machine may be driven by hand, or by any other convenient motive power.

A simple but rude mill is in use in most parts of South Eastern Asia, for hulling paddy, and is similar to those used 4,000 years ago. It consists of two circular stones, two feet in diameter, resting one on the other ; a bamboo basket is wrought around the upper one so as to form the hopper. A peg is firmly set into the face of the upper stone, half way between its periphery and centre, having tied to it by one end a stick three feet long, extended horizontally, and attached by the other to another stick pending from the roof of the shed under which the mill is placed. This forms a crank, by which the upper stone is made to revolve on the other set firmly on the ground. The motion throws the rice through the centre of the stone, and causes it to escape between the edges of the two stones.

At Rangoon, a mill is in use which was invented by Thomas Sutherland, merchant and millowner, Melbourne, Australia, at which place the first mill was erected, and is now working. By it, three hundred and fifty tons can be turned out in the twenty-four hours, with a mere trifle as to manual labour, as nearly all the work is done by machinery. The value of rice produced by this Company's mills is already valued at 1 sh. a cwt : over native cleaned rice ; but it is believed, when the trade once know the quality, it will fetch 2 sh. a cwt. over any hand-cleaned rice.

About the year 1830, the planters of America began experiments with rice mills and about that year saw the first working of a small mill. The rice threshing-mill, steam engine attached, is now a splendid piece of operative machinery. The rice in sheaf is taken up to the thresher by a conveyor, it is threshed, the straw taken off, then thrice winnowed and twice screened, and the result in some cases exceeds a thousand bushels of clean rough rice, the work of a short winter day.—*Hassell. Dict. of Arts and Manufactures. Cat. Ex.* 1862.

RICE PAPER PLANT, Aralia papyrifera.

Tung-to-mu............ ..Chin.

Grows abundantly in its wild state in numerous parts of Formosa. The rice paper is brought from China in plain and dyed sheets and not unfrequently with various coloured designs on them. The source of this product continued long a matter of doubt, but it is now equally certain that it is produced from the Aralia papyrifera. Yoksun in Sikkim, occupies a very warm sheltered flat, many tropical genera occur, such as tall bamboos of two kinds, grasses allied to the sugar-cane, scarlet Erythrinæ, and various Araliaceæ, amongst which was one species whose pith was of so curious a structure, that Dr. Hooker had no hesitation in considering the then unknown Chinese substance called rice-paper to belong to a closely allied plant. The Chinese rice-paper has long been known to be cut from cylinders of pith which has always a central hollow chamber, divided into compartments by septa or excessively thin plates. The above supposition was confirmed, by Sir William Hooker receiving from China, after many years of correspondence, specimens of the rice-paper plant itself which very closely resembles, in botanical character as well as in outward appearance of size and habit, the above Sikkim plant.—*Dr. Hooker's Jour., page* 359. *Faulkner. Fortune's Res. among the Chinese, p.* 197. *Dr. Smith's, Mat. Medica of China.*

RICE SPROUTS.

Kuh-ya..... ..... Chin. | P'ih-mi..... ..... Chin.

In China, rice in husk is called kuh. Rice germinated and dried is used as a peptic and tonic remedy, having much the same effect as the germinated barley or malt. The sprout is sometimes rejected, sometimes retained.—*Dr. Smith's Mat. Medica of China.*

RICE STARCH, starch is more abundant in rice grain than in wheat Jaconnet obtained from Carolina rice 85-07, and from Piedmont rice 83·8 per cent. of starch. Vogel procured from a dried rice no less than 98 per cent. of starch. For purposes of ordinary starching, the peoples in the East Indies use the water in which rice has been sometimes boiled, called conjee or gunji in India, and in Chinese Mi-t'ang. A starch from rice is prepared in China, called Mi-tsiang-fen. It is the Mi-t'ang mixed up with powdered gypsum, the product cut up in thin rectangular cakes and dried in the sun. For starch making, great shipments of rice are now made from Calcutta, Akyab, Rangoon, Moulmein and Cocanada. There are several patent processes in existence for the manufacture of rice-starch, which are accomplished chiefly by digesting rice in solutions, more or less strong, of caustic alkali (soda), by which the gluten is dissolved and removed, leaving an insoluble matter composed of starch, and a white substance technically called fibre. Under Jones' patent, the alkaline solution employed contains 200 grains of real soda in every gallon of liquor, and 150 gallons of this liquor are requisite to convert 100 lbs. of rice into starch. In manufacturing rice-starch on a large scale, Patna rice yields 80 per cent. of marketable starch, and 8·2 per cent. of fibre, remaining 11·8 per cent., being made up of gluten, gruff, or bran, and a small quantity of light starch carried off in suspension by the solution. Jones' process may be thus described :—100 lbs. of rice are macerated for 24 hours in 50 gallons of the alkaline solution, and afterwards washed with cold water, drained, and ground. To 100 gallons of the alkaline solution are then to be added 100 lbs. of ground rice, and the mixture stirred repeatedly during 24 hours, and then allowed to stand for about 70 hours to settle or deposit. The alkaline solution is to be drawn off and to the deposit cold water is to be added, for the double purpose of washing out the alkali and for drawing off the starch from the other matters. The mixture is to be well stirred up and then allowed to rest about an hour for the fibre to fall down. The liquor holding the starch in suspension is to be drawn off and allowed to stand for about 70 hours for the starch to deposit. The waste liquor is now to be removed, and the starch stirred up, blued, (if thought necessary), drained, dried and finished in the usual way.—*Pharmaceutical Journal, Vol.* III. *p.* 188.

RICE STRAW is used in China for paper making, and in Europe serves to make straw plats for women's bonnets. In China the ashes of rice straw are used as an alkaline remedy in urinary and febrile affections.—*Hogg's Vegetable Kingdom, p.* 816.

RICE WINE, rice beer, and rice spirits are vinous and spirituous fluids manufactured from rice. In the Himalaya, both a beer and a wine are made. In Kullu, Lahoul, and in the Sutlej valley, a kind of beer, and in Nepal a spirit, is distilled from the grain, also a beverage called 'phaur' very much resembling ale, and procured in the same manner. In the S. of the peninsula, in the preparation of arrack spirit, rice forms an ingredient.

The Lau spirit of the Burmans and Siamese is prepared from rice.

In Java, two spirits are prepared from it. One of these, called "badek," is made by first boiling and stewing the rice with a ferment called razi, consisting of onions, black pepper and capsicum, and mixing and forming the whole into small cakes which are daily sold in the markets. After frequent stirring, the mixture is rolled into balls, which are piled upon each other over a high earthen vessel, and when fermentation has commenced, the badek exudes and is collected at the bottom. The remainder, after fermentation is completed, is sold as a dainty in the markets under the name of Tafe. The other rice spirit is called Brom and is made from Betan or glutinous rice and is of a brown, yellow or red colour according to the colour of the rice used. This is boiled in large quantities, and being stirred with 'razi,' remains exposed in open tubs until fermentation takes place when the liquor is poured into close earthen vessels. It is generally buried for several months in the earth, by which means the fermentation is checked and the strength of the liquor increased. It is sometimes made stronger by boiling.

The *Saki* of the Japanese, is a beer which a little resembles wine. It is of an unpleasant taste, but it is drank at every meal and sold at all the taverns. Before use, it is warmed in a tea kettle and drank warm out of flat lacquered ware cups. It intoxicates rapidly, but the inebriation speedily vanishes, leaving behind a disagreeable head-ache.

The Chinese prepare, from rice, different sorts of wines, of a red, white, yellow or pale colour. The best called Mandarin wine, is strong and will keep for many years. It is wholesome, but expensive, and is only used by the higher classes. Some of the rice wines are highly perfumed. A strong spirit like brandy is distilled from the lees and is called Sam-su and Shou-chu.—*Dr. Stewart, Punjab Plants. Hogg's Vegetable Kingdom, p.* 816. *Dr. Smith's Materia Medica of China, p.* 186.

RICH. Hind. Viburnum fœtens.

RICH, Claudius James, British Resident at Baghdad, born 28th March 1787, near Dijon in Burgundie, died of cholera at Shiraz on the 5th October 1821. He was British resident at Baghdad from 1806 till his death. His remains were interred without the city walls ; but to the eternal disgrace of the prince Houssain Ali mirza, the Persians could not allow them to repose undisturbed, and in 1826, the envoy to the Persian court removed them to the Armenian burying-ground at Ispahan. He travelled in Kurdistan. He was the first to engage in a series of examinations of the ruins within the limits of ancient Assyria. The remains near Hillah, in the immediate vicinity of Baghdad, first engaged his attention. His discoveries amongst the ruins of Babylon were of considerable interest, though, in results far behind what has recently been published. They consisted chiefly of fragments of inscriptions, bricks, engraved stones, and a coffin of wood; but the careful account which he drew up of the site of the ruins was of greater value, and has formed the ground-work of all subsequent inquiries into the topography of Babylon. The results of his examination and researches at Hillah and Babylon with an able dissertation in the topography of ancient Babylon, and the position of its principal buildings, appeared at Vienna, in an oriental literary journal called the "Mines de l'Orient." This memoir was translated and published in England, and was followed by a second memoir, called forth by some remarks in the "Archæologia," by Major Rennell. The two have since been published in a work containing a narrative of a journey to Babylon, edited by his widow.—*Mignan's Travels, p.* 90. *Layard's Nineveh, Vol. I. p.* xxii to xxiii.

RICHARDSON, Captain David Lester, was Principal of the Hindoo College at Calcutta, The productions of this gentleman were honoured with the praise of Macauly and his memory was long cherished by his pupils.—*Tr. of Hind. Vol. I. p. XIX.*

RICHARDSON, Sir John, a native of Leith, and a Medical Officer of the British Navy, who was present in one of the Polar Expeditions. He described the fishes of Japan.

RICH VEDA, or Rig Veda, one of the Vedas. See Caste; Sacrifice; Sacta; Vedas.

RICH'H. Hind. A Bear.

RICHH-KAS. Hind. Sambucus ebulus.

RICHH-UKLU, also Richhabi, Kilmich, Hind. Viburnum cotinifolium.

RICHNI. Hind. Euphorbia dracunculoides.

RICINOIDES AROMATICA ARBOR. Burm. Syn. of Croton lacciferum.—*Linn., W. Ic.*

RICINS-OEL. Sp. Castor Oil.

RICINUS COMMUNIS.—*Linn. Roxb. Rh.*

Dhunul Kirwa... ...	Ar.
Bed-i-anjir............	,,
Khiroa......	,,
Tehsha : Zæjt	,,
Bherenda...	Beng.
Kyet h'su.........	Burm.
Haralu......... ...	Can.
Ameru...... ...	Chenab.
P'i-ma..............	Chin.
Iraud	Duk.
Castor Oil Plant....	
Palma Christi......	Eng.
Erandi ; chota erandi Barikerandi ...	Hind.
Jarak....	Jav.
Kaliki, Madura.	Sunda.
Sit avonaka...	Maleal.
Pindi-avanak...	Maleal.
Avanak................	,,
Bedi-an-jir....	Pers.
Tangan-tangan,...	Philippine.
Eranda......	Sans.
Endaru...	Singh.
Harnanli	Sutlej, Ravi.
Sittamunaku... ...	Tam.
Chittamindialu	Tel.
Chittamudupu chettu...	Tel.
Amudopu ,, ...	,,
Erandamu ,, ...	,,
Erra mudapu., ...	,,
Pera amudam........	,,

There is a Sanscrit proverb, in the first book of the Hitopadesa, which says, "that where there are no trees, even the castor oil plant ranks as a forest tree." It grows, however, sufficiently large to produce specimens of wood, but is chiefly remarkable for the beauty of its large spreading leaves, and the value of its seeds which yield castor oil. Two varieties, one bearing small and the other large seeds, are produced all over India. The small seeded variety yields the best product, and is employed in preparing the oil exported for medicinal purposes.

Castor Oil plant, Fructibus minoribus.

The Oil.

Sitti-amunaku, yennai...	Tam.
Barik erundie katel.	Hind.
Jarak......	Malay. & Jav..
Kaliki,	Sunda. Mad.
Chittamindialoo noona,..	Tel.
Tangan tangan,	Philippine.

The fresh seeds of the castor oil plant, after having been sifted and cleaned from dust stones, and all extraneous matters, and slightly crushed between two rollers, freed by hand from husk and coloured grains, are enclosed in clean gunny. They then receive a slight pressure in an oblong mould which gives a uniform shape and density to the packet of seed. The "Bricks" as they are technically called, are then placed alternately with plates of sheet iron in water, in the ordinary screw or hydraulic press. The oil thus procured is received in clean tin pans, and water, in the proportion of a pint to a gallon of oil, being added, the whole is boiled until the water has evaporated, the mucilage will be found to have subsided and encrusted the bottom of the pan, whilst the albumen solidified by the heat, forms a white layer between the oil and the water. Great care must be taken in removing the pan from the fire, the instant the whole of the water has evaporated, which may be known by the bubbles having ceased; for, if allowed to remain longer, the oil which has hitherto been of the temperature of boiling water or 212° suddenly rises to that of oil or nearly 600° thereby heightening the color and communicating an empyreumatic taste and odour. The oil is then filtered through blanket, flannel, or American drill, and put into cans for exportation. It is usually of a light straw colour, sometimes approaching to a greenish tinge. The cleaned seeds yield from 47 to 50 per cent. of oil worth in England from 4*d.* to 5*d.* per lb. The following is the result of experiments made at Madras and

Calcutta, January 27th, 1853, to ascertain the per-centage of oil in the Castor oil seed.

Calcutta.—1,400 lbs. of seed yield 980 lbs. of kernels and 488 lbs. of raw oil as follows :—

1st sort ...	Kernels.	632lbs....	Oil....	324 lbs.
2nd sort ..	„	184lbs....	„	87½ lbs.
3rd sort...	„	164lbs....	„	76½ lbs.

Madras.—1,400 lbs. of seed yield 480 lbs. raw oil as follows :—

1st sort........................	318 lbs.	of oil.
2nd sort........................	88 lbs.	do.
3rd sort........................	74 lbs.	do.

The cost of the Madras oil was Rs. 76-1-0 viz :—

1,409 lbs. seed at Rs. 3-3 per bag of 164 lbs....................................	27	3	4
Husking, selecting kernels, cooly hire.. ..	3	11	9
Crushing, moulding, pressing, and boiling.	2	7	1
Filtering and sundries.	2	8	0
Overseer's pay, Godown rent, &c. &c.	1	6	2
300 empty quart bottles, corks, &c.	34	4	8
Cleaning and Packing charges.	4	8	0

Or an average of annas $4\frac{17}{300}$ per quart of first, second and third sort oil = 4*d*. per lb.

This oil is chiefly used as a mild purgative. Soap of good quality may be made of it, but the cost and disagreeable smell which it communicates, preclude its general use. The Exports, from Madras, for the 4 years 1849-50 to 1852-53, averaged 11,325 galls. per annum. The clearness, limpidness and absence of any offensive smell, are qualities that do not arise from any superiority of the seed, or care in extraction, but from repeated decolorization with animal charcoal, and exposure to the sun's rays which in the opinion of many eminent medical men, considerably detracts from its strength and efficacy. When manufactured in the ordinary native mill, this pure oil is sometimes used by the richer classes in lamps. Castor oil extracted hot differs from the preceding only in the mode of preparation—The seeds are boiled for two hours in water, dried for three days in the sun, freed from the shells, pounded and then boiled in fresh water, until the whole of the oil has risen to the surface. Five seers of the seeds or 13⅛ lb. should by this process yield a quart of oil. This is the sort generally used in medicine by native practitioners, it is straw-colored, and free from any unpleasant taste or smell.

Castor oil, or lamp oil, Fructibus majoribus.

Vullak ennai ... .Tam. Ped amidum ....Tel.	Chiragh-ka-tel...Hind.

This oil which is obtained from the large seeded variety of the Ricinus communis, is sometimes drawn cold, and a straw-colored specimen scarcely distinguishable in quality from the oil of the small seeded variety was shown by Lieut. Hawkes. It is, however, more usually extracted by heat, and forms the common "lamp oil" of the bazaar. The seeds, having been partially roasted over a charcoal fire, both to coagulate the albumen and to liquify the oil, are then pounded and boiled in water until the oil rises to the surface. The roasting process, however, gives it a deep red colour and an empyreumatic odour. The price of this oil varies in different parts of the country from Rs. 1-10-0 to Rs. 3-13 6 per maund of 25lbs. The average of nineteen large stations, in all parts of the Madras Presidency for the Quarter ending 31st October 1854 was Rs. 2-8 6 per maund. It is used chiefly for lamps.

The average Exports from Madras for six years is 27, 561 gallons per annum.—*Lt. Hawkes, M. E. J. R. Dr. Cleghorn in Powell's Hand-Book for the Punjab.* See Castor Oil.

RICINUS DICOCCUS, *Roxb.*

Taw-the-din-bin...Burm.

This tree grows in Amboyna and in British Burmah, but it is scarce and found only on the banks of streams in the Pegu and Tonghoo districts. It yields a very tall large timber. The wood is red and adapted to cabinet making.—*Drs. Voigt. McClelland.*

RICINUS TANARIUS.

Ubar ....Malay.

A tree of Sumatra. Sails and nets are dyed, and perhaps also tanned, with its wood. The mordants used are rice-bran, alkalis from the combustion of some vegetable matters, as the fruit stalks and mid-ribs of the cocoanut palm, and alum brought from China.

RICSHA, Sans., a bear. In hindu astronomy the general term for a constellation, Maha-Ricsha may therefore be understood either as the constellation of the great bear ; or as the great constellation. Whether the former denomination (which is the same as the name given by Europeans to the asterism called the Great Bear) be merely accidental ; or whether by that term, both Europeans and Hindus mean the same object, is uncertain.—*Edward Warren Kala Sanhita.* See Nacshatra.

RIFF, a race on this N. W. coast of Africa. See Semitic races.

RIGAS ISLANDS ; these are Pulo Roosum, Pulo Engaling, Pulo Samote, Pulo Ppogalise and Oojong Battoo Tootung, off the coast of Sumatra. Rigas Hill or Booket Qually, is one of the best marks on the coast of Sumatra.

RIGHT HAND CASTES.

Dakshina-Bhakta, Hind. Sans Sidha Hat'h.	Tengale. Tam.

In South India, a sectarian division am the vaishnava hindus, much animosity quarrels occurring between the two sects the right and left-hand, the tengali and the causes of which or the points of the disputants themselves are genera to state. Professor Wilson tells us the worship of any goddess is performed in a public manner, and agreeably to the Vaidik or Pauranik ritual, it does not comprehend the impure practices which are attributed to a different division of the adorers of sakti, and which are particularly prescribed to the followers of that system. In this form it is termed the Dakshina or right hand form of worship, to distinguish it from the Vami or Vamachari; the left hand worshippers or those who adopt a ritual contrary to that which is usual, and to what, indeed, they dare publicly avow. They worship Devi, Lakshmi, Saraswati, the Matri, the Navika, the Yogini, and even the fiend-like Dakini and Sakini, are admitted to a share of homage. Siva with the two hands, is an object of veneration, especially in the form of Bhairava, with which modification of the deity it is the object of the worshipper to identify himself. The worship of the Vama-chari, is derived from a portion of the Tantra. It resolves itself into various subjects, apparently into different sects, of which that of the Kaula or Kulina is declared to be pre-eminent. The object of the worship, is, by the reverence of Devi or Sakti, who is the female power of Siva, to obtain supernatural powers in this life, and to be identified after death with Siva and Sakti. All the forms of worship require the use of some or all of the five Makara, Mansa, Matsya, flesh, fish, wine, women and wine are the five-fold Makara, which take away all sin.

The distinction of right and left hand castes is peculiar to the south of India. It is supposed by Professor Wilson to be of modern orgin, and to have been introduced at Conjeveram, as a part of civil policy to divide the people and undermine their powers. But sir Walter Elliot is of opinion that the separation into right and left hand castes had its origin in the violent conversion of the ancient races from buddhism to hinduism, and he has been shown a figure of Budha, which the artizan caste worship. At present they seem to worship Viswakarma, but the bulk seem to recognize Siva as their supreme deity. And in the year 1872, the figure worshipped by the goldsmiths of Madras is called Samunday-Iswara, and his pictures represent a green coloured man with four hands seated on a lion, one paw of which has struck down a dark coloured warrior armed with a sword and shield. The god has a mugra cap ; he has a long trident supported between his breast and arm ; in one hand he holds a lotus flower, in another a chank shell, and the other two hands are in the position usually given to those of the figures of Vishnu and Gaudama, when preaching.

The artizans all bury their dead in a sitting posture, like that of Budha sitting, with the head of the dead close to the surface and looking to the north and their dislike to the brahmins is intense. Caste, has in the Peninsula, certainly nothing to do with religion, but relates solely to race. It is amongst the Tamil people that the right and left hand sections appear. The Idan-kai or Idan-gai, are the left hand caste, and the Valan-gai are the right hand caste. According to Professor Wilson, the names and appellations of right hand castes vary in different parts of peninsular India, but are usually supposed to be eighteen in number, viz.

Banijaga or trader.
Okhalaga or cultivator.
Jotiphana or oilmaker, employing one bullock.
Rangajiva, dyer or calico printer.
Ladaru, mahomedan traders and artificers.
Gujerati, bankers from Guzerat.
Komati, merchant shopkeepers of the Vaisya.
Jaina, Jains.
Kurubar, shepherd.
Kumbar, potter.
Agasa, washerman.
Besta, fishermen, employed as palanquin bearers.
Padma Shalaysa, weaver.
Naindu, barber.
Upparavu, tank digger.
Chitragara, painter.
Golla, cowherd.
Wallia, or Pareyan, or Paria, who is the champion for the right hand caste, as is the Madaga or Sakoli that for the left hand caste.

Of the left hand castes,

Edagai...........	Karn.	Idangai	Tam.
Edagai kula......	,,	Idam................	,,
Eddayai..........	,,	Idakai..............	,,

The Karnatie enumerations furnish,
Panchala or artisans,
a. Kammaranu, blacksmith.
b. Badage, carpenter.
c. Kansagar, brazier.
d. Kullurtiga, stone-cutter.
e. Akasale, goldsmith.
Berisethi, trader.
Devangada, weaver.
Ganigar, oil maker.
Gollur, money carrier.
Paliwan, and Palawan, cultivator.
Beda, hunter, fowler.
Madiga, tanner, currier, shoemaker.

RIGHT WHALE of South Sea whalers, Balæna Australis. *Des Moulins.*

RIGHT WHALE. Eng. Balæna mysticetus.

RIG-VEDA. is Sans. from rich, an incantation, and Veda, from vid, knowledge.

RIG VEDA SANHITA. A collection of ancient hindu hymns which were translated from the Sanscrit by Professor H. H. Wilson, in 1850 to 1857, and into French by M. Langlois in 1851. The Rig-Veda contains no mention of Rama and Krishna.

RIG-VEDA SANHITA, is a collection of ancient hindu hymns, constituting the fifth to eighth Ashtaka, or books of the Rig-Veda, the oldest authority for the religious and social institutions of the hindus. The Atharvana, the last of these, evidently belongs to a much later age than the rest. The hymns of the Rich or Rig Veda are repeated entirely in a disjointed form in the Sama, and, with little alterations, in the Atharva, also. The Yejur Veda contains principally forms of prayer. A Veda in its strict sense, is simply a sanhita or collection of hymns. These hymns form the mantra or ritual, and are the true Veda. The Rig, the Sama, and the Yejur are the three universally received. The Atharvana is of more doubtful authenticity. They comprise various sections, which are again divided and sub-divided under the distinctions of Mantra, Brahmana, It'hihasa, Purana, Upanishad, &c. They were reduced to order by Vyasa, and prescribe the moral and religious duties of mankind. But the books on divine knowledge called Veda, or what is known, and Sruti, or what has been heard from revelation, are supposed to have been very numerous ; and the four here mentioned are thought to have been selected as containing all the information necessary for man. The commentaries on these hindu scriptures, among which that of Vasishtha seems to be reputed the most excellent, are innumerable. From the Vedas are immediately deduced the practical arts of chirurgery and medicine, music and dancing ; archery, which comprises the whole art of war ; and architecture, under which the system of mechanical arts is included. The Rig-Veda Sanhita is the oldest book known to the hindoos and certainly one of the oldest books in the world. Each hymn is called a Sakta, of which there are about a thousand, arranged into eight Ashtaka or Khanda, of unequal extent. Another division is into ten Mandala, subdivided into a hundred Anuvaka. Each hymn has a Rishi or inspired writer for its author. The deities which the Rig-Veda invoke, are elemental, *i. e.*, personifications of earth, fire, and water and the winds, &c. In the 3rd Ashtaka, Agni, has 44 hymns addressed to him ; the next to him in number, comes Indra, with 48, and after them, the Marut or the winds have the largest number of hymns. The Rig-Veda is only one, though the chief, of the four Vedas, the others, the Sama Veda, Yejur-Veda and the Atharvana Veda, come after it. These four form the Sanhita or text. The Sanhita itself with the hymns it embodies forms the mantra or ritual. The language of the Vedas is not Sanscrit in the strictest sense of the term, but there is not sufficient difference between it and and classical Sanscrit, to authorize its being called a separate language. The difference is not so great as between Anglo-Saxon and modern English, but it is greater than between Homer's and Demosthenes' Greek. The names of the Rishi or composers are not always given in the body of the hymns and there is nothing to guide the historian or chronologist as to their dates. Nevertheless, good scholars are of opinion that Vedic hymns were composed mostly about fifteen or seventeen centuries before Christ, but not committed to writing, and therefore not collected until the eighth century B. C. With all their difficulties they furnish much information regarding the origin and early state of some of the races who are now called Hindus. Portions of the Rig-Veda have been translated by the late F. Rosen, the late M. Langlois, Professor Wilson, and Dr. Muller whose 3,000 pages of large quarto embraced little more than half the Sanhita with Sayanas' Commentary. Roth calculated that the mere Sanhita or metrical portion of the Vedas, as distinguished from the Brahmana or later ritual appended to each, contains not less than 30,000 couplets, of which 11,000 go to the Rig-Veda.

The *Brahmana* are sanscrit prose works, of later date than the Veda, the oldest is the Athareya, which has much historical information. The several Brahmana are chiefly liturgical and legendary, and in the various Upanishad, passing into the rationalized state, and becoming metaphysical and mystical. It would be difficult to find two sets of opinions more absolutely irreconcilable than Vedic hymns and Vedantic philosophy. The Sutra (aphorisms) or Brahma sutra, the chief authorities of the pantheistic Vedanta school, though much later than the rest, are still neumonics, as also is the Vaiseshka or atomic school of Kanada. This supplementary mass of Vedic literature including philosophy, commentaries, aphorisms, &c., might furnish occupation for a long and laborious life.

A striking difference has been observed between the mythology of the Rig Veda, and that of the heroic poems and Purana. Some of the divinities worshipped in Vedic times, are not unknown to later systems, but at first perform very subordinate parts, whilst those deities who are the principal objects of worship of the present day, are either wholly unnamed in the Veda, or are noticed in an inferior or different capacity. The names of Siva, of Mahaveda, of Durga, of Kali, of Rama, or of Krishna, so far as research has gone, do not occur in the Vedas. The practice of the conquered races seems to have been to represent or regard their local deities as identical with avatars or incarnations of the Vedic chiefs who had already become objects of worship. The Vedas mention Rudra, as the chief of the winds, collecting the clouds as a shepherd's dog does the sheep, and attending on his master Indra. The most that can be made of Rudra in the Vedas is as the father of the winds and seemingly a form either of Agni or of Indra. Even in the Puranas he is of a very doubtful origin and identification, but in the present day, everywhere amongst the hindus, he is identified with Siva. With the single exception of an epithet 'Kapardi,' with braided hair, of doubtful significance, and applied also to another divinity, no other applicable to Siva occurs, and there is not the slightest allusion to the form in which, for the last ten centuries at least, he seems to have been almost exclusively worshipped in India, that of the lingam or phallus: neither is there the slightest hint of another important feature of later hinduism, the trimurti or triune combination of Brahma, Vishnu and Mah'eswara or Siva, as typified by the mystical syllable O M, (a-u-m), although, according to high authority on the religions of antiquity (Creuzer, Vol. I, pp. 26 & 27) the trimurti was the first element in the faith of the hindus and the second was the lingam. In this view Creuzer must have imagined the existence of a mixture of the creeds still distinct in India; for the whole vedic faith had few of the elements of modern hinduism.

The Institutes of Menu, is a work composed eight centuries before the Chistian era, but the Rig Veda is of still higher antiquity. The first institution of hindoo society which now forces itself upon the attention of the stranger, is that of caste. When Mr. Borradaile counted the castes in Surat in A. D. 1827, he found 207 in that city. Each of them was more or less restricted from private intercourse with all the rest; they could not intermarry, nor even eat the same food, nor drink the same water. The date of the origin of caste, and the objects in view are alike obscure. Bunsen (p. 589) says the system of caste seems to have become completely formed B. C. 3000, during the formation of the kingdom of the Puru and the system of caste was in full force when the Code of Menu was composed. In the Vedic hymns, nothing appears of a priesthood, properly so called. In some, brahmans officiate, but are evidently subject to the Kshatriya as chaplains to the noblemen. Their allusion to castes is very vague, as when the five classes of beings are mentioned, which may mean the four castes of the Aryan, race and a fifth of the barbarians. But there is one hymn in the Veda, known as the Purusha Sukta, which represents the brahman as superior: though it does not correspond with the legend on that subject in its later form. It is given as follows in Mr. Muir's Sanscrit text (p. 7), and is a mystical description of existences from an original being, under the similitude of a sacrifice or as a mental sacrifice. (ver. 7.) This victim Purusha, born primevally, they immolated on the sacrificial grass: with him as their oblation, the gods, the sadhya, and the rishi sacrificed. 8. From that universal oblation were produced curds and clarified butter. He produced the animals, of which Vaya is the deity, both wild and tame. 9. From that universal sacrifice were produced the hymns called Rich and Saman, the Metres, and the Yajur. 10. From that were produced horses and all animals having two rows of teeth, cows, goats and sheep. 11. When (or offered up) Purusha, into how many parts did they divide him? What was his mouth? What were his arms? What were called his eyes and feet? 12. The Brahman was his mouth, the Rajanya was made his arms; that which was the Vesya was his thighs; the Sudra sprang from his feet. 13. The moon was produced from his mind (Manas); the sun from his eye; Sudra and Agni from his mouth; and Vaya from his breath. 14. From his name came the atmosphere; from his head the sky; from his feet the earth; from his ear the four quarters, so they formed the worlds. The comparatively late date of this hymn, is evident from the mention of the Sama and Yajur Veda (ver. 9) but it is older than other accounts which are given in Menu and the Mahabharata, when the mystical significance of the story disappears, and the castes are represented as literally proceeding from Brahma's body. Even when this origin of the castes had been received, and the supremacy of the brahmans established, it was still considered possible to rise by means of mortification from the Kshatriya to the Brahmanical caste. The fa[illegible] of Visvamitra and other of the Kshatriya hav[illegible]ing been inspired by Rishi, to whom some [illegible] the hymns of the Rig Veda had been reveal[illegible] was so stubborn, that the brahmans even [illegible]ter this ascendancy could only parry its fo[illegible] by accounting for it in their own way. S[illegible] Henry Elliot says that about the sixth [illegible] seventh century, the divisions of castes [illegible] secular, not religious. In former times, he [illegible] the four classes existed, equally among the budhist and hindu of India, as they d[illegible] this day amongst the budhists of Ceylon, [illegible] amongst the Jains of the peninsula, in [illegible] temples even brahman priests may be [illegible] officiating (Elliot's Hist. of India) with the [illegible]sons of almost every separate calling. At [illegible] present day, however, the brahman, the Kshatrya the Vaisya, the Sudra, the tradesmen and artizans of India are mostly all associated in classes or sects or castes, who do not intermarry, and seldom eat with others. Amongst these, may be named the Banjara, or wandering grain merchant; the Bhatthari or cook; Chichri or scavenger; the Dhor or currier and leather worker; Dhangar or shepherd; Erkalvadu or basket maker; Gaoli or dairyman: Kalaigar or tinner; Kassar or brazier; Khanjar or poulterer; Ladaf or cotton seller; Lar-kassai or beef salesman; Lal begi or scavenger; Lohar or blacksmith; Mookre or mealman; Muchi, leatherworker; Rangrez or dyer; Saikalgar or cutler; and Sonar or goldsmith.

In the south of India, the five artisan classes are called Kammalan, Kamalar, Kansalar or Comsalar, and Professor Wilson thinks the word Comsalar may be derived from the Sanscrit and Hindi Kans, Bengali Kansya, a mixed metal. In Madras the artizans of the Tamil race are of the five left-hand castes, the Kansala being the goldsmith, chief of the five left hand castes; the other four are the kanchari or brazier, kammari or blacksmith, tatchan or carpenter, and kasi or stone mason. These five intermarry and eat together, and all wear the zonar, or sacred cord.

The hindu races, who profess some part or other of the brahminical creeds, are kept apart from each other by the castes, to which their various origins have given rise, but their sectarian religious views are now also sources of caste. In the physiological worship of the hindus for instance, while one class of sectarians, the saivava and the lingaet, worship the form of the lingam, another set of sectarians, the sakta, worship the yoni, in accordance with the doctrine of the Tantra. The sakta are divided into two classes, the Dakshinachari, or right hand Sakta, and the Vamachara, or left hand Sakta. The right hand worship is public, and addressed to the goddesses usually adored, but especially to the forms of Durga, Bhawani and Parvati, also to Lakshmi, and others. But in the worship of the left hand divisions, the Tantraka imperonations of Durga as Devi, Kali, Syama, &c., r a living woman representing the Sakta, the worship is private and impure, and is said to have the most numerous followers, but this is unknown in the peninsula of India. The Vira Saiva, who are known as the jungam, also as he Lingaet or Linghadari, from wearing, always, he lingam and who are very numerous in the Canarese speaking tract, ought not, according to he tenets of their sect, to have any caste distincions; but they are the most bigoted of all the indu sects, and their caste distinctions are hose of trade and avocation, and are rigidly adhered to. Among the Jains, whose religion consists principally in the practice of austerities, and in avoiding to destroy life, caste restrictions are not prescribed, nevertheless they too retain the practice of caste divisions and the Sarawuk practice many usages common to other hindoos. If a Jain come into contact with an outcast, he, like the hindoo, touches fire or water to purify himself; if he have occasion to receive any thing from a pariah, he, like a hindoo, causes to set it down on the ground, and purifies it with fire or water, before he takes it up. Even shepherds and Koolees incur pollution by touching the dher race, which they remove in a similar manner. In the course of evidence before a criminal court in Goozerat, in August 1853, "two shepherds, Bhugwen and Rodo," stated a Koolee, "came to me, and said they had both touched dhers, and became impure, and asked me to give them fire. I took a lighted coal out of my hookah, and each of them touched his forehead with it. I threw it down, and they then took my hookah, and smoked." In other words, they were then purified, otherwise he could not have given them his hookah. If a sudra hindoo ask a drink of a brahmin, it will be given in a brass vessel, but from a distance,—the brahmin stretching forward and placing the pot between; it is returned similarly, but before receiving it back, water is poured over to purify it. No one of the helot races can enter the house of a hindoo, but he will stand at a distance and shout out his message. These all are illustrations of the usual operation of caste in India, which has held its own in the religious, social and political changes of 3,000 years. Since railway trains and steam boats have been running, and the educational system of the British has equalized all classes, much of the dread of caste deflement has disappeared, but it is still the prominent feature in everyday hindoo life. *Forbes' Ras-Mala or Hindoo Annals, Vol* II., *p.* 237-38. *Wilson's Glossary. Elliott's Supplemental Glossary.*—See Arians; Hindu; Inscriptions; India; Kakshivat; Kasyapa; Vedas; Vidya.

RIGYAJUSHSAMATHARVA. See Vidya.

RIGYAL, TIBETAN, lit. mountain king, is the origin of Plutarchs Mount Argillos (De Fluviis), the name of the mountain on which Bacchus was born. Riga, Tibetan, a mountain, is the same term as mount Righi, in Switzerland. Rigyal is one of the Trans-Himalayan range. The peaks of this range are from 20,786 to 21,000 feet in height. Its general direction is from south-east to north-west, and its extreme length is upwards of 850 miles. It forms the natural boundary of Ladak, Balti, and Rongdo, on the north, and

Rukchu, Purik, Dras and Astor on the south. Its passes on the eastern half of the range are from 16,495 to 18,746 feet in height, and on the western half, from 12,000 to 16,000.

RIHAN and Nazbu. PERS. Ocymum.

RIIS. DAN. Rice.

RIJAL OOL GHAIB or Mardam-al-ghaib. ARAB.

RIKHAI. HIND. Taxus baccata.

RIKHALI. HIND. Rhus vernicifera.

RIKHU. HIND. Saccharum violaceum.

RIKHUL. HIND. Rhus acuminata, R. vernicifera.

RIKKAN. HIND. Populus alba; R. ciliata.

RIKSHA. SANSC. Bear.

RIKSHAVAT. SANS. Name of a mountain, literally, bear-having, (from riksha, a bear, and avat, suffix, of possession.) The mountain of bears is part of the Vindhya chain, separating Malwa from Kandesh and Berar.—*William's Story of Nala, p.* 131.

RIKUNSA. HIND. Alnus sp.

RIMA, —? fruit au pain. *Sonnerat.* Artocarpus incisa.—*Willde.*

RIMASS. SUMAT. Felis tigris, *Linn.*

RIMAU-BULU. Malay. Felis leopardus—Sumatranus. *Horsf.*

RIMAU DAHAN. MALAY. See Felidæ.

RIMAU KUMBANG. MALAY. See Felidæ.

RINCHOR, from rin the field of battle, chor, from chorna, to abandon. Hence Rinchor, one of the titles under which Krishna is worshipped at Dwarica, is most unpropitious to the martial Rajpoot. Kal-Yamun, the foe from whom he fled, and who is figured as a serpent, is doubtless the Tak, the ancient foe of the Yadu, who slew Janmeja, emperor of the Pandu.

RIN-COOND is the 'fountain of battle,' and pani or ab is applied, as we use the word water, to the temper or spirit of a sword :—*Tod's Rajasthan, Vol. I., p.* 523.—See Krishna.

RIND, a river near Chachendee in Cawnpore.

RIND. A tribe who reside in Kutch Gundava, a district or section of Baluchistan, on the east of which, is the capital, Gandava. It is a great level tract, inhabited by three very distinctly marked races, the Jet or Jat, the Rind including the Maghazzi, and the Brahui. The Jet seem the original race, and they occupy the centre of the province. The Rind with their lawless sub-tribes, the Jakrani, Dumbaki, Bughti and Marri, are a more recent intrusive race dwelling on the skirts. The Doda, a division of the widely dispersed great Marri tribe, have, for the last three centuries, occupied the hill ranges east of the plain of Kachi. The Marri are a brave race, and have long been distinguished as daring depredators. Harand and Dajil, in Kach Gandava, but bordering on the Indus, are inhabited by the Gurchani tribe of Rind, and have the Mazari on their south. The Great Rind tribes are subdivided into 44 branches, and though not Brahui are denominated Baluch. Their traditions affirm them to have immigrated ages ago, from Damascus and Aleppo. Their language is the Jetki in common with that of the other inhabitants of Kach Gandhava and Mard-i-Rind means a brave man. The Rind of Kach Gandava are of the Utan Zye division :

Utan Zye dwell at Suran.

Dumbki and Jakrani dwell at Lehri.

Doda Marri dwell at Kahan.

Bughti dwell at the hills east of Lehrat, Sing-Saloh and Teriki.

Homarari dwell at Tambu.

Jamali dwell at Rojan.

Of these Rind tribes, the Dumbki, Jakrani, Bughti and Doda Marri, had always been distinguished by their rebellious and predatory habits. They indulged these in the attacks on the British armies west of the Indus. The Marri tribe is considerable and inhabit the eastern hills of Kach Gandava, and a peaceful and obedient portion of the tribe are in the hills west of the province below Jell. A large portion are at Adam Marri, on the S. E. frontier of Sind. The Marri of Kach Gandava were notorious for their lawless habits and for making frequent inroads on the plains. They and the Maghazzi seem to have emigrated from Mekran to Kutch Gandava at different periods, and to have become incorporated with the Jut cultivators.

The following minor Rind tribes reside in the north-eastern hills of Sabarawan.

Kallui at Lup.	Mandarari at Rodbar,
Kuchik at Kirta.	Pugh at Kajuri.
Puskh at Johan.	

The Rind form two great tribes on the western banks of the Indus, the Gurchani inhabit Harand and south of these are the predatory, but nearly independent, Mazari tribe. The Maghazzi are the deadly enemies of the Rind, but are probably of the same race. The Maghazzi are subdivided into four principal families or clans, of which the Butani of Jell are the most illustrious and give the chief or sirdar, to the whole. They boast of being able to muster 2,000 fighting men, and between them and the Rind a bloody feud long existed. The Maghazzi and Rind are alike addicted to the use of ardent spirits, opium and bhang.—See Beluchistan; India; Kajjik; Kelat; Jell; Jutt.

RING.

Bague : Anneau...... FR.	Moderam............Ta
Angootha..... ...... HIND.	Ungaram............T
Anello......................IT.	Halka; Yuzuk ... T
Circulo : Anillo...... SP.	

Rings are used in Eastern and Southern Asia, as signet rings, with a seal engraved, or for ornament, worn on the fingers, toes, wrists, ankles or in the nose, and ears. A ring is not used as a marriage token, as in Europe, though amongst all nations and in every age, the ring has been chosen as the aptest emblem of time, and such names as "*annus*;" *ἔνος, ἔτος, ενιαυτος*, and year from yra to surround, mark the most recurrent period known to men.

RING. See Jakun.

RING. Hind. Cratægus oxyacantha, also Quercus incana; kali ring, is Q. dilatata.

RINGAL. Hind. Arundinaria utilis,

RING-DOTTEREL of India, Hiaticula philippina; these with peafowl, common quail, black and gray partridges, are plentiful in grain-fields.

RINGHOT. See Kasia.

RINGL. Hind. Viscum album.

RINGO. Hind. Cratægus oxyacantha.

RING-WORM SHRUB. Cassia alata, *Linn.*

RINGYAL. Hind. Rosa Webbiana.

RINJ. Hind. Quercus incana.

RINNA. See Kattyawar.

RINSOT. Hind. Elæagnus conferta.

RIN SAG, Hind. Phytolacca decandra.

RIO JANEIRO, a town in Brazil, in South America, so named by its discoverer DeSouza. The inhabitants are principally of a mixed descent. The Brazillian diamond mines were first discovered in 1728, in the district of Serra de Frio, to the north of Rio de Janeiro. The largest diamonds are procured on the river Jequitinhonha, which is called the Diamond River, also Rio Pardo. In the Ural mountains, diamonds were detected in 1829, by Humboldt and Rose, in their journey into Siberia. In the United States the diamond has been met with in Rutherford country, North Carolina, and in Hale country, Georgia; they have been found on the river Ginul, in the province of Constantine, in Africa also north of Cape Town. They have also been discovered in Australia, and of such size as to render it probable they may add yet more to the mineral treasures of that country. The rocks in which the diamond occurs in Brazil are either a ferruginous quartzose conglomerate, or a laminated granular quartz called Itacolumite. The latter rock occurs in the Urals, and diamonds have been found in it; and it is also abundant in Georgia and North Carolina. In India, the rock is a quartzose conglomerate. In most instances diamonds are obtained from alluvial washings. In Brazil the sands and pebbles of the diamond streams are collected and washed under a shed by a stream of water passing through a succession of boxes.

RIPA. See Semitic races.

RIPUNJAYA. See Magadha.

RIRHI. Hind. Viburnum, the elder tree. There are several species in the N.W. Himalaya. —*Clegh's. Pun. Rep. Kulla and Kangra*, p. 80.

RIS. Hind. Viburnum nervosum.

RISALADAR, Hind. A native officer commanding a troop of irregular horse.

RISAS. Arab. Pewter.

RISH. Hind. Cotoneaster obtusa.

RISH. Hind Beard, properly Resh.

RISHABHA. Sans. A bull, vehicle of Siva, Isvara or Mahadeva.

RISHABHA DEVA. Sans. Rishabha signifies excellent.

RISHA KHATMI, Hind. Althæa rosea, Malva parviflora.

RISH BARGAD.—? Ficus Indica.

RISHI. A priesthood of mahomedans in Kashmir, who do not marry and who abstain from flesh.

RISHI. An important term in hindu astronomy, which, in its scientific sense, means a line, or great circle, passing through the Poles of the Ecliptic, and the beginning of the first Solar sidereal sign, and first fixed Lunar mansion, of the respective zodiacs; and which said circle is supposed to cut some of the stars in the Great Bear, which most commentators take to be Dhube, or β Ursæ Majoris, and ζ Piscium, although in reality no such circle could be made to intersect exactly these three points. This line, or circle, being thus invariably fixed, and the four (fixed and moveable) zodiacs conceived to coincide at a particular epoch, the variation of the moveable ones may easily be reckoned by its means, as if it were an index. Thus, suppose that the line of the Rishi should have intersected the beginning of the fixed Lunar mansion Magha, as was supposed to be the case in the 1910th year of the Caliyug (1192 before Christ), and that at the beginning of the said year the line of the Rishi was found by observation to intersect the middle of the moveable mansion Magha, then it would be said truly that the Rishis had got into 6° 40' $\left(\frac{13^\circ\ 20'}{2}\right)$ of the moveable Magha, and these 6° 40 would mark the absolute precessional variation which had accumulated at that epoch since the time that the fixed and moveable Maghas coincided; (vide Ayana, Ayanansa, Cranti-Pata-Gati).—The above explanation of the term Rishi is clearly justified by all the hindu treatises of any weight which have hitherto fallen into the hands of Europeans; and here it may not be out of the purpose to observe, that when Hipparchus (later than the 135th year before Christ) on comparing his observations of Spica Virginis (the Harshana of the Indians) with those that Simocharis had made at Alexandria about a century before, and perceived by the results, that the Stars appeared to have advanced (though slowly) from west to east, relatively to the equinoctial points, he was far from imagining that Indian astromers (perhaps several centuries before his time, and in all probability by observations of the same star) had already noticed the same variation, on which, in after ages, Sir Isaac Newton resolved and established the great problem of the equinoctical precession. The celebrated Indian astronomer Aryabhatta, probably puzzled how to account for the change of the position of the line of the Rishis, which, he admitted, had intersected the middle of the moveable Lunar mansion Magha in the year of the Caliyug 1910 and which he pretended to cut (when he wrote) the beginning of Aswini, imagined a curious system on the seven stars of the Great Bear, to which he supposed a proper motion to the eastward, at the rate of 13° 20′ (a Lunar mansion) in 100 years; which amounted to 159,999 revolutions in a Calpa, and which squared his account. But this absurd doctrine has long since been abandoned by all manner of Indian astronomers; many of whom, in existence, in 1810, had never heard of it. —*Warren*, Kala Sankalita *p*. 85, 245.

RISHI is also applied (in a sense totally different) to the Vanaprastha brahmins, or inhabitants of the desert. Of these the most ancient and celebrated were the seven great Rishi or penitents, or Maha Saptaite Rushi astadha, who had retired in the territory washed by the Indus; and it was to them, it is supposed, that Alexander the Great applied for instruction after invading their country.

A brahman who keeps the sacrificial fire is obliged by law to know the particular gotra of the 491 to which his own family belongs. When the fire is to be consecrated, Agni Havyavahana, the god who carries the libations to heaven, must be invoked. This invocation or invitation of Agni is called pravara. Agni himself or the fire, is called Arsheya, the offspring of the Rishi, because the Rishi first lighted him (it) at their sacrifices. He is the hotri as well as the adhvaryu among the gods. Like the hotri and advaryu priests, he is supposed to invite the gods to the sacrifice and himself to carry the oblation to the seat of the immortals. When, therefore, a brahman has his own fire consecrated, he wishes to declare that he is as worthy as his ancestors to offer sacrifices, and he invites Agni to carry his oblation to the gods as he did for his ancestors. The Rishi saints belonged to the Vedic age. They are sages or seers, to whom was attributed the authorship of the hymns in the Vedas. In hindu mythology, the Rishi, were the children of the Menu, the offspring of the Brahmadica, who were the sons of Brahma. They are seven in number, and are named Kasyapa, Atri, Vasishta, Viswamitra, Gautama, Jamadagni, and Bharadwaja. They are, astronomically, the husbands of the six Pleiads, but how six and seven can accord, it may be difficult to understand, yet they have had the honor of becoming the seven bright stars in the Great Bear; and they are fabled to be married to the Pleiades. Viswamitra was formerly a king and son of Gathi and by his devotion he became a Rishi and capable of creating aswell as Brahma. See Arian; Brahmadica, Caste; Hindoo; Lords of created beings; India; Manu; Meru; Polyandry; Rama; Sati; Varaha; Veda, Uma.—*Muller. Coleman's Myth. Hind. p.* 9. *Moor, p.* 86.

RISHI AGASTYA. See India.

RISHKA, Hind. Medicago sativa.

RISHKA. See Grasses.

RISHTA, also Ristah. Duk. Sapindus emarginatus.

RISHYADI-NYASA Sans., from rishi a sage, adee, the first, and nyasa, to place.

RISHYA-SHRINGA, Sans. from rishya, a deer, and shringa, horns.

RISO. It. Rice.

RISSALDAR. An officer of irregular horse.

RITA. Beng. Acacia concinna. A. rugata *Buch.*

RITA. Hind. Sapindus detergens. *Roxb.*

RITHA. Mar. Givottia Rottleriformis.

RITHA, Duk. Guz. Hind, also, Aritha Guz. Fruit of Sapindus emargina-tus, soapnuts. Rithe ka Jhar, the tree of Sapindus emarginatus. Rithe ka tel, the oil. See Sapindus emarginatus; Oil; Soap Nut.

RITHEI. Hind. Fluggea leucopyrus.

RITI-GASS. Singh. Antiaris innoxia.—*Blume, Rumphius.*

RITU-PARA, a raja of Ayodhya who was skilful in the calculation of numbers.

RITUPARNA, Sans. from ritoo, a season, and parna, a leaf.

RITU-YAGA. Sans. from ritoo, a season, and yaja worship with sacrifices.

RITWIJ. See Hindu.

RIU. Hind. Cotoneaster obtusa.

RIVAS. Hind. See Rheum emodi.

RIVATA. See Brahmadica.

RIVEA FRAGRANS.

Boodthee-keeray ... Tam.

A beautiful variety of the convolvulus tribe; found in hedges, called the clove scented creeper by Europeans, transparent white flowers, opening at sunset and perfuming the air with a very pleasant odour; leaves used as greens. —*Jaffrey.* See Vegetables of Southern India.

RIVER GODDESS. See Ganga.

RIVER-HORSE. The Hippopotamus.

RIVERS.

Riviere ; Fleuve	FR.	Flumen...	LAT.
Fluss...	GER.	Rud	PERSIAN.
Wad	ARAB.	Wah...	SANSC.
Udor...... ..	GREEK.	Waeter...	SAXON.
Nahr... ...	HEBREW.	Wod,...... ...	SLAVONIC.
Naddi	HIND.	Rio	SPAN.
Udr... ...	ISLANDIC.	Ar	TAM. TEL.
Fiume ...	ITALIAN.	I'rmak ; Su ; Chay ;	TURK.
Riviera..... ...	,,		

All the principal rivers of South Eastern Asia flow into the Persian Gulf, the Arabian Sea, the Indian Ocean, the Bay of Bengal, and the Pacific Ocean. The watershed of the Bay of Bengal includes the Ganges, Brahmaputra, Mahánuddy, Godavery, Kishna, Pennar, Cauvery, &c. The watershed of the Arabian Sea includes the rivers Indus, Lunee, Nerbudda, Tapty, and the numerous torrents descending from the Western Ghats. The Himalayan watershed has invariably been found to lie at a very considerable distance to the north of the great Himalayan peaks which, from the side of Hindustan, seem to form the watershed. This peculiarity has been confirmed by the routes of A. Zaskari. The Himalaya gives forth four great rivers, the Brahmaputra, Indus, Sutlej and Kurnali or Gogra. These are called by the Tibetans, Tam-jan-khamba, or Horse's mouth ; Singh-gi-khamba, or Lion's-mouth ; Laugchan-khamba, or Bull's-mouth and Mabja-khamba, or Peacock's mouth. These four great rivers drain the Kailas group of mountains. They rise close to the great Kailas Purbut. A peculiarity in the river system of British India merits notice. It is that shortly after issuing from the mountains among which they rise, the rivers run through low-lying valleys to the sea. Their fall is so gentle that, following their windings for even 1,000 miles from the ocean, the rivers of India are still found running in beds, only seven or eight hundred feet above the level of the sea, thereby affording great facilities for damming up their waters, and for making long reaches fit for navigation. The seas, with the marginal basins of their affluent rivers, are districts of the greatest importance physically as well as ethnographically but the rivers of S. E. Asia are of great importance. The proportional length of course of some of the most noted rivers in the world are shown nearly by the following numbers ;—

European rivers.

Thames	1	Danube... ...	7
Rhine. ...	5¼	Wolga ...	9½

Asiatic rivers.

Indus (probably)...	6¾	Jennisea.. ...	10
Euphrates... ...	8½	Oby	10½
Ganges... ...	9½	Amoor ...	11
Burrampooter ...	9½	Lena	11½
Now Kian, or Ava river...	9½	Hoanho of China.	13½
		Kian Keu. ,,	15½

African river.

Nile .. .	12¼

American rivers.

Mississipi... ...	8	Amazon	15¾

Length of Asiatic Rivers.

	Miles.		Miles.
Brahmaputra..	2,000	Gurrah, N. India.	1,000
Euphrates ...	1,900	Godavery, South ...	850
Indus, Sindh...	1,900	Jumnah, N. India.	800
Thylunan, Burm.	1,860	Gogra ,,	780
Ganges...	1,850	Nerbudda, Central India..	780
Irawadi, Burmah.	1,280		
Gibon or Oxus.	1,200	Benjer, Borneo...	570
Tigris, Turkey...	1,160		

The Yang-tse-Kiang of China forms, with the Hoangho, a twin basin, to which the most advanced and powerful eastern civilization owes its development. The Yang-tse-Kiang is connected on the west with the twin basins of the Salwin and Irawadi, which are themselves connected inland with the Tibetan district and on the S. and E. to the Indian oceanic basin. It is undoubtedly one of the finest rivers in the world ; it takes its rise in the mountains of Tibet, and, after traversing the Koko-Nor, enters China at the province of Kan-Su ; it then leaves it again to water the sandy plains, at the foot of the Aleshan mountains, surrounds the country of Ortous, and after having watered China from south to north, and then from west to east, goes on to throw itself into the Yellow Sea. The waters are pure and beautiful at their source, and only assume their yellow tint, after passing the Aleshan and the Ortous. The river rises almost always to the level of the country through which it flows ; and to this is to be attributed the disastrous inundations which it occasions. These floods, are very so fatal to China, but they are of little consequence to the nomadic Tartars, who have only to strike their tents, and move off elsewhere.

Irawadi. The sources of this great river are, according to the best authorities, between 27° and 28° of north latitude, and the direction of its valley is nearly due north and south. The transverse range, which separates the upper part of the western branch of the Irawadi from the valley of Assam, is of moderate elevation, varying probably between 5,000 and 6,000 feet. The slope of the valley of the Irawadi is greater than that of the Indus or Ganges. The valley of Hukum is said to be 1,000 feet above the level of the sea. The central branch of the Irawadi at Manchi in L. 27° 20' N. is 1,800 feet ; at Bhamo in L. 24° about 500 feet. Along its bank, hills frequently approach and some of them close to the river are 3,000 or 4,000 feet high. Amongst the high mountains at its source the rain-fall is considerable ; at its centre, the fall of rain is comparatively small but much rain falls at its delta. The valley of Manipur is drained by the westerly tributary of the Irawadi. Griffith's account of the Irawadi above Bhamo is, that it keeps up its magnificent character, as far as he went, to the mouth of the Mogoung river, where it is 900 to 1,000 yards across, and he describes the appearance of its vast sheet of water as really grand. At the beginning of the first defile, about five miles above Bhamo, the river is about 1,000 yards across, and its course is defined by low wooded hills which run close to its banks. About two miles farther on the channel narrows to 500 yards, and hills become even closer and hang more abruptly over the stream than before, and, about another mile beyond, a higher range of hills from the south-west comes in behind the former one, and both terminate on the bank as head lands. The great Irawady river and the seas in which the Mergui and Eastern Archipelagos are enclosed, abound in fish, and the Malays shoot their great stake nettings far into the ocean. The wealth of these eastern rivers and seas is boundless.

The Burmans, are the predominant people of the basin of the Irawadi, and occupy the lower part of the basin above Pegu, the southern part of the upper basin and the valley of the river beyond, as far as Ba-mo. They are also found in the delta, but their progress there has been comparatively recent, and the prior inhabitants still form the greater majority. Their native name Ma-ran-ma, M'ran-ma, whence their softened modern M'yan-ma, M'ya-ma, is the source of the European corruption Burman. The principal seat of the Burman power appears to have been for the longest periods in the same part of the basin where it now is. In the era of their greatest stability and prosperity, their capital was at Pagan (probably the place of that name above Ava) from the second to the middle of the fourteenth century. Previous to this, on their first advance from Aracan, they appear to have conquered the northern part of the ancient kingdom of the Mon—for their capital was for 395 years at Prome. It was not till the middle of the sixteenth century that they succeeded in annexing Pegu. But in the middle of the eighteenth century, the Mon threw off the yoke and in their turn subjugated all Burmah for a short period. The Burmans differ from the Anamese in being stouter and darker, and in the head being Daya-Polynesian or Turanian oval, and not obtusely ovoid. The head varies greatly and the coarser forms show a tendency to the Binua contraction of the forehead, rendering the lateral expansion of the forehead very marked. The normal, or non-Indianised Burman head, appears, in many respects, to resemble the coarse Sumatran, Javan, Borneon and Polynesian. This softened Turanian type is decidedly allied to the oblong square and oval Chinese type and not to the ovoid and orbicular type of the Tibetan, some of the Himalaya—Gangetic, the Anam and the Celebesian tribes. The Burmans on the west more often resemble the handsome Asianesian tribes found in Borneo, some parts of East Indonesia, and Polynesia. Burmans and Malays are somewhat stouter than the Siamese, the average height being probably about 5 feet 2 inches. As in buddhist countries, Burmese women are more nearly the companions and not the slaves of the men. But the Tibeto-Burmans and the cognate Indonesian tribes permit great license to both sexes, prior to marriage, when chastity is not required.

From the central axis of the Himalaya, a succession of secondary ranges take their origin which descend on the one hand towards the plains of India and on the other towards the northern rivers. These secondary chains, on the Indian side seperate the great rivers which flow towards the plains of India and which, successively uniting in their courses through the plains ultimately discharge their waters into the Indus and Brahmaputra from which they are at first seperated by the whole breadth of the Himalaya. The great rivers from west to east in succession are the Jelum, the Chenab, the Ravi, the Beas, the Sutlej the Jumna, the Ganges, the Gogra, the Gandak, the Cosi, the Tista, the Monas, and the Subansiri. All these are separated by chains at first of great elevation, but which terminate at last abruptly in the plains of India. A deluge of rain falls on the Himalaya, greatest at 6000 to 10,000 feet, but in the sheltered valleys of interior chains of 10,000 to 12,000 feet, only occasional showers fall. In Sikkim and Bhotan the rains are heavy in the wide valleys but in the Lachen valley at the transverse chain it is much drier. *Megna* and *Burrampooter* are names of the same river in different parts of its course. The Megna falls into the Brahmaputra ; and, though a much smaller river, communicates its name to the other during the rest of its course. The sources of the Brahmaputra proper may be assigned to Lat. N. 33° 32½°, and Long. E. Gr. 97° 30'. The first snow covered mountains occur in Lat. N. 28¾°. The Brahmaputra is called by the Tibetans Zayo-chu, after the province Zayo, through which it flows ; the Mishmi and Singpho give it the name of Talu Ka. Its direction as far as Lat. N. 27° 55' is nearly due south ; from the entrance of the Galum river to the Du river north-west, and from this point to Sadia south-west. The Brahmaputra rises among gigantic glaciers to the S. E. of lake Mansarowar, runs nearly east for 600 miles and at some places is a broad stream used for traffic. It receives seven great tributaries each equal to the Ganges discharging about 40,000 cubic feet of water per second. This mighty river runs through the N. E. of India from Brahmakund to Goalpara for a mean length, exclusive of its numerous small curves, of more than 400 miles. The entire surface of Assam presents a gentle uniform slope, with a few insolated granite hills, sometimes of no considerable mean elevation. The Brahmaputra nowhere presents any remarkable contraction of its bed, and the only rapid part of importance is situated fifteen miles below its confluence with the Dihong. The level of the Brahmaputra at Sadia is 210 feet. A little to the south of the entrance of the Tista begins that part of the river where the stream branches off in the shape of a delta, and shortly joins that of the Ganges. The ebb and flood of the tide extend in the season when the river is low, upwards beyond Dacca ; the fall from Sadia to the delta consequently amounting to half a foot per mile. Sadia is situated near the spot where the most considerable of its affluents join the Brahmaputra, viz., the Dihong (a river identical with the Tibetan Zambu, into which, before its confluence with the Brahmaputra, flows the Dihong.) The Brahmakund is a very deep basin-shaped enlargement of the river, just before it emerges from the mountains to descend into the plains of Assam. The velocity of the current, which both above and below the Brahmakund is very great, suffers a great diminution at this point. In this S. W. course, along the whole length of the left shore of the Brahmaputra, and nearly parallel to the broad valley through which it runs, we meet with a longitudinal range of secondary hills, inhabited by the various scattered tribes of the Naga, Khassia, Jaintia, and Garo. It disembogues into the Bay of Bengal, through three mouths, after a length, in the plains, of 933 m. It receives in its long course the Sanpoo, 1,000 ; Dihong, 140 ; Noh-Dihong, 100 ; Boree Dehing, 150 ; Soobu-Sheeree, 180 ; Monas, 189 ; Bagnee, 150 ; Guddala, 160 ; Durlah, 148 ; Teesta, 313 ; Barak, 200 ; Goomtee, 140 miles. The branches of the Brahmaputra, together with those of the Ganges, intersect Lower Bengal in such a variety of directions as to form a complete system of inland navigation. The Brahmaputra begins to rise in April owing to the melting of the snow at its alpine sources. About the 1st July it is at full flood, and all the level country is submerged, herds of buffaloes, deer and hogs then swim for refuge to the hills. The Brahmaputra drains Assam in every direction. It is known in Assam by the name Hiranyo or golden. In the rainy season it rises 30 or 40 feet above its lowest level, overflows its banks and inundates the country like an inland sea. In the dry season it is a labyrinth of half filled channels, rendering the navigation intricate and fit only for steamers of light draught. It is not navigable higher than Dibrughar. As seen from Ogri hill near Tezpur, the river is sweeping along in a bed of from ten to twelve miles in breadth, with numerous islands covered with canes and shrubs. The chief towns on the banks of the river are Bishnath, Durrung, Gowhatty, Goalpara, Nusseerabad. It is navigated from the Bay of Bengal to Dibreogurh near the head of the Assam valley within 500 miles of Pengshaw, the point reachedby Captain Blakeston on the Yang-tse-kiang river. Of these 500 miles 300 are known. Colonel Briggs advanced to Sadia 50 miles to the east of Dibrogurh by steamer, and if the intervening distance can be opened, the rich province of the Yang-tse-kiang would be available to India.

The rivers of the northern parts of British India and Burmah are in a tranquil state, from the time of the change of the monsoon in October, to the middle of March ; then, the north-westers begin in the eastern parts of Bengal (though later as we advance westwards) and may be expected once in three or four days, until the commencement of the rainy season. These north-westers, which have their denomination from the quarter in which they usually originate, are the most formidable enemies that are met with in the inland navigation, they being sudden and violent squalls of wind and rain ; and though of no long duration, are often attended with fatal effects, if not carefully guarded against ; whole fleets of trading boats having been sunk by them almost instantaneously. They are more frequent in the eastern, than in the western parts of Bengal ; and happen oftener towards the close of the day, than at any other time. As they are indicated some hours before they arrive, by the rising and very singular appearance of the clouds, the traveller has commonly time enough to seek a place of shelter. It is in the great rivers alone, that they are so truly formidable ; and that about the latter end of May, and beginning of June, when the rivers are much increased in width. After the commencement of the rainy season, (which period varies in different parts from the middle, to the end of June) tempestuous weather must be occasionally expected. Places of shelter are more common at this season, than at any other, by the filling of the creeks and inlets, as the river increases ; and, on the other hand, the bad weather, when it happens, is of longer continuance than, during the season of the north-westers. The rivers being now spread to the breadth of several miles, a strong wind has the power of raising large waves on them, and particularly when blowing in a contrary direction to the rapid parts of the stream; which at such times should be avoided, as much from motives of conveniency, as of safety. During the long interval between the end of the rainy season of northern India and the beginning of the north-westers, one proceeds in security with respect to weather, and has only to observe a common degree of attention to the piloting of the boat clear of shallows, and stumps of trees. These will generally be avoided by keeping in the bend of the rivers nearest to the side that has the steep bank; but not so near, as to be within the verge of its inferior slope. This steep bank has the deepest water, and the strongest current near it; and is therefore, on both accounts, the proper side to keep on, when going down with the stream; as its rate of motion must principally determine that of the boat; for the motion acquired by the oars of a large budgerow hardly exceeds 8 miles a day, at ordinary times. From the beginning of November to the middle or latter end of May, the usual rate of going with the stream, is forty miles in a day at 12 hours; and during the rest of the year, from 50 to 70 miles. The current is strongest while the waters of the inundation are draining off; which happens in part of August and September.

In the very singular navigation across the jhils, or inundations, between Dacca and Nattore, &c., in which 100 miles or more are sailed on nearly a straight course, leaving the villages and groves to the right and left, little difficulty occurs, unless the wind should fail; for, while it continues to blow, it is always fair, during the season of the inundation. The current presents only a trifling obstacle; since its motion (which is nearly parallel to the course of the Ganges) is seldom half a mile per hour.

A tract in the districts lying east of the Brahmaputra, including Dacca and Sylhet, has the greater portion of its surface occupied by the rich plains of Mymensing and Sylhet through which the river Soornia meanders. The old channel of the Brahmaputra, now nearly dry, winds along by Dacca from the eastward. This tract affords a great variety of produce, such as cotton, sugar-cane, rice and other grains.

The Ganges rises in the southern steeps of the Himalaya. It receives the Bhagarathi and Alacananda 30 miles of Srinugur, then the Jumna at Allahabad, which rises near; and by the Chumbul and Bitwah which drain the north of the Vindyah mountains, then the Sone and then the Gogra, Cosi and Gandak, the last at Monghyr, where the river is 3 miles broad and 30 feet deep.

The Ganges begins to rise in the end of April and continues to increase till the middle of August when it reaches many places 32 feet, the level districts in its lower course are inundated sometimes to the extent of 100 miles. About 200 miles from the sea the river breaks into a labyrinth of rivers, forming islets covered with woods and known as Sunderbuns, but the force of their waters is insufficient to clear the bar at their mouths and the most western branch—the Hooghly is alone navigable for large vessels. At Gangotri in Garhwal, Lat. 31° 3', Long. 78° 56', is a celebrated hindu temple on the right bank of the Bhagiratti in its upper course, and is 10,319 feet above the sea, near the temple the scenery is grand. Four peaks rise, huge, lofty, covered with snow, and the river runs impetuously in its shingly bed, the stifled sound of the stones which it rolls along mixes with the roar of its waters. Soorgaronni is the nearest of the peaks and forms the western point of the great snowy hollow. Roodroo Himala is the eastern, and forms the other point; but from that point runs down a huge snowy shoulder that seems to give off or ends in the mountains that surround and form a great unbroken, though unequal snowy ridge, bounding and confining the glen of the Bhagiratti. The other three peaks form different points in the back of the immense hollow, and altogether compose one of the most magnificent and venerable mountains, perhaps, that the world can produce

The Chumbul river is a tributary to the Jumna. It rises in Malwah, in lat. 22° 26', and lon. 75° 45', eight or nine miles S. W. from Mhow, which is 2,019 feet above the sea. It rises on the cluster called Janapava. It runs north, 105 m.; N W., 6 m.; S. E., 10 m.; N. E., 23 m.; S. W. 25 m; North to junction with Kali Sind, then N. E. 145 m.; S. E. 78 m. to Jumna: length, 570 m., described in a form nearly semi circular, the diameter being only 30 m. It receives the Chumbela, 70; Seepra, 120; Parbutty, 220; Kali Sind, 225; Banas, 320; Chota kali Sind, 104 m. About 56,000 square miles are drained. The average declivity of its bed is 2 feet 5 in. per mile, and the general character of its channel rugged and rocky. Its average volume of water is so considerable, that at its junction it has been known to raise the united stream seven or eight feet in 12 hours. The nominal source of the Chumbul is in a part of the Vindhya range, nine miles south-west of the cantonment of Mhow; but this part of the river is dry in the hot season, during which it owes its waters to other tributary streams. The current of this river is in most parts gentle, its bed rocky, and its course through Malwa much obstructed by shallows; but, after entering Harrowtee by an opening in the Mokundra range, it becomes a fine and deep stream. The course of the Chumbul, not reckoning the minor sinuaties, is upwards of five hundred miles, and along its banks specimens of nearly every race now existing in India may be found. Sondi, Chunderawut, Seesodia, Hara, Gore, Jadoon, Sikerwal, Goojur, Jat, Tuar, Chohan, Bhadoria, Kutchwaha, Sengar, Boondela, each in associations of various magnitudes, from the substantive state to the little republic commune between the Chumbul and Cohari. The Chumbul runs through the territories of Sindiah and Holcar, viz. Gwalior, and Indore and runs near Kotelia.

The Ganges river by hindoos is esteemed sacred. Many persons, whose relations die at a distance from the Ganges, at the time of burning the body preserve a bone, and at some future time bring this bone and commit it to the Gunga, supposing that this will secure the salvation of the deceased. The work called Kriya-yogasara contains the following curious story :—A bramhan, who had been guilty of the greatest crimes, was devoured by wild beasts ; his bones only remained. A crow took up one of these bones, and was carrying it over Ganga, when another bird darting upon it, the crow let the bone fall. As soon as the bone touched Ganga, the bramhan sprang to life, and was ascending to heaven, when the messenger of Yama, the judge of the dead, seized him, as a great sinner. At this time Narayana's messengers interfered. The Ganges is deemed so sacred by all hindoos that such a question as occurs in 2nd Kings v. 12. "Are not Abana and Pharpar, rivers of Damascus, better than all the waters of Israel ?" would never arise respecting the Ganges, through contention respecting the superior efficacy of rivers is not uncommon in India. It is, however, generally decided in Bengal, that the Ganges is the most efficacious of all the sacred streams. The Aryan hindu and the non-Aryan races who occupy British India continue to worship springs and fountains and other natural objects. This has been a custom with many races. The fountain of Egeria, the Fontinalia Romana ; the Aquæ ferentinæ and the sacred wood where the Feriæ Latinæ were celebrated. These woods and fountains were under the especial protection of some divinity. Pausanias says that at Phocis in Achaia, there was a fountain called Hama, consecrated to Hermes, near which thirty enormous straight stones had been erected at a very remote period, when instead of images, the Greeks adored blocks of stone. Such was also the religion of Pagan Ireland.

The *Indus* is a magnificent river, it rises in the Kailas or Gangri range in L. 31-20 N., and 80° 30 E. 1,700 feet above the sea, and has a course of about 1,977 miles. It is known in the Tebatan of Ladak as the Tsang-po, the Sam-po-ho of the Chinese pilgrim Hwan Thsang. A few miles from Le it receives the Zanskar river, and its bed at Pitak below Le is 10,500 feet above the sea. At Mittunkot, the Indus is often 2,000 yards broad and near this place in L. 28-55 N., and L. 70-28 E., it is joined without violence by the Panjnad, a large navigable stream the collected waters of the Sutlej, Beas, Ravi, Chenab and Jelum, after which its bed never shallows in the dry season, to less than fifteen feet and seldom preserves so great a breadth as half a mile. The whole length of its mountain course from its source to Attock is about 1,085 miles and the whole fall is 16,000 feet or 15·4 feet per mile. From Attock to the sea, the length is 942 miles. Its maximum discharge, above the confluence of the Panjnad, occurs in July and August, when it is swollen by the seasonal rains, and it then reaches 135,000 cubic feet, falling to its minimum of 15,000 in December: up to this confluence it is known by various names.

Sam-po-ho.........	CHIN.	Saind'hava......... ...	SANS.
Sin Tow.............	,,	Sing-ge-chu......	TIBETAN.
Tsang-po......	LADAKI.	Sin'h-ka-bab.. ...	,,
Aba Sin...'.....	,,		

Sing-ge-chu means the lion river ; and Sin'h-ka-bab the lion's mouth. From the confluence, in its route through Sind'h, it is known as the Sar, Siro or Sera, down to Sehwan ; as the Wicholo or central from Sehwan to Hyderabad, and as the Lar from Hyderabad to the sea. The races occupying the countries near are the Bhot, the Afghan, the Jut, the Beluch, the Brabui the Rajput and the Lar. The Indus guards the western frontier of British India and in all the military operations of the British since 1834, in Affghanistan and Sind, the Indus has been of great value as a means of communication. During the war of 1845-1846 in the Punjab, a bridge of roads was carried up the river as far as Bhawulpur and thence dispatched up the Gharra to Ferozpur, and another branch of the river, the Chenab, was in a subsequent war navigated up to Mooltan. Central Asia is a term used differently by geographers, ethnologists, and politicians, but is usually applied to the region intervening between Russia in Asia, and British India, and lying to the west of Chinese Tartary. Its western boundary is the Caspian Sea and the river Ural, On the east, is the lofty table-land of the Bolor, (the mountains which form the western boundary of Chinese Turkestan and Dzungaria), and the river Irtisch; and the northern boundary is western Siberia, and it has Afghanistan on the south-east; On the eastern side of Central Asia, is a fertile tract, watered by the great rivers the Jaxartes and the Oxus. The whole country of Central Asia between India and Tartary is one broad mountain range, the Himalaya forming the southern crest, and the Kuen-luen the northern. The interior has some lovely valleys like Kashmir, but it is more usually broken into rocky ravines, through which the affluents of the Indus force their way towards the plains; or else stretches away in those vast treeless uplands, which are one of the chief characteristics of the range through its whole extent. The ascent from Yarkand and Kashgar, westward to the table-land of Pamir, is almost imperceptible: and when that lofty position is gained, where the average elevation is probably as much as 15,000 feet above the sea, a vast open plain is seen, which stretches from the valley of the Jaxartes in one direction, across the head streams of the Oxus, to the top of the Kashgar or Chitral valley in another. This plateau may be 700 or 800 miles in extent, It is studded throughout with lakes, and from it descend four great river systems. The Narym, which is the main stream of the Jaxartes, runs through a long, luxuriant valley, between the culminating ridge and outer range of the Thian Shan, and drains all the northern range of the plateau. The Oxus, rising in the Sari Kul or Yellow Lake of Pamir, at least 300 miles to the south of the Jaxartes, receives from its right bank a multitude of steams from the rugged valleys on the south-western face of the Pamir uplands. The western face of Pamir between the Jaxartes and the Oxus, is far more precipitous than the eastern. Ridges run out as far as Samarcand and Karshi, and the streams from the upland which twine amongst these ridges form the Zarafshan and Karshi part of the water system of the Oxus, though before they reach that river they are entirely consumed in irrigation.

The water system of the Indus is formed on the south-eastern extremity of Pamir, where the table-land is lost in the rocky summits of Muz Tagh, and a number of streams drain off to the southwards, forming two subsidiary Indus systems. A culminating ridge, Pusht-i-khar or Asses Back, which runs out from the south-east corners of Pamir, is the true watershed between Thibet and Kabul, the streams flowing to the southward being separated by the shoulder which joins the Hindu Kush, from the streams descending through Vakkam and Badakshan to the Oxus, and forming the Kabul river, which falls into the Indus at Attock, while those that flow to the south-east and are divided by the Muz Tagh range from Tartary, descend through a series of rocky valleys and precipitous gorges into the Upper Indus at Little Thibet. From the eastern face of the Pamir again, which slopes off very gradually into the plains of Tartary, is supplied a fourth water system, in the form of a series of small streams, which passing by Yarkand and Kashgar are ultimately lost in the sandy desert, or in some cases reach the central lake of Lob Nur.

Three large rivers flow through Kaffiristan from north to south, and augment with their waters the river of Kabul and Jelalabad, which ultimately falls into the Indus. The two westerly rivers unite at Tirgari of Lughman, and the joint stream, after a short course of eight or ten miles, falls into the Kabul river at Lergah, in the same district, about a mile to the east of Mandarawar. The easterly river, known as that of Kameh, falls into the Kabul river east of Jelalabad, and at a distance of about twenty-five miles from Kergah. The Kameh flows through Chitral, and its source is more remote. On the east it may be considered the boundary of the Siahposh territory, as the river of Nadjil and Alishang forms the boundary on the west. The sources of the Nadjil river are said to be not very distant, and it is the smallest of the three rivers.

The *Kum Feroz* river, across which Amir-Azan Delemi, built the Band-i-amir, or Bend amir. Aras, is a modern name of the ancient Araxes, the Awerma of the Purans, now called Kum Feroz. It laves the foot of the rock Istakhr. The snowy Ardegan mountains are the same with those which presented so formidable a barrier to Alexander's progress, and by whose slopes he descended into Persia in his advance on Persepolis. Towards the north of Armenia, runs the Araxes, with its numerous tributaries. This river which at its commencement, owing to its many affluents, bears the Persian appellation of Hazara, springs from the side of the Bin Gol, or mountain of a Thousand Lakes, about 30 miles south of Erzerum, and nearly in the centre of the space between the eastern and western branches of the Euphrates. Its course, from its first spring near Jabal Seihan, is almost N. E. for about 145 miles through Armenia; when it turns eastward, being then near the frontier of Kars: this proximity continues for 110 miles. The sources of the Aras and those of the north branch of the Euphrates are about ten miles from one another. According to Pliny those sources are in the same mountain and 600 paces asunder. In modern times, the north-eastern districts, along the banks of the Araxes, intervening between Aderbijan and

Georgia, have been in general subject to the sovereigns of Persia.

Except the Nerbuddah and Godavery unless great engineering skill be applied, there are none of the rivers of Southern India likely to prove navigable or available for military operations. The Sagar and Nerbudda districts form part of the territorial division called the Central Provinces, the principal towns of which are Sagar, Jubbulpur and Hoshungabad. In the valley of the Nerbudda, fossil bones of extinct animals have been discovered of great importance to the geologist. On some of the hill-sides bordering the valley there have been discovered some of those strange flint implements which in other parts of the world have so roused the curiosity of antiquarians. The falls on the Nerbudda river are those of Kapiladhara and Dudh-dhara near its source—the former of 78 feet. The next is at Umaria in the Narsinghpur district, of about ten feet. At Mandhar, ninety miles below Hoshungabad, and about twenty-five below Handia, there is a fall of forty feet; at Dadri, near Punasa, twenty-five miles below Mandhar, there is another fall of forty feet.

The British Government have been trying to make the Nerbuddah and Godavery navigable. The rivers embraced under the Godavery navigation project are the Godavery, Wurdah, Pranhita, Wyne Gunga, Indrawatty, Sebbery, and Pyne Gunga. The three first, however, are the principal streams. The Wurdah takes its rise in the Baitool District, west of Nagpore, and after flowing for some distance in a south-east direction is joined by the Wunna, which passing under Hingunghat, falls to the south, and forms its junction with the Wurdah, at a place called Sweet, eighteen miles south of the latter place. At this confluence are the falls of Zoourate, and under them is the village of Chuhmunder, which is supposed to be the limit of the Engineering operations at present contemplated. The Wurdah flows on to the south-east until, a little before reaching Chandah, it is joined by the Pyne Gunga, when, losing the names of Wurdah and Payne Gunga, the united stream continues under the name of Pranhita to its junction with the Godavery, a few miles below the station of Sironcha. Midway between these confluences is situated the third or Dewalamurry barrier, extending round in a curve for about fifty miles, and midway down this Barrier the Wyne Gunga discharges itself into the Pranhita. From the confluence of the Godavery and Pranhita below Sironcha to the sea, the river carries the former name, although joined at intervals by the Indrawai and other tributaries above specified. Thirty miles below Sironcha lies the second or Enchampally barrier, and eighty miles below this again is placed the first or Sinteral barrier whence to the sea there are no material obstructions to a partial, though not perennial navigation.

The streams running through the Palghaut valley unite about fifteen miles below Palghautcherry and form the great Ponany river; they containing gold; and in June, 1832, Lieut. Nicholson visited Darampooray, at the foot of the Shevaroy Hills, Sattiamungalum, Donagancottah, Addivarum or Stremogoy and Metapollum, where gold is stated, to be found; saw also the gold sands of Polygouth, about 45 miles from Dindigul; natives likewise wash for gold at the branch of the Cauvery, which runs past Darampooram.

The *Tigris* river is known to the people as the Dijlah. It is formed of three main branches, the Diarbeker stream or true Tigris, the Myafarekin river, and the Bitlis-chai or Centrites of Xenophon. It enters on the low country near Jazirah, and terminates at Kurnah. Its fall is much greater than that of the Euphrates. It begins to rise in March, is highest in May, and in June returns to its natural level. The Tigris, at Argunna, is but a little brook, whilst the Euphrates, even at Malatea, is a very noble river, about a hundred yards wide. The Tigris varies as much in the rapidity, as in the depth of its stream, both being governed by the periodical waters that rush from the mountains of Armenia, where its sources are about fifty miles north-west of the valley of Diarbeker. It flows thence, with a swiftness that gave it the ancient Persian name of Tir, the arrow, which is descriptive of its course. The average rate of its current is about seven knots an hour. Its first swell takes place in April, and is produced by the melting of the winter snows in the mountains; its second appears towards the close of October, or the beginning of November, and rises immediately after the annual rains in those high regions. But it is only during the spring torrents, that a complete inundation covers the land, and the city of Bagdad stands like a castellated island in the midst of a boundless sea. The river Tigris is probably evaporated from the upper half of the Arabian sea by the winds; while the north-east trade winds take up from the lower half those vapours which feed the Nile with rain, and which the clouds deliver to the cold demands of the Mountains of the Moon. Thus there are two "wind-roads" crossing this sea: to the windward of it, each road runs through a rainless region; to the leeward there is, in each case, a river rained down. The Persian Gulf lies for the most part, in the track of the south-west winds; to the windward of the Persian Gulf is a desert to the river Indus, The Tigris may be considered as having an average width of 200 yards from Mosul to Bagdad, with a current in the high season of about four miles and a quarter per hour. The country is highly cultivated from Mosul to Nimrod on both sides of the river ; but from the latter place to Tekrit, all cultivation nearly ceases ; and it is but partially found in the tract along the river between Tekrit and Bagdad. The Tigris is navigable for rafts at certain seasons from the bridge of Dyar Bekr to Mosul, a distance of about 296 miles. Below the latter place it is more or less so throughout the year, and the descent to Bagdad is performed with such ease and speed that the river is known by the expressive name of the cheap cameliar. Large rafts supported by 200 or even 300 inflated skins are much in use for the transport of goods, and, when the merchants are on board, a small room is raised on the raft in order to give shelter from the sun and rain. During the flood season the voyage is performed in three or four days, whereas at another time it requires about fifteen days. In 1838, the *Euphrates* steamer, under Lieutenant Lynch, went as high as the bund of Nimrod and this officer made a map of the river, from Bagdad to Mosul, by trigonometrical operations between points which were determined by astronomical observations.

The *Euphrates*, the Forat or Forath of the Hebrews and the Perath or Phrath of the Arabs, rises near the shores of the Black Sea and disembogues into the Indian Ocean after a course of 1,900 miles receiving in its course the Mahmah Khatim from the plain of Tejran. It has two great sources in the Armenian mountains, the more northern of which is in the Anti-Taurus, 25 miles N. E. of Erz Rum.—*Schlagintweit*, *General Hypsometry of India, Vol. II.* p. 98. *Rennell's Memoir*, *pp*. 337, 345, 359, 360, 361. *Fraser's Himalaya Mountains*, *p.* 468, 47. *Herbert* ; *Hodgson*. *Tod's Rajasthan*, *Vol.* I. *p.* 16. *Rep. Royal. Com. Ward's View of the Hindoos*, *Vol. I. p.* 275. *Pliny*, *lib. vi. c.* 9. *in Malcolm's History of Persia*, *Vol.* ii, *p.* 212. *Journal of the Royal Geo. Society*, *Vol.* vi. *Part* ii, *p.* 200.—*Kinneir's Geographical Memoir*, *p.* 9. *Porter's Travels*, *Vol. II. p.* 258. *Maury's Physical Geography*, *p*. 308.—See Aras ; Bend Amir ; Euphrates ; Fars ; Iran ; Tigris.

RIVER WATER.

Liu shwui... ...... CHIN. | Naddi-ka-pani ... HIND.

The waters of the upper Yang-tze cause goitre.

RIVINA PANICULATA. *Linn.* Syn. of Salvadora persica.

RIWASAN. HIND. Sesbania Ægyptiaca.

RIYAL. HIND. Picea Webbiana ; Picea pindrow ; the Silver Fir. See Tang.

RIZ. FR. Rice.

RIZAI. HIND. A padded quilt used in India for sleeping on or as a coverlet.

RIZINUS-OHL. GER. Castor oil.

RJAO. HIND. Fagopyrum esculentum ; Kaura-ro, HIND. is Panderia pilosa.

ROADS have existed in India from the most ancient times, but since artillery has been used in war and since parts of India have been in the possession of the British, the French, the Dutch, the Portuguese and the Danes, greater efforts have been made to extend them. Roads were made by the Greeks and Romans, but never by the Arab or the Jew. Lord Dalhousie, commenced during his administration, a road for the line of traffic from Hindostan to Central Asia, from which, even in an unfinished state, great benefits undoubtedly have arisen. It was commenced in 1850 ; the original idea was, that the road should be available for wheeled carriages through its entire length. This plan has now been abandoned and a good road for laden mules is in progress to the Chinese boundary.—*Cleg. Punj. Rept. p.* 65.

ROA-TANGHA, TEL. Schleichera trijuga *Willd.*

ROBAEE. HIND. A variety of magic squares.

ROBAL. HIND. Polynemus Indicus.

ROBARRI or Rebarri, a race who, in Hindustan, profess mahomedanism and rear camels or with the Bhatti steal them.

ROBAT. See Kirman.

ROBBIA. IT. Madder.

ROBERTS. An American missionary, who, in 1830, with an earnest Chinese disciple kindled the great evangelical movement amongst the Chinese which the Taeping blended with a national struggle.—*Bunsen*, *God in Hist. Vol. I. p.* 270.

ROBER WEINSTEIN. GER. TARTAR.

ROBINIA MITIS, *Linn.* Pongamia glabra, *Vent.*

ROBIN. The Indian Robin, or Dayal-bird, Thamnobia fulicata, is generally distributed over most parts of Hindostan. It is always found near the habitation of man. In manner and habits it is the oriental representative of the red-breast, just as the migratory thrush takes the place of the thrush with the Canadian emigrant. In the elevations of the Kandyan country there are a few birds such as the Robin of Newera ellia and the long-tailed thrush, whose song rivals that of their European name-sakes ; but, far beyond the attraction of their notes, the traveller rejoices in the flute-like voices of the oriole, the Dayal-bird, and some others equally charming ; when at the first dawn of day, they awake the forest with their clear reveil. The Copsychus saularis, *Linn*, is called by the Europeans in Ceylon the "Magpie Robin," but is not to be confounded with the other popular favourite the "Indian Robin" Thamnobia fulicata, *Linn*, which is never seen in the unfrequented jungle, but, like the cocoanut palm, which the Singhalese assert will only flourish within the sound of the human voice, it is always found near the habitations of men.—*Tennent's Sket. Nat. Hist.*, p. 41. *E. L. Layard.*

ROBINIA MACROPHYLA.

Ganj..................HIND.

A huge climber, common a little to the west of the Jumna.

ROBLE. PORT. SP. also Carbalho, PORT. Quercus, the oak.

ROBINSON, in a paper upon sundry of the border of tribes of Assam, in the B. As. Journal, No. 201, for March 1849, Mr. Robinson asserted the affinity of these tribes (the Bodo and Garo amongst others) with the people of Thibet.

ROBO, also Roboklu. See Tin.

ROBUR of Candahar, the Fox, Vulpes flavescens, *Gray*.

ROCELLA, a genus of lichens of the natural order Lichenes. These are largely exported from Ceylon, Bombay, Mozambique, Angola, Lima and Cape Verde under the term orchella weed. R. fusiformis, its allies and varieties, occur on trees in tropical or subtropical countries near the coasts. The species are used in dyeing, and are popularly called orchill, or archil, terms derived from the oricello of the Italians or the Spanish orchella often corrupted in commerce into Rochilla-Weed. Rocella fuciformis, the flat-leaved orchil, is found on maritime rocks, or on dry stone walls exposed to the influence of the sea-breeze, as well on the coast of England as on the shores of the Mediterranean and the East Indies. The more arid the situation, the better is the quality of the lichens. The presence of the colouring matter is ascertained by steeping the weed broken up in small pieces in diluted solution of ammonia, in a bottle half filled with liquid, which should be kept corked, but frequently opened in a temperature not exceeding 159° Fahr.

ROCCELLA MONTAGNEI. Belanger. HIND.

ROCCELLA TINCTORIA. Dyer's Roccella, or Orchil, when good has a mealy white powder on its surface towards the centre; the under surface is of a gray colour; and is not hairy; if wetted, it does not turn of an orange colour: its edges are flat and thin, and various lichens, from Tenasserim and other parts of India, were introduced into Britain by the East India Company. Specimens of varieties of the lichens used in the manufacture of cudbear, orchil and litmus, and of the substance obtained from them were shown in the British department, of the Exhibition of 1851 for which were awarded prize medals.—*Simmonds. Hogg's Vegetable Kingdom.*

ROCK-BO. See Tonking.

ROCK CRYSTAL.

Shwin-tsing, ...	CHIN.	Balur	HIND.
Shih-ying, ...	,,	Balun-ka-pat'har	,,

Ceylon affords all the varieties of quartz, rock-crystal, amethyst, rose-quarts, cats'-eye, and prase. Rock-crystal occurs in abundance, both massive and crystalized, of various colours, good quality and in large masses.

Amethyst also is pretty abundant, very beautiful specimens of this mineral are found in the alluvion, derived from the decomposition of gneiss and granitic rock, in Saffragam and the Seven Korles. A large crystal of it was found near Buanwelle, containing apparently two distinct drops of water. Rose-quartz, is pretty common, andi s often found in the same place as amethyst. Ceylon produces the finest cats'-eyes in the world, indeed the only kind that is highly esteemed, and that brings a high price. The best specimens have been found in the granitic alluvion of Saffragam and Matura. Prase is of rare occurrence in the island, only amongst the pebbles on the shore of Trincomalee. Natives are extremely skilful in carving rock crystal into beads, cups, &c.

The districts in British India, richest in quartzose minerals, rock crystal, amethyst, prase, chrysoprase, heliotrope, plasma, mocha stone, calcedony and onyx are those of Dowlatabad along the banks of the Seena river and the neighbourhood of Cambay.

The village of Aurangpur is situated in a small valley surrounded by hills, and the roads leading to it from all sides are, for a distance of three miles at least from the village, impassable to any but foot passengers and cattle, from their rocky and precipitous character. Its mines of rock-crystal are situated about two or three miles to the south-west of the village, and can only be approached by paths like those just described. The deposit of crystal occurs in a small valley or basin among these hills, about two or three miles to the south-west of the village of Aurangpur. The valley is about 500 yards long, and from 50 to 100 yards broad, and dips towards the north. The only part of the deposit which has been worked is the south end.

The mines of rock-crystal at Vellum near Tanjore are of great value and the stone is cut into a great variety of ornamental objects. See Cambay.

ROCK SALT. See Hormuz, or Ormus. Salt; Salt Range.

ROCKEB-EL-JAMMAL. ARAB. Chenopodium viride.—*Roxb.*

ROCHANA. SANS. from rock, love.

ROCK NOSED WHALE. Balæna mysticetus, *var. c.*

ROCK OIL or Petroleum.

Shi-yu........ .... CHIN.
Mitti-ka-tel... ... HIND.
Bhumi-tailan........TAM.

Petroleum is found in the Island of Cheheduba, when reported on by Captain Halstead there were two wells sufficiently near each other to afford the conclusion of their possessing one common source, they exist in the Kraerore circle, yielding annually about 60 pots each. A third was found in the "Mromee" circle, but it had been destroyed by fire and yielded nothing, being the property, then of no one in particular, the soil around it, was however, full of the oil. The fourth and most extensive is in the Frangroa circle and yields near 200 pots in the year. The method of collecting it is simple: the earth is turned up to a depth of two feet, and a bank of soil raised round a square of about 20 yards, is distributed so as to form it during the rains into a shallow pond of about the above depth. The surface of this pond is in a constant state of ebullition from the escape of gas with which comes up the petroleum. It collects on the surface in three different forms; a green fluid oil first spreads itself over the spot where the gas is bubbling up. As it extends, its edges exhibit a brown curdled substance resembling half congealed dripping, and amongst this, as it becomes thicker is seen gathering in spots a dark brown substance of the color and consistency of treacle. This latter is used to preserve wood, to saturate paper for umbrellas, and is sometimes burned. But the fluid of a green color, is that mostly used to supply lamps. The curdled substance is used with the dark in the coarser purposes to which it is applied. This is the least valuable and sells at 5 pots for a rupee. The other two at 3 pots for 2 rupees. A bamboo is used to skim the surface of the ponds, and bring the substance to the bank, it is scooped up with a cocoanut shell and put into the pot. It floats so lightly on the water that this process is quickly and effectually performed. The break of the day is the time chosen for the operation as from the cooler temperature, it is then of harder consistence on the water and easier and cleaner skimmed. In the heat of the day it becomes so fluid as to make it difficult to collect without a large proportion of the water. In the months of March and April the pond gradually dries up, and the oil can then be no longer collected from out the soil. The pond is then dug and the whole soil in it is as much disturbed as possible : on this operation depends the quantity to be yielded during the next season, and the deeper it is dug, the larger will be the produce; while on the other hand, if it be neglected, which is most commonly the case, the quantity of oil to be collected will be very materially diminished. A sort of superstitious fear is attached to these ponds, and on no account would a native dip his foot in its water, though he will not hesitate to dig the soil when dry, nor to handle its produce, to which no sort of deleterious property is attributed. The state of ebullition without apparent heat may occasion this feeling among them. The ponds are surrendered by a rough hedge of stout sticks, to preserve them from the intrusion of buffalo or deer. Insects were seen in them. No heat is perceptible at the surface, the thermometer where the greatest ebullition was going forward showing but two degrees more than the atmosphere viz. 74. No doubt this mineral product might, with ease and little expense, be increased to a very large amount, and the oil has yet perhaps to be better known and better appreciated than now when its value will in all probability be much increased.—*Captain Halsted's Report in Mr. Rohde's MSS.* See Asphalte; Naphtha; Bitumen; Petroleum.

ROCK-GROUSE. Species of Pterochidæ.

ROCK-PIGEONS, the Columba livia, congregate in deep wells, in the sides of which they breed; the Senegal dove Columba senegalensis, is frequently observed by the sides of hedges, in gardens and way-sides.

ROCK-ROSE, the genus Cistus, one of the Cistaceæ, ornamental plants mostly used for ornamenting rock-work, though some grow to the height of four feet; they do well in most garden soils, and may be cultivated either from seed or by cutting.—*Riddell.* See Evergreens; Ladanum; Labdanum.

ROCKY ISLAND, in the China Sea, is a small island in lat. 0° 54' N., and long. 106° 48' E.

ROCOU. FR. Arnotto.

ROC, rukh or rokh, a bird of gigantic stature, supposed, if not fabulous, to be now extinct, and to have inhabited Madagascar: mentioned in Sinbad and Ibn Batuta's voyages.—*India in the 15th Cent.*

ROD BAUHINIA. ENG. Bauhinia scandens, *Linn. Willde.*

RODA. GUZ. HIND. Catgut.

RODANG. HIND. Madder; Rubia tinctorum.

RODANI. See Kelat.

RODBAR. See Kelat.

RODDA, an outcast tribe in Ceylon, See Ceylon; Rhodia.

RODENTIA. An order of the mammalia, the gnawing mammals, or Gnawing Tribe, the the Glires of Authors,comprising the rats, mice, hares, rabbits, guinea pigs, squirrels, in the families and general as under;

Fam. SCIURIDÆ, or Squirrels.

Sciurus malabaricus, *Schintz.*

Sc. maximus, *Blyth. Horsf.* | Jangli gilhri... HIND.

Malabar Squirrel of Malabar, Wynaad, Neilgherries, Travancore.

Sciurus maximus, *Schr. Ell. Bly.*

Kondeng... ... *Cole.* | Per-warsti. ... *Gond.*
Kat berral. ... BENG. | Karrat... ... HIND
Rasu, Ratuphar ,, | Bet-udata. ... TEL.

Red Squirrel of Central India.

Sciurus Elphinstonei, *Sykes.*

Sc. bombayanus, *Sch.Ell.* | Red Squirrel of Bombay
Kes-aonalu ... ... CAN. | Shekra ... ...MAHR.

Western Ghats, Malabar, Mahabaleswur.

Sciurus macruroides, *Hodgs.*

S. bicolor, *var.* Indica, *Horsf. Blyth.* | S. giganteus. *McLelland.*
| Black Hill Squirrel. ENG
Shingsham ... BHAT. | Le-hyuk... ... ...LEP.

S. E. Himalaya, Nepal, Sikkim, Assam, Burmah.

Sciurus macrourus, *Forst : Blyth. Horsf. Hardw.*

S. Ceylonensis,*Bodd.* | Grizzled Hill Squirrel. ENG.

Ceylon S. India.

Sciurus ephippium, *Muller.* Borneo.

Sciurus lokriah. *Hodg. Blyth.*

S. subflaviventris.*McLlell.* | Killi .. .. LEP.
Lokria... ... ... NEP. | Killi-tingdon . . ,,
Zhamo... ... ... BHOT. |
Orange-bellied gray Squirrel. |

S. E. Himalaya, Nepal, Sikkim, Bhotan.

Sciurus lokrioides. *Hodg. Blyth.*

S. lokriah. ... *Gray.* | Hoary-bellied Gray Squirrel

S. E. Himalaya, Nepal, Sikkim, Bhotan.

Sciurus Assamensis, *McClell.* Sylhet, Dacca.
Sciurus ferrugineus, *F. Cuv.* N. E. India.
Sciurus erythrœus, *Pallas,* N. E. India.
Sciurus erythrogaster, *Blyth,* N. E. India.
Sciurus hyperthrus, *Blyth,* N. E. India.
Sciurus chrysonotus, *Blyth,* N. E. India.
Sciurus hyperythrus, *Is. Geoff.* N. E. India.
Sciurus Phayrei, *Blyth,* N. E. India.
Sciurus Blanfordi, *Bly th,* N. E. India.
Sciurus atrodorsalis, *Gray.* N. E. India.

Sciurus palmarum, *Gm. Bl. Ell.*

S. penicillatus..LEACH. | Common striped squirrel.
Gil'hri... ... ... H. | Alalu ... ... CAN.
Beral... ... ... BENG. | Vodata ... ... TEL.
Lakki... ... ,, | Urta... ... WADDAR.
Kharri. ..... MAHR. |

Peninsula of India.

Sciurus tristriatus, *Waterhouse.*

S. palmarum. ...*Fll. Bl.* | S. Kelaarti. ...*Lay.*
S. brodiei. ...*Layard.* |

Striped Jungle Squirrel of Ceylon and Peninsula of India.

Sciurus Layardi, *Blyth.* Travancore Striped Squirrel, of Ceylon, Travancore.

Sciurus sublineatus, *Water. Blyth.*

S. delesserti.*Gervais.* | Neilgherry Striped Squirrel

Ceylon, forests of S. India, Travancore, Neilgherry.

Sciurus insignis, *Horsf.* Java.

Sciurus McClellandi, *Horsf. Blyth. Hod.*

S. chikhura. ...*Blyth.* | S. Pembertoni. *Blyth.*
Small Himalaya Squirrel. ... ...ENG. | Kalli gangdin.... LEPCH.

N. E. India, Himalaya, Sikim, Bhotan, Khasya.

Sciurus barbei, *Blyth.* Tenasserim.
Sciurus plantani, *Horsf.* Java.
Sciurus Berdmorei, *Bly.* Mergui.
Sciurus europœus, *Linn.* North and Central Asia, Europe.

Gen. Pteromys petaurista. *Pallas, Blyth.*

P. Philippensis .. *Ell.* | P oral,... ... ...*Tick.*
Brown flyingsquirrel.ENG. | Para-chaten, MALAY.
Pakya. ...Mahr. of GHAT. | Oral of Kol.

Forests of Ceylon, peniusula of India, and Central India.

Pteromys inornatus, *Is. Geof. Jacq Blyth.*

P. albiventer. ... .. *Gray* | Rusi-gugar. ...*Kashm.*
White-bellied flying squirrel. ENG.

N. W. Himalaya at 6,000 to 10,000 feet.

Pteromys magnificus, *Hodg. Bly.*

P. chrysothrix...*Hodg.* | Sciuropterus nobilis,*Gray,*
Red-bellied flying squirrel,... ENG. | Biyom... .. ... LEP.

S. E. Himalaya, Nepal to Bhotan : Khasya Hills, Assam Hills.

Pteromys cinerascens, *Blyth.* Burmah.
Pteromys nitidus, *Geoff.* Malay peninsula.
Pteromys elegans, *S. Muller.* Java.
Pteromys philiopensis, *Gray.* Philippines.
Sciuropterus caniceps F. Cuvier, *Gray. Blyth.*

Pt. senex . ...*Hodg.* | Grey headed flying squirrel......ENG.
Biyom chimbo...LEPCH. |

Nepal, Sikkim.

Sciuropterus fimbriatus, *Gr. Blyth.*

Pt. Leachii, ...*Gray.* | Gray flying squirrel.

N. W. Himalaya, Simla to Kashmir.

Sciuropterus baberi, *Blyth* Afghanistan.

Sciuropterus alboniger, *Hod. Blyth.*

S. Turnbulli... ... *Gray.* | Piam Piyu... ... ...BHOT.
Khim... ... ...LEP. |

Black and white flying squirrel of Nepaul to Bhotan.

Sciuropterns villosus, *Blyth.*

S. sagitta. *Walker.* | Hairy footed flying squirrel.

Bhotan, Sikkim, Assam at 3,000 to 6,000 feet.

Sciuropterus fusco-capillus, *Jerd. Bly.*

Small Travancore flying squirrel...ENG.

Travancore.

Sciuropterus layardi, *Kel. Blyth.* Ceylon.

Sciuropterus spadiceus, *Blyth.* Aracan.

Sciuropterus phayrei, *Blyth.* Pegu, Tenasserim.

Sciuropterus sagitta, *Linn.* Malayana.

Sciuropterus Horsfieldii, *Waterhouse.* Malayana.

Sciuropterus genibarbis, *Horsf.* Malayana

Sub-Fam. Arctomydinæ, Marmots.

Gen. Arctomys bobac, *Sch. Bly. Pal.*

A. tibetanus ... ...HODG.
A. himalayanus „
A. caudatus...... ...JACQ.
Brin... ... .. CASHM.

Kadia-piu.........TIBET.
Chibi... ... ...BHOT.
Lho... ... ...LEP.
Pot sammiong, ... „

Tibet Marmot, White marmot of E. Europe, Central Asia, Snowy Himalaya, Kashmere to Sikkim at 12 to 16,000 feet.

Arctomys hemachalanus, *Hodg.* Red Marmot.

A. tibetanus... ...*Hodgs.*
Sammiong...... . ...LEP.

Chipi .. ..BHOT.
Drun... ... ...KASHM.

Cashmere, N. W. Himalayas at 8 to 10,000 feet.

Fam. MURIDÆ. The rat tribe, includes the Jerboas, the Dipodidæ or Jerboidæ of Authors.

Sub-Fam. Murinæ, Rats and Mice.

Gerbillus Indicus, *Ell. Jerd Bl.*

Dipus...... ....*Hardw.*
G. Hardwickii ..... *Gray.*
Indian Jerboa Rat...ENG.
Hurna mus ... ..H.
Jhenku Indur SANS.BENG.

G. Cuvieri......*Waterh.*
Yelka ...WADDUR TEL.
Yeri-Yelka......YANADI.
Yelka.................. „
Billa Ilei...... ......CAN.

All India.

Gerbillus erythrourus, *Gray. Jerd.* Desert Jerboa Rat, of Punjab, Harriana, Jumn.

Nesokia Indica, *Jerdon.*

Arvicola Indica ...*Gray.*
Hardw.
Mus Kok...............„
Indian mole Rat ...ENG.

M. providens .....*Elliot.*
M. pyctoris... ..*Hodg.*
Kok... .. ...*Can.*
Galatta koku... ...TEL.

All India, Ceylon.

Nesokia Hardwickei, *Jerdon.*

N. Huttoni...... *Blyth.* | Short tailed mole rat.

Gardens of India, Afghanistan, Bhawulpur.

Nesokia Griffithii, *Horsf* ? ? Afghanistan.

Nesokia hydrophila, *Gray* ? ?

Mus hydrophilus *Hodg.* | Arvicola hydrophila. *Hodg*

Small Nepal water rat, of Nepal.

Nesokia macropus, *Jerdon.*

Mus hydrophilus...*Hodg.*

Large Nepal water rat.

Gen. Mus bandicota, *Bechstein Blyth.*

M. giganteus... *Hardw.*
... ... *Lin.*
M. Malabaricus ...*Shaw.*
M. nemorivagus ...*Hodg.*
Bandicoot rat.........ENG.
Indur ... ...SANS.
Ghus, Ghous ... HIND.

M. perchal... ...*Shaw.*
M. setifer ...*Horsf. Ell.*
Ikria, Ikara......BENG.
Heggin ... ...CAN.
Pandikoku... ...TEL.

Pig-rat, Bandicoot-rat, Ceylon, India, Malayana.

Mus Andamensis *Blyth.*

M. Nicobaricus, *Scherzer*
M. kok *Hardw* ?

M. Setifer... ...*Cantor.*

Nicobar, Andamensis and Malay peninsula.

Mus rattus, *Linn. Bly. Ell.* peninsula.

M. Rattoides... ...*Hodgs.* | M. andamensis...*Blyth.*

All India.

Mus decumanus, *Pall. Bly. Elliot.*

M. norveyicus ... *Buffon.*
Manei ilei ... .. CAN.
Brown Rat... ... ENG.

M. decumanoides *Hodgs.*
Ghar-ka-chuha...HIND.
Demsa Indur......BENG.

All India, Akyab.

Mus plurimammis, *Hodg.* Nepal Rat.

Mus tarayensis ? *Hodg* ? Qu. M. decumanus ?

Mus infralineatus, *Ell. Bly.*

M. Elliotii ... *Gray.*
M. Asiaticus ? ... *Kel.*

M. fulvescens ...*Gray*

Striped bellied field Rat ...ENG.

Bustar, Madras.

Mus morungensis ? *Hodgs.* ? Nepal Terai.

Mus brunneus, *Hodg.*

M. nemoralis... ...*Bly.* | M. œquicaudalis. *Hodgs.*

Tree Rat of Ceylon, India.

Mus rufescens, *Gray.*

M. flavesceus ...*Ell. Bl.*
M. arboreus. *Buck. Ham.* *Horsf.*
Gachua Indur ...BENG.

M. brunneusculus, *Hodgs.*
Rufescent tree Rat ...ENG.

All India.

Mus niviventer, *Bly. Hodgs.*

White bellied house rat of Nepal.

Mus nitidus, *Bly. Hodgs.*

Shining Brown Rat.

Darjeeling.

Mus caudatior, *Hodgs. Horsf.*

M. cinnamomeus ... *Blyth.* | Chesnut Rat......ENG.

Nepal Burmah.

Mus oleraceus, *Skyes. Ell. Bly.*

M. dumeticola ...*Hogds,*
Long-tailed Tree-Mouse, ENG.

M. povensis... ...*Hodgs.*
Marad-ilei... ... .. CAN.
Meina-yelka ... ...TEL.

Ceylon, all India.

Mus nilagiricus, *Jerdon.*

Neilgherry Tree-mouse...ENG.

Neilgherries, Ootacamund.

Mus concolor, *Blyth.* Thatch-rat of Pegu and Tenasserim.

Mus badius, *Blyth,* Burmah.

Mus peguensis, *Blyth,* „

Mus gliroides, *Blyth,* Khassyah.

Mus castaneus, *Gray,* Philippines.

Mus palmarum, *Sch,* Nicobars.

Mus urbanus, *Hodgs. Blyth.*

M. musculus, *Ell. Kelaart.*
M. dubius... . ...*Hodgson.*
M. Manyi... ......*Gray.*
Common Indian mouse.

Ceylon, India.

Mus homourus, *Hodgs. Blyth.*

M. Nipalensis... ...*Hodg.*
Hill mouse... ......Eng.

Himalaya, from Punjab to Darjeling.

Mus crassipes, *Blyth.* Large footed mouse of Mussoorie.

Mus darjeelingensis, *Hodgs. Horsf.* Darjeeling mouse of Neilgherry, Darjeeling.

Mus Tytleri, *Bly.*

Long-Haired mouse...Eng.

Dehra Dhoon.

Mus bactrianus, *Bly.*

M. gerbillinus........ *Bly.*
M. Theobaldi ... ...*Bly.*

Sandy mouse of Afghanistan, Cashmere.

Mus cervicolor, *Hodgs. Blyth.*

M. albidiventris ...*Bly.*
Fawn-field Mouse...Eng.

Bengal, Nepal, Malabar.

Mus strophiatus, *Hodgson*, Nepal.

Mus fulvidiventris, *Blyth*, Ceylon is the M. cervicolor of Kelaart.

Mus terricolor, *Blyth.* Earthy-field mouse of S. India, Bengal, the M. lepidus, *Ell.*

Leggada platythrix, *Jerdon.*

Mus platythrix, *Sykes. Bly. Ell.*

Legyade . ... Waddur.
Gijeli-gadu......... ..Tel.
Kal-ilei..... ....Can.
Kal-yelka of Waddur.

The brown spiny mouse of S. India.

Leggada spinulosa, *Blyth.* The dusky, spiny mouse of the Punjab and Malabar.

Leggada Jerdoni, *Bly.* Himalayan spiny Field mouse of Kunawar, Sutlej.

Leggada lepida, *Jerdon.* Small spiny-mouse.

Mus lepida... ... *Ell.*
Chitta-burkani...... Tel.
Chit-yelka... ... ... „
Leggada booduga. *Gray.*
Chitta-ganda... ...Tel.
„ yelka ... „

S. India.

Platacanthomys lasiurus, *Bly.* Pepper rat or long-tailed spiny mouse of Western ghats in Malabar, Cochin and Travancore.

Golunda Elliotti, *Gray. Bly.*

Mus hirsutus... ...*Ell.*
Bush rat ... ...Eng.
Coffee rat of Ceylon „
Gulandi... ... .. Can.
Gulat-yelka..of Waddur.
M. Coffæus... *Kelaart.*
Sora panji gadur ... Yanadi.

Ceylon, S. India.

Golunda meltada, *Gray.*

Mus lanaginosus. *Ell.*

Mettade... ...Wadur.
Mettayelka ...Tel. of Yanadi.
Kera ilei... ...Can.

Soft furred field rat of S. India.

Golunda newera, *Kel.* Newera-ellia.

Rhizomys badius, *Hogds. Bly.*

Bay Bamboo Rat......Eng.
R. minor ... ...*Gray.*

Terai of Sikkim.

Rhizomys pruinosus, *Bly.* Khassia hills.

Rhizomys castaneus, *Bly.* Burmah.

Rhizomys sumatrensis, *Bly.* Malay Peninsula and islands.

Rhizomys sinicus, *Gray*, China.

Sub-Fam. Arvicolinæ, Voles, &c.

Arvicola Roylei, *Gray. Royal. Blyth.* Himalayan Vole of Panjab, Cashmere.

Arvicola thricotis. Darjeling.

Neodon Sikimensis, *Hodgs. Blyth.* Vole of Sikkim.

Phaiomys leucurus, *Blyth*, Tibet.

Fam. HYSTRICIDÆ.

Sub-Fam. Hystricinæ, Porcupines.

Hytrix leucura, *Sykes. Bly. Ell.*

H. hirsutirostris. *Brandt.*
H. Zeylanensis... ..*Blyth.*
Sahi, Sayal, Sarsel Hind.
Sajru .. .. Beng.
Sauri .. .. Guz.
Salendra......... ...Mahr.
H. cristata Indica. *Gray Harwd.*
Yed.................Can.
Yeddu Pandi... ...Tel.
Dumsi ... ... Nepal.
Ho·igu ... ... Gond.

The Indian porcupine of all India.

Hystrix bengalensis, *Blyth.*

Bengal porcupine .....H.
H. Malabarica...Sclater.

Malabar, Assam, Bengal.

Hystrix longicauda, *Mored. Bly.*

Crestless porcupine...Eng.

H. alophus ...*Hodgson.*
H. Hodgsonii ...*Gray.*
Sa-thung... ...Lep.
Acanthion Javanicum, ...*F. Cuvier.*
Anchotia dumsi...Nepal.
O'—e ... ...Limbu.

Nepal and Sikkim.

Atherura fasciculata, *Jerd.* Tipperah Hills to Malayan peninsula.

Fam. Leporidæ, or Hares.

Lepus ruficaudatus, *Geoff. Bly.*

Common Indian Hare...Eng.

L. indicus .. ..*Hodgs.*
Khar-gosh. Hind.. Pers.
Kharra ... Beng. Hind.
Sasru ... ... Beng.
L. macrotus ...*Hodgs.*
Lamma ... ...Hind.
Molol ... ...Gondi.

Punjab, Hindustan; Malabar ?

Lepus nigricollis, *F. Cuv. Bly. Ell.*

L. melanauchen...*Temm.*
Khargosh ... ...H.
Malla... ... ...Can.
Sassa ... ... Marh.
Black naped hare. Eng.
Musal... .. Tam.
Kundeli ... ...Tel.

Peninsula of India.

Lepus peguensis, *Bly.* Upper Burmah.

Lepus sinensis. China.

Lepus pallipes *Hogd.*

L. tolai. *Pallas Gray.*

Tibet.

Lepus tibetanus, *Waterh.*

L. oistolus, ...*Hogds.*
Ri-bong... .. Bhot.

Tibet.

Lepus hispidus, *Pears. Bly.*

Hispid hare ...Eng.

Terai from Goruckpore to Assam.

Lagomys Roylei, *Ogilby*. Himalayan Mouse Hare.

L. Nipalensis ...*Hodg.* | L. Hodgsonii...*Blyth.*
Rang-runt ... KUNAWAN. | Rang-*Duni* KUNAWAR.

Himalaya.

Lagomys curzoniæ, *Hodg*. Sikkim. Tibet.

Lagomys rufescens, *Gray*. N. and Central Asia, Afghanistan. See Mammalia.

RODEYA. See Rhodia. Rodyah.

RODING. See Kelat.

RODRIGUE. An island in the Indian Ocean, in lat. 19° 41' S., long. 63° 29' E., extends about 15 miles, and is about 6 or 7 miles in breadth.

RODUNG. In the trade lists of the N. W. Frontier of India, are two kinds of madder, one called "rodung kuhree," grown at Kandahar, which is superior, and the other kind "rodung phurreah." The plant is stated to require three years to come to maturity. The value of madder brought through the Biluch and Afghan mountains, is stated to be £12,228. Multan is a great emporium for madder. The Kabul merchants come thither direct from Dera Ismail Khan, via Leia and exchange their madder for cotton and indigo.—*Mr. Davis in Powell's' Hand Book, Vol.* 1. *p.* 463.

RODYAH, a forest race amongst the Kandyans. They are skilful in the manufacture of rope from the black fibre of the leaf stalk of the Caryota urens.

ROE, Sir. Thomas, ambassador from James I. of England to the Moghul Court, in 1615. He landed at Surat with great pomp and proceeded to the Court of the emperor Jehangir, then at Ajmir.

ROE of Europeans, in Borneo, Cervulus vaginalis. *Bodd, Gray.*

ROE. Fish roes, red fish, and sardines, are Malay condiments, and the species used in the preparation are Alausa toli, (Ikan trubok,) Engraulis Brownii, (Bunga ayer or badah,) Dussumieria acuta (Tamban-bulat) and Clupeonia perforata, (Tamban-nepes or batub). —*Cantor.*

ROEFERO. DAN. Rape seed.

ROER, Dr. A learned orientalist, for long librarian to the Bengal Asiatic Society, Calcutta.

ROG DUT Rye.

ROGA CHETTU, or Pindi bonda, TEL. Anisochilus carnosus, *Wall.*

ROGEWYN or Regewin Island, sometimes called Passage Island, in the Pitt Strait, is small and lies near the southern shore, in its western entrance.

ROGHAN. PERS. Oil; Ointment; Balsam; Fat

ROGHAN-I-BALSAN. PERS. Balsamadendron Gileadense. Opobalsam.

ROGHAN-I-BED-ANJIR. PERS. Castor oil.

ROH, PUNJABI, a hilly district, hence Rohilcund.

ROH, a district bounded on the east by Suwat and Kashmir; west by the Helmund; north by Kashkar or Chitral and Kafiristan and on the south by the river or sea of Bukkar.

ROHANA. URIA. ? TEL. A tree of Ganjam and Gumsur, of extreme height 30 feet: tolerably common and burnt for firewood; wooden pestles and ploughshares are sometimes made of this wood.—*Captain Macdonald.*

ROHI. HIND. PJI., a kind of soil, or stiff loam.

ROHILCUND, a Rohilla jaghir. Here, the pathan race are numerous, but form only a small part of the population. The district is in the N. W. Provinces of India, and has the towns of Bareilly, Bijnore, Moradabad, Badaon, and Shah Jehanpur. The first settlers of the Rohilla Afghans were two brothers, Shah Alam and Hoosain-Khan. The son of the first of these, Daood-Khan, achieved some distinction in the earlier part of the 18th century. But the rise of the family is owing mainly to his son, Ali Mahomed Khan, said to have been of hindoo extraction, but who was adopted by Daood Khan. When the Mahrattas had, in 1771, placed Shah Alam on the throne of Delhi, they turned their attention to the conquest of the Rohilla country. On the cession of Rohilcund to the British Government in 1801, the family were continued in their possessions. Ahmad Ali Khan died in 1839. The succession of his only daughter was rejected, and the next heir, Mahomed Saeed Khan, the eldest son of Gholam Mahomed Khan, was put in possession of the estate. For his services during the rebellion of 1857, the nawab received a grant of land yielding Rupees 1,04,408. It was at first intended to grant the pergunnah of Kasheepore, but villages on the Moradabad and Bareilly frontier were afterwards substituted. The nawab also received the dignity of knight of the most exalted order of the Star of India. The area of the Rampore Territory is 1,140 square miles, and the population is 390,232. In Rohilcund, the mahomedan landlords rose in the revolt of 1857, and not the hindu. The latter suffered much in the interregnum, and were sincerely glad at the restoration of peace. The Boksa, are a forest tribe in western Rohilcund, and in part of the forests of the Sewalik hills of Dehra Dhoon. They are of short stature and spare habits with broad faces, depressed noses, prognathous jaws, thick lips, very scanty beard and mustaches, but not darker in colour than the ordinary hindus of the country. They are reputed to be skilful in witchcraft. They are very ignorant and indolent, but simple, inoffensive and good humoured. They have a scanty rude cultivation, and collect forest produce and wash gold, but they have no caste, eat almost anything. They have no separate language. They are supposed to be dying out. They are said to enjoy a wonderful immunity from the effects of malaria. The Bhihar are an aboriginal tribe of the upper Doab, called in the Doab, Bheimhar and in Rohilcund, Behar. They were expelled from Nirauli and the neighbouring districts by the Bir Gujar rajput. The Bhar of northern India, called also Bharat, Raj-bhar and Bharpatwa, an aboriginal race following the meanest of avocations, especially that of swineherds. In the hills east of Mirzapur, there are some Bhar rajas. Tradition ascribes to them the whole country from Gorapur to Bundelkund and many old stone forts. Prof. Wilson supposes it possible that the name comes from Bharata an ancient name of India.

Aharwarrah is a territory which contains many districts in the north-east frontier of Malwa. The tribe or caste are the Ahar, from whom the territory derives its names of Aharwarah and the Aharat, are spread through Rohilcund and other districts in the N. W. Provinces, following pastoral pursuits. They claim to be descended from the yadu race of Rajpu's. See Rajpoot.—*Aitchison's Treaties.*

ROHILLA, Pushtu. A term by which Afghans in Western India are known. From Roh, a mountain, hence Rohilla, an inhabitant of the mountain, also Rohilcund. Colonel Tod states that some of the Affghans being driven from Egypt by one of the Pharaohs, they wandered eastwards till they arrived under that peak of the mountains west of the Indus called Sulimani-koh, or "Hill of Solomon," where they halted. Others draw their descent from the lost tribes. They are a very marked race, and as unsettled as their forefathers, serving every where. They are fine gallant men, and when managed by such officers as Colonel Skinner, make excellent and orderly soldiers; Rennell describes the Rohilla of Rohilcund as a tribe from the mountains that lie between India and Persia, who erected an independent state on the east of the Ganges, and within 80 miles of Delhi. The Rohilla, who conquered the extensive territory in which the city of Bareilly stands, and bestowed on it the name of Rohilcund, were a tribe of Affghan Mahomedans. Their intolerance drove the greater part of the hindoo inhabitants from the tract; but successive swarms from Affghanistan supplied the place of those fugitives, and kept the country in a high state of cultivation. The restless and enterprising character of the Rohillas led to constant encroachments by them on the possessions of the Nawab Vizeer of Oudh. The latter, wearied with resistance, claimed British aid as his allies; and Mr. Hastings, actuated undoubtedly by a foresight of the consequences which might ensue from such an influx of mahomedan soldiery into the territories within the Ganges, undertook the war. The Rohillas were subdued; and their country was made over to the Nawab Vizeer; a portion of it containing the city of Rampore with some dependent towns, being assigned to the heir of Hafiz Rahmat as a jagheer which was to be held of Oude on feudal conditions; subsequently, the provinces in question were ceded to the British by the Nawab Vizeer, and the fealty of the Nawab of Rampore was transferred to the British Government.—*Rennell's Memoir*, p. 19. *Marquis of Hastings' Private Journal, Vol. II* p. 114-115.—*Wilson's Gloss. Mr. Campbell*, p 47. *Malcolm's Centr. Ind. Vol. I. p.* 325. *Tod's Rajasthan, Vol. I. p.* 672.

ROHINI. A constellation, personified as one of the wives of the moon. See Budh; Krishna; Surya; Uma.

ROHIRA. Hind. Tecoma undulata.

ROHITA SARASHUPA. Sans. Cress seed.

ROHITA, the son of king Harischandra given by Varuna but subsequently required as a sacrificial victim by the same. See India.

ROHITAKA. Tel. Amoora rothituka. *W. & A.*

ROHRI. A town on the bank of the Indus immediately opposite to the island of Bukkur. Rohri is an ancient site, no doubt succeeding Alor, the capital of Upper Sind at the period of the mahomedan invasion, and whose remains are still known and pointed out near it. —*Masson's Journeys, Vol. I. pp.* 362 *and* 363.

ROHTUCK. A district of the Punjab. Its principal products are grain of all kinds, saccharine articles, cotton, ghee, and saltpetre.

ROHU or Rohoo, Hind. Cyprinus denticulatus. The "Ro-hoo" and the "Mirgah" resemble each other in size and habits; they are very much like the salmon, but have tiny little mouths with no teeth. The "ro-hoo" in season has very pretty red fins, and both have ash-colored backs, with silvery bellies; they attain to the weight of 20 lbs., and afford the angler excellent sport at bottom fishing, sometimes engaging him for an hour before he can attempt to land his fish.

ROHUN. Beng. also Rohuna, Rohitaka. Hind. Soymida febrifuga, *Juss.*

ROHUN BARK, Rohun-ke-chilki. Rohunæ Cortex, Bark of Soymida febrifuga, is not spotted with rusty patches, and the inside is dark reddish brown, nitric acid does not stain it of a bright scarlet. These tests distinguish it from the poisonous bark of the nux vomica tree (Kuchila,) which is commonly sold for it in the bazars of Bengal.—*Beng. Phar.*

ROIELLEO. Tel. Prawn.

ROIN. Hind. A kind of bell-metal, the Rawan of Amritsar.

ROIONG. Hind. Dolichos uniflorus.

ROJHA, also Rojhan. See Khyber; Kelat.

ROKA. According to the statements made to Mr. Crawfurd by Bugi traders, themselves settlers in the island, Flores is inhabited by six different nations, speaking as many different languages; the Ende, the Mangarai, the Kio, the Roka, the Konga, and the Galeteng, names derived from the principal places of their residence. Captain Keppel says that the natives captured from the island used to be much esteemed by the Celebes pirates, as slaves, and he gives the following translation from a Dutch journal:—"On the island of Flores, there lives a race called, on the south coast, Rakka, who not only devour their enemies, but with whom custom requires that the son shall cut the body of his deceased father in pieces, and sell the flesh to the inhabitants at the high price of its weight in gold. This flesh is greedily eaten by the people as a great delicacy. If the father was heavy and of great size, the son considers himself particularly fortunate. The population of Endore, on the same island, is also very greedy of human flesh. But these cannibals confine themselves to the heart, which, with incredible dexterity, they extract from the body, by giving a blow under the left shoulder blade. It is then cut into very small pieces, eaten completely raw by the bystanders, who belong to the same race." Captain Keppel adds, I am not able to corroborate this, Galeteng is a locality in the island of Flores, occupied by a race so called.—*Horsburgh. Bikmore, iii. Keppel's Indian Archipelago, Vol ii. p.* 149. *Crawfurd's Dict. p.* 1. See India, p 852.

ROKA. See Elcaja.

ROKAM—? A light red coloured wood of Penang, used for boxes and furniture.—*Cat. Ex.* 1851.

ROKEN. Ger. Rye.

ROKRI. A village near the Indus, in the Bunno district, near it are found remains of Greek sculpture.

ROL. Hind. Alum shale.

ROLA. Hind. An artificial colored powder made of the Trapa bispinosa flour, colored with "kussumba" and "kamela," &c. It is used by hindus during the carnival, or holi festival to throw at one another.—*Powell's Hand-Book, Vol. I. p.* 454.

ROLONG, the hard central part of wheat grains. See Sojee; Wheat.

ROMA. A considerable island, near Timor, in lat. 7° 44' S., and long. 127° 19' E.

ROMAN CATHOLIC. A sect of christians who recognize the Pope of Rome as their spiritual and temporal chief. They form in India the largest body of the native christians. The dates of Romish doctrines, are

Invocation of Saints	700	Purgatory A. D.	1438
Image Worship A. D.	787	Seven Sacraments.	1547
Infallibility ...	1076	Apocrypal Books ...	1547
Transubstantiation	1215	Priestly Intention.	1547
Supremacy ...	1215	Venial Sins ...	1563
Half Communion ..	1415	Sacrifice of the Mass.	1563

Indulgences introduced in the 15th Century but not sanctioned by a Council till 1563.—*Churchman's Magazine for January* 1846.

ROMAN CATHOLIC SYRIANS. See Mesopotamia.

ROMAN CHAMOMILE. Anthemis nobilis.—*Linn.*

ROMANIA ISLANDS. Fronting Point Romania, which is in lat. 1° 22' 12" N., are six in number, and extend for about 2½ miles.

ROMAN TOGA. See Karen, p. 466.

ROMANS. A name applied to the rulers and people of ancient Rome, who succeeded the Greeks in their Asiatic territories. The Romans conquered most parts of Europe, the northern part of Africa, Syria and Palestine and left lasting improvements in the roads and education of the countries which they occupied. Romance languages, viz., Italian, Wallachian, Provencal, French, Spanish, and Portuguese, are closely related to each other, all derived from Latin. Among the hindoos of India are many social customs similar to those of the ancient Romans. As regards the proprietory right of land, we find a form of ownership in British India which ought at once to rivet our attention from its exactly fitting in with the ideas which our studies in the law of persons would lead us to entertain respecting the original condition of property. The village community of India is at once an organized patriarchal society and an assemblage of co-proprietors. The personal relations to each other of the men who compose it are indistinguishably confounded with their proprietary rights, and to the attempts of English functionaries to separate the two may be assigned some of the most formidable miscarriages of Anglo-Indian administration. So soon as a son is born, he acquires a vested interest in his father's substance; and the domain thus held in common is sometimes administered by an elected manager, but more generally by the eldest representative of the eldest line of the stock. The village community, however, is more than a body of co-proprietors; it is an organized society having its staff of officers for internal government. This seems evidently the type of the Gens, or House, of the ancient Romans, and it is remarkable that, although both in India and at Rome each community was assumed to have sprung from two common ancestors, the fact was that these houses and villages were recruited by new members who were admitted by adoption or by some analogous process. Nor are those proprietary brotherhoods confined to India. The researches of Haxthausen and Tengoborski have lately proved that the Russian villages are organized communities of a similar character. And the same principle seems to prevail in Servia, in Croatia, and the Austrian Sclavonia—in fact, wherever feudality has had small influence, and wherever there is the nearest affinity between the Western and the Eastern world. Nor is the observation unimportant that the colonists of New Zealand were long engaged in disputes with the natives which turned upon the precise point under discussion. While the Colonial Government insisted that any member of a tribe is entitled to sell his land to whomsoever he pleases; the natives insist that although one member may transfer it to any other member of the same tribe, he cannot transfer it to any person who is not a member without the consent of the whole tribe, because of the existence of what has been called a tribal right. This instance certainly tends to show that in the mind of a New-Zealander the idea of joint ownership precedes that of separate ownership. By the Roman law, the father was certainly regarded rather as a steward than a proprietor of his goods, and accordingly was not, at first, permitted to dispose of his property as he pleased after his death.

According to the author of the Periplus of the Red Sea, Arabia Felix or Aden had been destroyed by the Romans shortly before his time, and Dean Vincent is of opinion that the Cæsar in whose reign this event took place was the emperor Claudius. The object of destroying so flourishing a port is not difficult to determine. From the time that the Romans first visited Arabia under Ælius Gallus, they had always maintained a footing on the shores of the Red Sea, and it is probable that Claudius, being desirous of appropriating the Indian trade to the Romans, sought a pretext of quarrel with Aden in order that he might by its destruction divert the Indian trade to the parts of Egypt. Valerian a Roman sovereign having been conquered by Shapur in a fort near Antioch, was led into Susiana; where the Persian monarch undertaking some extensive structures (at Shushter), obliged his captive to assist in the work, by procuring experienced artists from Rome or Greece, and he promised that liberty should be the reward of the co-operation. The task was performed, and Shapur observed his promise; but first cut off the Roman chieftain's nose, to brand him with an indelible mark of captivity. The Romans generally burned, but they sometimes buried; their dead children who died in infancy were interred in the immediate neighbourhood of their former homes. Their sepulchral urns with the ashes of the dead were commonly buried about two feet below the surface, and their memorial stones were often inscribed. They used the sarcophagus or massive stone coffin and also the tumulus or barrow. The Romans bore their dead with much lamentation to the funeral pile, on which, after being lighted, they cast the robes and arms of the deceased, as well as the slaughtered bodies of his favorite animals. The Romans had peculiar modes of divination: their dies fasti, nefasti, their auguries, &c.; amongst the hindoos, although they are not individually acknowledged except in confined districts, and although the legality of their worship is sometimes denied by the bramins, are the village gods, of which each village adores two or three, as its especial guardians, but sometimes as its dreaded persecutors and tormentors. They bear some resemblance to the penates or lares of the Romans; and, like them, they are sometimes the recognized god of the whole nation either in their generally received characters, or in local incarnations but much oftener they are the spirits of deceased persons, who have attracted the notice of the neighbourhood.

The writing character of the ancient Romans is now used by most of the people of Europe and by the British and their Colonies.

With much in common, in the several Indian tongues, it at first seems an easy matter to become acquainted with them. But at the first step there is this difficulty that every dialect has its separate alphabet and every province has two or three alphabets in use. The various nationalities cannot use each others books nor write to each other. Even were it possible out of the fourteen current alphabets of India to select one for universal use, there is not one of them which it is not extremely difficult to read, difficult to write, and difficult to print. The natives themselves cannot read them fluently. Even pundits and moonshees are continually obliged to pause for the purpose of spelling the words. A fluent reader of any of the native characters is almost unheard of, but a mere boy who is taught the Roman characters, will, in the course of a few months read anything that is given to him without stopping. Writing, it may well be imagined, is still more difficult. As a general rule it is impossible to write fast in the native alphabets without making so many blunders and omissions that the manuscript becomes an unintelligible scrawl. The greatest difficulty of all, however, occurs in printing. For one dialect a fount of type is required consisting of not less than 700 letters, simple and compound; another requires 900 letters; a third 1,000, and so on, the cost of preparing such a fount and the difficulty which a compositor has to contend with in having a "case" before him with this prodigious collection of characters are great. With one character in common use, it would be comparatively easy to frame two dictionaries—one with words common to the Arian family, the other with Dravidian words; but the many written characters has rendered that impossible, and before the end of the 19th Century if no unexpected change occur, the English language will have become the chief medium of intercourse between the various races in British India.—*Muller's Lectures, p.* 163.—*Ousely's Travels, Vol.* 1. *p.* 287. *Ed. Jour. July* 1867, *quoting Madden's Sepulchres, Vol. I. p.* 362-457. *Elphinstone's History of India, p.* 179-180. *Kennedy on the Origin of Languages, p.* 16. See Lustral ceremonies; India; Infanticide; Linga; Magnetic Needle; Polyandry; Viswakarma.

ROMANZONITE. See Garnet.

ROME. See Sanskrit; Semitic races.

ROMISCHE HAMILLER. Ger. Camomile.

ROMUSK. Hind. Rhamnus virgatus.

RONAK. Hind Stipagrostis plumosa.

RONDELETIA ASIATICA.—*Linn.* Syn. of Stylocoryne Webera,—*A. Ridi.*

RONDELETIA TINCTORIA.

Ta-ma-yok....Burm. | Toora lodh....Hind.

A small tree, of the Kotah and Mewar jungles, wood dark-brown, adapted from the fineness of the grain and elegance of colour, for ornamental work: the bark is used in dyeing red. In Pegu, the Rondeletia tinctoria together with Mangifera attenuata, Anacardium occidentale, Zizyphus jujuba, Averrhoa carambola, Pierardia sapota, Ancestrolobus carnea, Ancestrolobus mollis, are all adapted from the fineness of their grain and elegance of colour, for common work. Its wood is a of dark brown colour.—*Drs. McClelland, p.* 134. *Irvine Genl. Med Top.*

RONDU. The villages of Rondu, are mostly small; they have abundance of fruit-trees. The apricot of which is the commonest. All over the hills of Rondu, the juniper is rather common, and seemingly quite at home both on the higher ridges, and in the bottom of the ravine close to the river. Rondu is remarkable for producing a true pine, the Pinus excelsa. As soon as the ground is clear of snow, the manure which has been accumulated during the preceding year, consisting of the contents of the cowhouse and stable, mixed with every sort of refuse, is carried in small baskets to the fields, on which it is deposited in small heaps. It is then spread uniformly over the surface by hand. Occasionally the field has had a previous ploughing, but it is more usually in the state in which it had been left after the harvesting of the previous crop.—*Dr. Thomson's Travels in Western Himalaya and Tibet, pp.* 256, 257, 259.

RONG. Malay. Siam. Gamboge; Hebradendron gambogioides.—*Graham.*

RONGDO, meaning the district of defiles, is an elevated district on the bend of the Indus, and on the frontier of the Gilgit and Hasora countries. It is to the westward of Balti and has an area of 1,440 square miles. It is about 8,000 feet above the sea, the mean of its villages being 6,200 feet. The people are of Tibetan habits. See India; Kailas or Gangri Range; Maryul; Skardo.

RONG-GENG. Burm. Dancing girls of Burma.

RONGUEDUE, Ronkedor or Runkedor. Singh. A rogue or solitary elephant.

RONG-YUL. See India; Maryul.

RONTAL. Jav. Borassus flabelliformis.

ROOA—? A coin.

ROODER-PRAGUE. See Kedarnath.

ROODRA. Sans. from rood, to cry. See Rudra.

ROODRAKKHU. Beng. Eleocarpus ganitrus.

ROODRAKSHA. Sans. from Roodra, a name of Siva and Aksha, an eye.

ROOH. A spirit. Rooh-i-siflin lower spirit; Rooh-i-Jari, a travelling spirit; Rooh-i-Moqeem, a resident spirit; Rooh-i Aolwee, the lofty spirit.

ROOI, Hind. Cotton wool. Gossypium Indicum.—*Lam.*

ROOK. Corvus fragilegus of Europe, N. and W. Asia, Afghanistan, Peshawur valley, Kashmir: replaced in China and Japan by C. Pastinator.

ROOKMINI. Sans., from Rookma (gold), the name of a king.

ROOKN-I-YAMINI.

ROOKOO. Arab. The stooping posture in prayer. Rookoo-kee-tusbeeh, Arab. Beads held in the hand at prayers.

ROOMEE-MUSTKI. Beng. Pistacia lentiscus; mastich.

ROONAH. A river near Narraingurh in the Sabathoo circle.

ROOPEE, or Roopen. See Kunawar.

ROOPOOR. See Kunawar.

ROORADEA. Uria. A tree of Ganjam and Gumsur, extreme height 12 feet, circumference 1 foot, and height from the ground to the intersection of the first branch 3 feet. The fruit is eaten; but no use is made of the wood.—*Captain Macdonald.*

ROOSA OIL. Anglo Hind. or Grass oil is obtained from the Andropogon calamus aromaticus, a native of the low hills at the base of the Himalaya; also found at Asseerghur, in Malwa Guzerat, and the Dekhan. The oil is chiefly imported into Bombay from Surat, and is re-exported in considerable quantities to England, China, and the Arabian and Persian Gulfs. It is highly esteemed by the natives of India as a cure for rheumatism, colds, and as an internal stimulant. This oil differs but little either in appearance or quality from the Lemon Grass Oil, it is a useful rubefacient, and to be a good substitute for the more expensive cajeput oil.—*Faulkner. M. E. J. R.*

ROOSTUM. A hero famed in Persian romance. Felamorz, the son of Roostum, was defeated by Behram near the fort of Fessa, between Shiraz and Darab. Behram caused Felamorz to be hanged, and his tomb existed in the village, until, it is said, a European traveller removed it away, as a relic.

ROOSE TURKUMA. See Kush.

ROOT.

Bayru	Can.	Mulum...	Sans.
Jar; Muli Hind.	Mahr.	Kundum...... ...	Sans.
Kalingu	Maleal.	Voru	Tam.
Beukh......	Pers.	Varyru...	,,

ROOTU. Ar. Gossypium Indicum.—*Lam.*

Dudah	Guz.	Cotton	
Rassi	Hind.	Kaur	Tam.
Tali-Kalat	Malay.	Daram	Tel.

ROPE.

Habl; Khoit	Ar.	Rasan...	Pers.
Corde......	Fr.	Cuerda, Soga	Sp.
Seil..................	Ger.	Cordel Sarta...	,,
Doodah,...	Guz.		? Tam.
Rassi,.........	Hind.		? Tel.
Corda...	It.	Khalat...	Turk.

Ropes are made of hemp, coir, cotton, straw, and other fibrous materials, spun into thick yarn, of which several strings are twisted together by means of a wheel. All the different kinds of rope from a fishing line or whipcord, to a cable, go by the general name of cordage. Among the cordage sent to the Great Exhibition of 1851, Messrs. Harton and Co., rope makers of Calcutta, sent ropes of excellent quality, said to be made of Jubbulpore hemp: its strength was proved to be at least equal, if not superior, to that of Russian hemp, when a Petersburgh hemp broke with 160 lbs., one of Jubbulpore Hemp did not break with less than 190 lbs., it was considered an excellent substitute for Russian hemp, and was valued as worth at from £30 to £35 a ton. Dr. Falconer has pronounced Jubbulpore hemp to be the Crotalaria tenuifolia of Roxburgh, which Wight and Arnott, and some other botanists, regard as merely a variety of C. juncea, the plant affording the well known "Sunn Hemp" of commerce. But the habit differs very much from that of C. juncea. Jubbulpore hemp has been tested several times in the Government service, both Military and Marine, and some ropes have been found equal to the staple cordage of Europe. A coil of bolt rope, manufactured from it, tested in the Marine Department, broke with a strain of 57 cwt. A coil of the same size, taken from one of H. M.'s vessels, broke with a strain of 59 cwt. Mr. Williams, was only able to grow it on the sides of the hills; when cultivatd in the lower provinces, although it attains a great height and grows luxuriantly, it is weaker in fibre and the produce is smaller in quantity than when grown higher up the country.

Kind and quality of Rope.	Size.	Government proof.	Breaking weight.	
	Inches.	cwt.	cwt.	qr.
Oiled Jubbulpore Hemp *(Crotalaria tenuifolia,)* Artillery Traces	3	36	43	2
Untarred do., superior four-strand, plain laid....	3¼	42	83	0
Untarred Dunchee *(Æschynomene cannabina)*, do.	3¼	49	75	0
Pine-apple Fibre, do.	3¼	42	57	0

Experiments on strength of rope made from samples of Rheea and Bon Rheea fibre from Assam, received from the East India House.

Description of Hemp.	Size of rope—Inches.	No of Yarns per strand.	Total No. of yarns in rope.	Strength of ropein pounds.	Strength of rope per inch. Circumference squared.	Size of rope at breaking.	Tar absorbed.	Amount of stretching.
Wild Rheea, 1st Experiment.	4⅞	44	132	19032	844	4½	1·7	1 in 16
Ditto 2nd ditto.	do	do	do.	20124	894	4½	1·7	1 in 16
Rheea Fibre....	4⅞	44	132	20488	910	4½	1·9	1 in 16

Mandal straw rope, is made from Eleusine coracaria. The straw is flat and excessively tough, so much so that in gathering the crops the heads are pulled off by hand, leaving the whole straw standing.

Manilla Rope is made of plantain fibre, and used for running rigging for ships, or tackling for land purposes.

Hemp rope from the Cannabis sativa is used for standing rigging for ships, or for use in water.

Rope made of Sesbania aculeata is used as running rigging for ships, and tackling for land purposes.

Coir rope from the cocoanut fibre is used for boats and ships running gear, and hawsers for cables, also for all tackling purposes when exposed to wet especially salt water.

Ropes made of Crotalaria juncea, are employed as tackling in dry places without exposure to wet.

A rope is made at Lahore of a fibrous plant called Chuyan, from Sunn Okra, others from the Dib and the Putta. Rope is also made at Lahore, from a fibre called Bugar, and ropes of palm leaves and of Dah grass and of plantain leaves.

Rope is made of Bail grass in Assam.

Rope from the Urtica tenacissima is made at Luckimpore.

Rope of Saccherum moonja, is made near the Ganges, Jumna and Indus. Twine is made from the fibre of the leaf sheath: a little thicker kind is used for towing boats; when dry it does not possess much strength, when wet it is strong and durable. The moonj is used for ropes, thatching, &c.

Twine and rope are made of Crotalaria juncea.

A rope is made at Balasore of Sealee fibre.

Rope of Sterculia ramosa, is made at Cuttack.

Rope of rattan is made at Penang, Malay Peninsula, and is used for drawing water, and as halters for cattle.

Rope of bast is made at Burmah.

Rope of Mole, is made at Poonah.

Rope is made of Palmyra fibre, the Borassus flabelliformis.

The cotton rope of Gossypium herbaceum is made of cotton thread, and is used for hanging and pulling punkahs, and the ropes of all tents are made of it; it is considerably strong.

Ropes called Koombhee and Bunkuss are made at Lucknow.

A rope is made of the Phalsa tree bark, the Grewia asiatica.

A rope is made of 'Ghayal,' fibre at Poonah.

The principal cordage plants of British India are:—

Abelmoschus esculentus.
,, ficulneus.
Abutilon Indicum.
,, polyandrum.
,, tomentosum.
Acacia arabica.

Acacia leucophlæa.
Agave americana.
,, vivipera.
Æschynomene cannabina
Ailantus malabaricus.
Aloe indica,

Aloe perfoliata.
,, vulgaris.
Andropogon involutum.
,, schœnanthus.
Annanassa sativa.
Antiaris saccidora.
Arenga saccharifera.
Arundo donax.
Bauhinia diphylla.
,, tomentosa.
,, racemosa.
,, scandens.
,, Vahlii.
Bignonia coronaria.
Borassus flabelliformis.
Boehmeria argentea.
,, dichotoma.
Broussonetia papyrifera.
,, frutescens.
,, goglado.
,, macrophylla.
,, macrostachys.
,, moniliformis.
,, nervosa.
,, pulcherrima.
,, rotundifolia.
,, trinervata.
Butea frondosa.
Callicarpa lanata.
Calotropis gigantea.
,, hamiltonia.
,, procera.
Cannabis sativa.
Carex Indica.
Celtis caucasica.
Chamærops Ritchiana.
Cocos nucifera.
Corchorus olitorius.
,, capsularis.
Cordia obliqua.
,, myxa.
,, angustifolia.
,, Rothii.
Crotalaria tenuifolia.
,, Burrhia.
,, juncea.
,, tenuicissima.
Cyperus textilis.
Dæmia extensa.
Decaschistia crotonifolia.
Desmodium argenteum.
,, tiliæfolium.
Eriochlæna Candolii.
Eriodendron anfractuosum.
Eriophorum comosum.
,, cannabinum.
Erythrina indica.
Ficus Roxburghii.
,, Indica.
,, venosa.
,, religiosa.
,, racemosa.
,, oppositifolia.
,, Mysorensis.
Girardinia Lescheaultiana.
Gossypium Indicum.
,, Barbadense.
,, herbaceum.
,, hirsutum,
,, peruvianum,

Gossypium acuminatum.
,, religiosum.
Grewia oppositifolia
,, asiatica.
,, tiliæfolia.
,, rotundifolia.
Gauzuma tomentosa.
Hibiscus cannabinus.
,, macrophylla.
,, lampas.
,, rosa-sinensis.
,, sabdariffa.
,, vesicarius.
,, vitifolia.
Isora corylifolia.
Leptadenia, *sp*.
Linum usitatissimum.
Marsdenia Roylei.
Mimosa intsia.
Missiessya hypoleuca.
Morus indica.
Musa paradisiaca.
,, textilis.
Nelumbium speciosum.
Nussiessya hypoleuca.
Orthanthera viminea.
Pandanus odoratissimus.
Paritium macrophyllum.
,, tiliaceum.
Philadelphus, *sp*.
Phœnix acaulis.
,, dactylifera.
,, sylvestris.
Rhapis. *Species*.
Saccharum officinarum.
,, moonja.
,, spontaneum.
,, sara.
Salmalia malabarica.
Sanseviera Zeylanica.
Sesbania aculeata.
,, cannabina.
Sida, *species*.
,, populifolia.
Smilax ovalifolia.
Sterculia fœtida.
,, villosa.
,, guttata.
,, ornata.
,, ramosa.
Strychnos potatorum.
Terminalia alata.
,, belerica.
Tylophora asthmatica.
Typha angustifolia.
Ulmus campestris.
Urtica heterophylla.
,, atrofusca.
,, crenulata.
,, dolabriformis.
,, heptandra.
,, filiformis.
,, funicularis.
,, longispina.
,, nivea.
,, paniculata.
,, pentandra.
,, reticulata.
,, virulenta.
Vernonia anthelmintica.
Wikstræmia salicifolia.
Yucca aloefolia.
,, gloriosa.

ROR. HIND. Pji. kunkur, or broken brick, for gravel.

RORI, HIND. A tree of Chota Nagpore, with hard, white timber.—*Cal. Cat. Ex.* 1862.

RORI. A town in Sind on the left bank of the Indus close to the ancient Alor. Bukkur is a fortified island in the Indus river. It is in the centre of the stream, nearly opposite the town of Rori and on the western bank is Sukkur, now called Victoria on the Indus. Near these places is the site of Arore, or Alore, the capital of Sind in remote antiquity : but a bridge over the stream which branched from the Indus, near Dura, is almost the sole vestige of this capital of the Sogdi of Alexander. On its site, the shepherds of the desert have established an extensive hamlet ; it is placed on a ridge of siliceous rock, seven miles east of the insular Bukkur and free from the inundations of the Indus. The Soda tribe, a powerful branch of the Pramara race, has ruled in these countries from remote antiquity, and, to a very late period, they were lords of Omra-Soomra in which division was Arore. According to Burton, however, the site of Arore is four miles east of the Indus at Sukkur and Rori. Sehl and his capital were known to Abul Fazil, though he was ignorant of its position, which he transferred to Debeil, or Dewul, the modern Tatta. This indefatigable historian thus describes it, "In ancient times there lived a raja named Sehris (Sehl), whose capital was Alore, and his dominions extended north to Cashmere and south to the ocean." Sehl, or Sehr, became a titular appellation of the country, its princes, and its inhabitants, the Sehrai. Alore appears to have been the capital of the kingdom of Sigertis, conquered by Menander of Bactria. Ibn Haukul, the Arabian geographer, mentions it, but a superfluous point in writing has changed Arore into Azore, or Azour, as translated by Sir W. Ouseley. D'Anville mentions it, but, in ignorance of its position, quoting Abulfeda, says, in " grandeur Azour est presque comparable a Mooltan.

Rori is sometimes distinguished as Rori Bukkur; in Asia when a locality is designated by two names mentioned together, it is either because there are two places bearing these names respectively close to each other, as Hoti Mardan ; Taru Jabba ; or else, where there is a river, because they are on the opposite banks of the river, as Rori-Bakar, Thut-Naka, Daghi-Baanda, etc.

RORI BAROLLI, the grand temple of Barolli is fifty-eight feet in height, and in the ancient form peculiar to the temples of Siva. The body of the edifice, in which is the sanctum of the god, and over which rises its pyramidal sikr, is a square of only twenty-one feet ; but the addition of the domed vestibule (munduf) and portico makes it forty-four by twenty-one. The whole is covered with mythological sculpture, without as well as within, emblematic of Siva, as Mahadeo, who is the giver, as well as the destroyer, of life. In a niche outside, to the south he is armed against the Dytes (Titans,) the roond mala or skull-chaplet reaching to his knees, and in seven of his arms are offensive weapons. His cap is the frustrum of a cone composed of snakes interlaced with a fillet of skulls : the cupra is in hand ; and the victims are scattered around. On his right is one of the maids of slaughter, Jogini, drunk with blood, the cup still at her lip, and her countenance expressive of vacuity ; while below, on the left is a female personification of death, mere skin and bone : a sickle (koorpi) in her right hand, its knob a death's head, completes this group of the attributes of destruction.

To the west is Mahadeo under another form, a beautiful and animated statue; the expression mild, as when he went forth to entice the mountain-nymph Mera, to his embrace. His tiara is a blaze of finely executed ornaments, and his snake-wreath, which hangs round him as a garland, has a clasp of two heads of Sehesnag (the serpent-king,) while Nanda below is listening with placidity to the sound of the dumroo. His cupra and karg, or skull cap, and sword, which he is in the attitude of using, are the only accompaniments denoting the god of blood. The northern compartment is a picture disgustingly faithful of death and its attributes, vulgarly known as Bhooka Mata, or the personification of famine, loud and bare ; her necklace, like her lords, of skulls. Close by are two mortals in the last stage of existence, so correctly represented as to excite an unpleasant surprise. The outline is anatomically correct. The mouth is half open and distorted, and although the eye is closed in death, an expression of mental anguish seems still to linger upon the features. A beast of prey is approaching the dead body ; while by way of contrast, a male figure, in all the vigour of youth and health, lies prostrate at her feet.

Such is a faint description of the sculptured niches on each of the external faces of the mindra, whence the spire rises, simple and solid. In a hindoo temple is the mindra or cella, in which is the statue of the god ; then the munduf, in architectural nomenclature, is the pronaos and third, the portico. Like all temples dedicated to Bal-Siva, the vivifier, or ' sun god,' it faces the east. The portico projects several feet beyond the munduf, and has four superb columns in front. The ceilings both of the portico and munduf, are elaborately beautiful: that of the portico, of one single block, could hardly be surpassed the exterior is a grand, wonderful effort of the silpi or architect, one series rising above and surpassing the other, from the base to the urn which surmounts the pinnacle. The sanctum contains the symbol of the god, whose local appellation is Rori Barolli, a change from Bal-rori, from the circumstance of Balnath, the sun god, being here typified by an orbicular stone termed rori, formed by attrition in the chooli or whirlpools of the Chumbul, near which the temple stands, and to which phenomena it probably owed its foundation. This symbolic rori is not fixed, but lies in a groove in the internal ring of the Yoni; and so nicely is it poised, that with a very moderate impulse it will continue revolving while the votary recites a tolerably long hymn to the object of his adoration. The old ascetic, who had long been one of the zealots of Barolli, amongst his other wonders, gravely told Col. Tod that with the momentum given by his little finger, in former days, he could make it keep on its course much longer than now with the application of all his strength.—*Tod's Rajasthan, Vol. II. pp. 706 and 708. Burton's Scinde, Vol. I. p.* 166. *Pers. Observ. p.* 30.

RORO. — ? Cæsalpinia sappan, *Linn. Roxb. W. & A.*

RORS. See India.

ROSA, Lat. It. Sp. The Rose.

Jal; Ward; ... ...Ar.	Gul............ Pers.
Rose; Rose-tree... ...Eng.	Gulab-pu Tam. Tel.
Rose... ... ...Fr. Ger.	Ghyul... ... ...Turk.
Gul; Galab-ka-Jhar, Hind.	

The rose-tree grows in India, both wild and cultivated, and its flower is much prized.

One or more wild yellow roses are found in Kashmir, Lahoul, Tibet, &c., Lowther states that they are sometimes double, and Thomson mentions double yellow roses at 11,000 feet in Ladak. The yellow Persian rose finds its eastern limit in Lahaul. Fortune says of the China Yellow rose and another that the gardens of the mandarins are extremely gay, particularly during the early months of the year, and contain a number of new plants of great beauty and interest. On entering one of the gardens on a fine morning in May he was struck with a mass of yellow flowers which completely covered a distant part of the wall. The colour was not a common yellow, but had something of buff in it which gave the flowers a striking and uncommon appearance. It was from a most beautiful new double yellow climbing rose. No doubt, from the more northern districts of the empire. Another rose, which the Chinese call the "five coloured" was also found in one of these gardens at this time. It belongs to the section commonly called China roses in Great Britain, but grows in a very strange and beautiful manner. Sometimes it produces self-coloured blooms being either red or French white and frequently having flowers of both on one plant at the same time while at other times the flowers are striped with the two colours. This will be as hardy as the common China Rose. Glycine sinensis is often grown in China on a flat trellis in front of the summer house or forms a kind of portico, which affords a pleasing shade.—*Fortune's Wanderings, page* 311. *Dr. Cleghorn's Punjab Report.—Dr. J. L. Stewart.*

ROSACEÆ, *Lindl.* The Rose tribe of plants comprising 13 Gen. 127 sp. viz:—12 Rosa; 38 Rubus; 1 Dalibarda; 4 Fragaria; 31 Potentilla; 2 Sibbaldia; 3 Geum; 1 Sieversia; 2 Agromonia; 11 Spiræa; 1 Hotelia; 1 Schizonotus, 3 Neillia.

ROSA BRUNONIS. *Lind.*

Karer ... ... Chenab.	Gulab-ghuri... Pushto.
Kujo, Kuji ... Beas.	Karir, kajer... ... Ravi.
Gangari. .. .. ,,	Kui; kajri..... Sutlej.
Phuliari, Chal, Jhelum.	Gulob-ghurei... Tr. Ind.
Phulwari, Krur. Kangra.	

This fine wild white rose climbs luxuriantly over bushes and even tall trees. Is common in the outer Himalaya from 2,400 to 7,000 feet, up to and probably beyond the Indus. It furnishes a small sized wood, which makes walking sticks. In Murree they call it "chal;" but this they also apply to the jasmine.—*Dr. Cleghorn.—Dr. J. L. Stewart.*

ROSA CANINA.

Kin-Ying-tsze Chin.	Dog-rose ... ... Eng.

Common in Kiang-si, Hu-pie and other provinces of China, fruits large and astringent formerly used in medicine.

ROSA CENTIFOLIA. *Linn.*

R. provincialis, *Miller.*	R. centifolia muscosa,
Wurd... .... Ar.	Gul-i-Surkh...... Hind.
Gulab-ka-phul... Dukh.	Mawar... ... ...Malay.
Cabbage Rose... ...Eng.	Gul; Gul-i-sad-barg Pers.
Hundred leaved Rose ,,	

This, a native of Syria, is cultivated throughout Europe, British India, Persia and China, and from it, rosewater and atr or otto of roses are prepared. The stem or Kubjak is used by the hindoo physicians in medicine. Its fragrance is but partially destroyed by desiccation, and according to M. Chereau if remarkably augmented by iodine. It is less astringent than the Provence rose, and more laxative. The petals are used as laxatives for children, and also made into the conserve of roses or gul-khand.

The petals of this as well as of the R. gallica are preserved with salt by the European apothecaries for the preparation of the distilled water.—*O'Shaughnessy. Dr. J. L. Stewart, Powell's Hand Book, Vol. I. p.* 347.

ROSA DAMASCENA. *Mill.*

Damask Rose .....ENG.

Cultivated in gardens in India for the sake of its flowers, it is supposed to have been originally brought from Damascus, and to be a native of Syria. It has many varieties. The essential oil of the petals sells at 2 rupees per tola.

ROSA EGLANTERIA. *L.* Native country unknown.

ROSA GALLICA.

French Rose. | Provence red rose.
Gul.........HIND.

This is supposed to be the species to which Pliny refers ('Hist. Nat.,' xxi. 18, 25, 72, 73). It is a native of Persia, found wild about Montalbanum, Walzenberg, and Geneva, in Austria. Piedmont, and the Caucasus; it has equal small prickles, erect flowers, ovate sepals and globose fruit. Hundreds of varieties of this rose are found cultivated in gardens. A great number of varieties of them are hybrids between R. gallica and R. centifolia. They mostly combine the long graceful shoots of the latter with the rich crimson hues of R. gallica Hybrids are also produced between R. gallica and R. indica, but differ from the last in not being perpetual. The petals contain tannic and gallic acid, essential oil, oxide of iron, and other unimportant principles. The petals are gathered before becoming quite ripe, they are deprived of the calyx and central attachments, and dried before the sun or in a stove. When dried they are sifted in order to separate the stamina and pistil. They are then gently compressed and kept in a dry place. From the cabbage rose, a variety of this species, a very fragrant distilled water is prepared in England. —*O'Shaughnessy, page* 326.

ROSA GLANDULIFERA, is the Gul seoti or Sewati of the Punjab.

ROSA INSERTA is the Nasrin kubjak.—*Powell's Hand-Book, Vol. I. p.* 347.

ROSA MACROPHYLLA.

Gulab Jikjik ..	CHENAB.	Triod..........	SUTLEJ.
Ban-gulab...	RAVI.	Tumbu............	,,
Akhiari	,,	Phulwar........ ...	HIND.
Ban-Kujru... ...	SUTLEJ.	Phulian	,,
Yal	,,		

This plant grows over a wide range iu the N. W. Himalaya up to the Indus from 4,500 to 10,500 feet. Its fruit is eaten, and is stated by Madden to become very sweet when black and rotten. In Kanawar, a perfume is extracted from the flowers for export towards the plains. This great red rose is one of the most beautiful Himalayan plants. Its single flowers are as large as the palm of the hand —*Hooker' Him. Jour. Vol.* II. *p.* 43. *Dr. Cleghorn's Punjab Report. Dr. J. L. Stewart's Punjab Plants.*

ROSA MALLOS. ANGLO-BURM. for Rasa Mala. See Rose Maloes.

ROSA MOSCHATA, the Musk-Rose is found native in the north of Africa, and in the temperate and warm provinces of Spain.

ROSA PROSTOLISTAIA. See Kabul.

ROSA RUBIGINOSA. Sweet-briar, or gulnasrin, is met with in many Indian gardens—it sometimes blossoms, if budded on the Persian rose stock. The general mode of propagation is by layers, but a much quicker and easier method is to bud it on the stock of a rose. Tenasserim residences are often filled with sweet odours from the graceful eglantine, or sweet briar, but the plant is kept alive with difficulty when exposed to the south-west monsoon.—*Mason. Riddell.*

RUSA SEMPERFLORENS.

Yueh-ki-hwa ....CHIN.

The Chinese monthly rose, a common scrambling shrub bearing a regular profusion of red flowers, mostly barren, but used medicinally. —*Smith.*

ROSA SERICEA, is an erect white flowered rose, and is the only species occurring in southern Sikkim. It isvery abundant: its numerous inodorous flowers are pendent, apparently as a protection from the rain, and it is remarkable as being the only species having four petals, instead of five.—*Hooker's Him. Journ. Vol. I. p.* 168.

ROSA SINENSIS. Sada Gulab.

ROSA WEBBIANA. *Wall.*

Sikanda; Manyar.	CHEN.	Sia, Sea...	LADAK.
Shawali; Chua	,,	Ringgal...	SUTLEJ.
Kautyan...... ..	KAGHAN.	Kugina..................	,,

This rose is found chiefly in the rather arid tracts of the Punjab Himalaya from 5,000 to 9,500 feet, up to near the Indus, and in Ladak it reaches 13,500 feet. Its fruit is eaten, and in parts of Spiti the stems are largely used for fuel.—*Drs. Cleghorn and J. L. Stewart.*

ROSARIES.

Tasbih	AR. HIND. PERS.	Rosario........	IT.
Rosaire......	FR.	Rosaro.......	SP.
Rosenbeet; Rosenkrans ...	GER.		

Rosaries are used by christians, mahomedans and hindus. The mahomedans, as each bead passes through their hands, recite one of the hundred attributes of the Creator. The thousand names of Vishnu and Siva are strung together in verse, and are repeated on certain occasions by brahmans, as a litany accompanied sometimes with the rosary. As each name is mentally recited, with the attention abstractedly fixed on the attribute or character, of which that name excites the idea, a bead is dropped through the finger and thumb: such operation is supposed to assist or promote abstraction, an attainment which enthusiastic hindus think exceedingly efficacious. Brahmans and pious men of other castes, are often seen with rosaries in their hands. These are composed of amber or of the rough seeds of fruits which are sacred to the gods. Images and pictures of Brahma, and of Siva, are frequently seen, with a rosary in the hand, and the hand is sometimes seen enclosed in a loose bag. There is no authority for supposing that the Jews or the earlier Christians used rosaries.—*Moor's Pantheon, p.* 24.

ROSBANG. HIND. Plectranthus rugosus.

ROSCH, also Sel and Jar. RUS. Rye.

ROSCOEA. A genus of showy plants belonging to the Zingiberaceæ of which several species occur up to 9,000 feet in the Himalaya and on the Neilgherry mountains, viz. :

alpina, *Royle,* Simla, Chor, Landour, Neilgherries,
capitata, *Sm. Wall,* Nepal,
elatior *Sm*, Nepal, Kemaon,
lutea, *Wight. Ic.* Neilgherries.
exilis, *Sm* ; Nepal,
purpurea, *B. procura Wall,* Shivapore mountain.
spicata, *Sm. W. Ic. Voigt*, Nepal.

ROSE, ENG. FR. GER.

Wurd,.........	AR.
Ying-shih...	CHIN.
Tsiang-wei.........	,,
,, mi... ...	,,
Muh-hiang...	,,
Mui-kwai-hwa ...	,,
Fu-kien-sian ...	,,
Mei-kwe hwa......	,,
Gul. BENG. GUZ.	HIND. PERS.
Hea-houng-tau ...	COCH-CHIN.
Rose a cent feuilles	FR.
Blassen-rose	GER.
Rodon...	GR.
Rosa.....................	IT. SP.
Mawar...	MALAY.
Bunga Mawar......	,,
Gulaba-pu...	TAM.
Roja-pu.......	TEL.

The flowers of the rose have a great variety of colours from the deep red to pale yellow and white with every intermediate shade. In India, the easiest mode of propagation is by layers at almost all seasons, or by cuttings at the commencement of the rains. The Persian varieties, red and white, require to have their roots opened, and the plants cut during the early part of the cold season, after which they must be watered well every second or third day. The roots must then be covered up with manure, when they will throw out flowers. The Rose Edward, which blossoms great part of the year, requires pruning about a month after it ceases to blossom, and should be allowed to rest a short time without watering, when a fresh supply of water and manure round the roots will cause it to bear flowering shoots immediately. This rose, and the Egyptian, are amongst the few that give seed-hips, being perfectly formed on both. Some of the roses in China are peculiar from having transparent dots on their leaves, resembling those of the myrtles, and with the Chinese, the roots and fruits of rose trees are officinal.—*Smith. Riddell.*

ROSE APPLE. Eugenia-jambos.

ROSE ATTAR.

ATR...ARAB. HIND. PERS. | Otto... ....ENG.

In India, the perfumed oils or attar are obtained in the following manner. The layers of the jasmine, or other flowers, four inches thick and two inches square, are laid on the ground and covered with a layer of sesamum or any other oil-yielding seed. These are laid about the same thickness as the flowers, over which a second layer of flowers like the first is placed. The seed is wetted with water, and the whole mass covered with a sheet, held down at the ends and sides by weights, and allowed to remain for eighteen hours in this form. It is now fit for the mill, unless the perfume is desired to be very strong, when the faded flowers are removed and fresh ones put in their place. The seed thus impregnated is ground in the usual way in the mill and the oil expressed, having the scent of the flower. At Ghazipoor the jasmine and bela are chiefly employed ; the oil is kept in the bottles of hide, called dubber, and sold for about 4*s.* a seer. The newest oils afford the finest perfume. In Europe a fixed oil, usually that of the bean or moringa nut, is employed. Cotton is soaked in this, and laid over layers of flowers, the oil being squeezed out so soon as impregnated with perfume. Dr. Jackson thus describes the culture of the rose in India and manufacture of rose-attar or rose water. Around the station of Ghazipoor, there are about 300 biggahs (or about 150 acres) of ground laid out in small detached fields as rose gardens, most carefully protected on all sides by high mud walls and prickly pear fences, to keep out the cattle. These lands, which belong to zemindars, are planted with rose trees, and are annually let out at so much per biggah for the ground, and so much additional for the rose plants—generally five rupees per biggah and twenty-five rupees for the rose trees, of which there are 1,000 in each biggah. The additional expense for cultivation would be about eight rupees, eight annas ; so that for thirty-eight rupees, eight annas you have for the season one biggah of 1,000 rose trees. If the season be good, this biggah of 1,000 rose trees should yield one lac of roses. Purchases for roses are always made at so much per lac. The price of course varies according to the year, and will average from 40 to 70 rupees. The rose trees come into flower at the beginning of March, and continue so through April. Early in the morning the flowers are plucked by numbers of men, women and children, and are conveyed in large bags to the several contracting parties for distillation into rose-water. The cultivators themselves very rarely manufacture. The native apparatus for distilling the rose-water consists of a large copper or iron boiler well tinned capable of holding from eight to twelve gallons, having a large body with a rather narrow neck, and a mouth about eight inches in diameter; on the top of this is fixed an old pot or degh-chee, or cooking vessel, with a hole in the centre to receive the tube or worm. This tube is composed of two pieces of bamboo, fastened at an acute angle, and it is covered the whole length with a strong binding of corded string, over which is a luting of earth to prevent the vapour from escaping. The small end. about two feet long, is fixed into the hole in the centre of the head, where it is well luted with flowers and water. The lower arm or end of the tube is carried down into a long-necked vessel or receiver, called a bhulka. This is placed in a pot of water, which, as it gets hot, is changed. The head of the still is luted on to the body, and the long arm of the tube in the bhulka is also well provided with a cushion of cloth, so as to keep in all vapour. The boiler is let into an earthen furnace, and the whole is ready for operation. There is a great variety of rose-water manufactured in the bazar, and much that bears the name, is nothing more than a mixture of sandal oil. The best rose-water, however, procurable in the bazar, may be computed as bearing the proportion of one thousand roses to a seer of water; from one thousand roses most generally a seer and a half of rose-water is distilled, and perhaps from this even the attar has been removed. The boiler of the still will hold from eight to twelve or sixteen thousand roses. On eight thousand roses from ten to eleven seers of water will be placed, and eight seers of rose-water will be distilled. This, after distillation, is placed in a carboy of glass, and is exposed to the sun for several days to become pucka or ripe; it is then stopped with cotton, and has a covering of moist clay put over it; this becoming hard, effectually prevents the scent from escaping. This is the best that can be procured, and the price will be from twelve to sixteen rupees.

To procure the attar, or otto of roses, the roses are put into the still, and the water passes over gradually, as in the case of the rose-water process; after the whole has come over, the rose-water is placed in a large metal basin, which is covered with wetted muslin, tied over to prevent insects or dust getting into it; this vessel is let into the ground about two feet, which has been previously wetted with water, and it is allowed to remain quiet during the whole night. The attar is always made at the beginning of the season, when the nights are cool; in the morning the little film of attar which has formed upon the surface of the rose-water during the night is removed by means of a feather, and carefully placed in a small phial; and, day after day, as the collection is made, it is placed for a short period in the sun, and after a sufficient quantity has been procured, it is poured off clear, and of the colour of amber, into small phials. Pure attar, when it has been removed only three or four days, has a pale greenish hue; by keeping, it loses this and in a few weeks' time it becomes of a pale yellow. The first few days distillation does not produce such fine attar as comes off afterwards, in consequence of the dust or little particles of dirt in the still and the tube being mixed with it. This is readily separated from its sinking to the bottom of the attar, which melts at a temperature of 84 degrees. From one lac of roses it is generally calculated that 180 grains, or one tolah of attar can be procured; more than this can be obtained if the roses are full-sized, and the nights cold to allow of the congelation. The attar purchased in the bazar is generally adulterated, mixed with sandal oil or sweet oil; not even the richest native will give the price at which the purest attar alone can be obtained, and the purest attar that is made is sold only to Europeans, selling at from 50 to 90 rupees the tolah.

In India, Native stills are let out at so much per day or week, and it frequently occurs that the residents prepare some rose-water for their own use as a present to their friends, to secure their being provided with that which is the best. The natives of India never remove the calices of the rose-flowers, but place the whole into the still as it comes from the garden. The best plan appears to be to have these removed, as by this means the rose-water may be preserved a longer time, and is not spoiled by the acid smell occasionally met with in the native rose-water. It is usual to calculate 100 bottles to one lac of roses. The rose-water should always be twice distilled; over ten thousand roses water may be put to allow of sixteen or twenty bottles coming out the following day; these twenty bottles are placed over eight thousand more roses, and about eighteen bottles of rose-water are distilled. This may be considered the best to be met with. The attar is so much lighter than the rose-water, that previous to use, it is better to expose the rose-water to the sun for a few days, to allow of its being well mixed; and rose-water that has been kept six months is always better than that which has recently been made. At the commencement of the rose season, people from all parts come to make their purchases, and very large quantities are prepared and sold. There are about thirty-six places in the city of Ghazeepore where rose-water is distilled. These people generally put a large quantity of sandal oil into the receiver, the oil is afterwards carefully removed and sold as sandal attar, and the water put into carboys and disposed of as rose-water. At the time of sale a few drops of sandal oil are placed on the neck of the carboy to give it fresh scent, and to many of the natives it appears perfectly immaterial whether the scent arise solely from the sandal oil or from the roses. Large quantities of sandal oil are every year brought up from the south of India and expended in this way.

The chief use the natives appear to make of the rose-water, or the sandal attar as they term it, is at the period of their festivals and weddings. It is then distributed largely to the guests as they arrive, and sprinkled with profusion in the apartments. A large quantity of rose-water is sold at Benares, and many of the native rajahs send over to Ghazipoor for its purchase. Most of the rose-water, so soon as distilled, is taken away, and after six months from the termination of the manufacture there are not more than four or five places where it is to be met with. The value of the roses sold for the manufacture of rose water may be estimated at 15,000 to 20,000 rupees a year; and from the usual price asked for the rose-water, and for which it is sold, there may be a profit of 40,000 rupees. The natives are very fond of using the rose-water as medicine, or as a vehicle for other mixtures, and they consume a good deal of the petals for the conserve of roses, or gool-kand as they call it. The delightful fragrance from the Ghazipur rose fields can be scented at seven miles distance on the river Ganges. The most approved mode of ascertaining the quality of attar is to drop it on a piece of paper; its strength is ascertained by the quickness with which it evaporates, and its worth by its leaving no stains on the paper. The best otto is now manufactured at Constantinople, and it is largely made in France.—*O'Shaughnessy, p.* 826.

ROSE, Sir Hugh, now Lord Strathnairn, a politician, and a soldier, who, during the revolt of 1847, made a successful march from Bombay to the North of India, and afterwards was Commander-in-Chief of India.

ROSEA. See Nonea; Plumbago.

ROSE-A-CENT FEUILLES. FR. The Rose, Rosa centifolia.

ROSE APPLE. ENG. Eugenia jambosa. *Linn.* or Eugenia jambolana.

ROSE OF JERICHO. Anastatica hieropuntica, a small bushy plant; its withered flower re-expands if placed in water.

ROSE-CHAINS, made of gold in India, are perfect marvels of the goldsmiths' art. So minute is the chasing of the pattern of the rose in each link that, unaided by a magnifying power, the eye is unable to trace its delicate outline and beauty of form. In some, the little links are drawn so close together as to be only visible on the closest inspection. It is difficult at first to believe that it is anything but a mere length of solid gold wire, and only when examined in the hand does its perfect flexibility betray its manner of construction waistbands, are made consisting of eight and 16 of these fairy-like chains, which appear as bunches of golden thread, and they are fastened with gold clasps, set with emeralds and rubies for ornamental purposes.

ROSE-DIAMONDS. Diamonds are cut into the two shapes of rose-diamonds and brilliants, the former being for the most part made out of the octahedral crystals, and the latter from those with curvilinear faces.

ROSELLE.

Kaserica	HIND.	Pulchay kiray......	TAM
Hibiscous subdariffa.	LAT.	Yerra gogu...	TEL.

This plant is cultivated in most gardens all over India, for its fleshy calyxes, which have a pleasantly acid taste, and make excellent tarts and jelly: and in the West Indies for refreshing drinks. The stems if cut when in flower, and the bark stripped off and steeped immediately, a mass of minute fibres is displayed, of a fine silky nature.

ROSE MALOES. ANGLO-MALAY.

Non-t'yok	BURM.	Liquid-storax ...	ENG.
Su-hoh-you ...	CHIN.	Storax	„
„ „ hiang.	„	Rosa-mala ...	MALAY.

This semi-fluid resin is the product of the Liquidamber altingia, which grows in Tenasserim.

As this occurs in China, it is a thick scented gummous oil of the consistence of tar; it is brought from Persia via India to China; and when good has a pearly appearance. The price has declined much of late years; it used to sell for $ 30 per pecul. It is used for medicinal purposes.—*Morrison's Compendious Description. Williams' Middle Kingdom, Vol. II. page* 406. *Smith.*

ROSEMARY. The tops of Rosmarinus officinalis, *Linn.* the Aklil-ul-Jabl or the mountain crown of the Arabs, a translation of Libanotis coronaria, its former European name.

ROSENBERG and Bernstein, Dutch naturalists who collected in the Sulu islands, Mr. A. R. Wallace and Mr. Allen, his assistant, also collected there.

ROSEN, Frederic, ob. 1837, aged 32 years. He was the editor and translator of the first book of the Rig-Veda.

ROSEN HOLZ. GER. Rose wood.

ROSEN KRANZE. GER. Beads.

ROSENMULLER. Author of the best work extant on the botany of the bible.

ROSES, Otto of

Attar... Guz. Hind.
Gulab-ka-Attar...Hind.
Attar-i-Gul... ... Pers.

This is made near Ghazipur but is very largely imported into India from the south of France. See Rose.

ROSETTA STONE. A stone discovered on the redoubt of the town of Reshid, by an Artillery Officer of the French army in August 1799. It was a dark syenitic basalt and contained an inscription, the upper part in hieroglyphics the lower in Greek. It was first, in part, translated in 1813 by Dr. Thomas Young a physician of Great Britain.

ROSETTA-WOOD is a good sized East India wood, imported into Europe in logs 9 to 14 in diameter ; it is handsomely veined ; the general colour is a lively red-orange (like the skin of the Malta orange) with darker marks, which are sometimes nearly black ; the wood is close, hard, and very beautiful when first cut, but soon gets darker.—*Holtz.*

ROSE-WATER.

Siang-wei-lu, ...Chin.
Gul-ab-ka-pani Guz. Hind.
Ayar mawar Malay.
Ab-i-gul ....Pers.

The water distilled from roses, and put for sale into large glass bottles of about three imperial gallons capacity each, called carboys. A large quantity is annually exported from the Persian Gulf to Bombay ; that sold in Benares is obtained from Gazeepore, where it is largely distilled. Rose-water is much esteemed on account of its great fragrance, and is chiefly used by the natives at the periods of their festivals and weddings. See Rose.

ROSE WOOD.

Tze-tau... ...Chin.
Chinese Rosewood. Eng.
Blackwood... „
E. Indian Blackwood„
Indian Blackwood.. „
Bois du rose... Fr.
Bois de Rhode... „
Rosen-holz ... Ger
Legno rodie ... It.
Lignum Rhodium Lat.
Aspalathus ... „
Pao de rosada...... Port.
Leno de rosa .. ... Sp.
Biti maram...... ...Tam.
Yerra gudda-chava carra...... Tel.
Gunga ravi .... „

Like to iron-wood, blackwood, redwood, &c., rose-wood is a commercial term given to the timbers of several trees. That used in Britain, is produced in the Brazils, the Canary Isles, the East Indies, and Africa. It is imported in very large slabs, or the halves of trees which average 18 inches wide. The best is from Rio de Janeiro, the second quality from Bahia, and the commonest from the East Indies : the latter is called East India black-wood, although it happens to be the lightest and most red of the three ; it is devoid of the powerful smell of the true rose-wood, which latter Dr. Lindley considers to be from a species of mimosa. The pores of the East India Rosewood appear to contain less or none of the resinous matter, from which the odour, like that of the flower of Acacia armata, arises. One of the rose-woods contain so much gum and oil, that small splinters make excellent matches. The colours of rose-wood are from light hazel to deep purple, or nearly black : the tints are sometimes abruptly contrasted, at other times striped or nearly uniform. The wood is very heavy ; some specimens are close and fine in the grain, whereas others are as open as coarse mahogany, or rather are more abundant in veins. The black streaks are sometimes particularly hard, and very destructive to the tools employed on it. Next to mahogany, it is, in England, the most abundant of the furniture woods. A large quantity is cut into veneers for upholstery and cabinet work, and solid pieces are used for the same purposes and for a great variety of turned articles of ordinary consumption. Mr. Poole, in his Statistics of Commerce, describes it as a highly esteemed dark brown colored, fancy wood, principally used in veneering and making costly furniture. That delivered in England, he says, is imported chiefly from Bahia and Rio de Janeiro, into London and Liverpool. It is in the form of the halves of trees averaging 18 inches wide, and in height 2½ cwt., called planks, of which the import in 1851 was 2,000 tons. Price, ordinarly, £9 to £19 but rising occasionally to £90 per ton. The rosewood of the Tenasserim provinces, is a very beautiful, hard, compact timber, resembling "Andaman wood," and is occasionally seen in the bazar of Calcutta. From Siam, and other places, a rosewood is largely exported by the Chinese. These woods are generally esteemed according to the degree in which the darker parts are distinct from the purple red, which form the ground.

One Rose-wood, is *Lignum Rhodium, Aspalathus*, whence the Oleum Rhodii is obtained, heavy, oleaginous, somewhat sharp and bitter to the taste, of a strong smell, and purple colour. The *Chinese Rose-wood*, called Tze-tau, is odorous, of a reddish black colour, streaked, and full of fine veins, which appear as if painted. The manufactures of this wood are more valued in China than the varnished or japanned. There are baser kinds of Rosewood of inferior value. *East Indian Blackwood or Rosewood*, from the Dalbergia latifolia is an excellent heavy wood, suited for the best furniture. It can be procured in large quantities, and of considerable size ; the wood contains much oil. In large panels it is liable to split.—*Faulkner's Commercial Dictionary. The Hon'ble Mr. Morrison's Compendious Description. M. E. Jr. Rep. Dr. Mason's Tenasserim. Holtzapfell. Poole's Statistics of Commerce. McCulloch's Com. Dic. p.* 996.

ROSEWOOD TREE.

Dalbergia latifolia, *W. & A. Roxb.*
,, sissoides. *Graham.*

Both these are trees of the south of India.

ROSIN.

Rall...	... ...GUZ.	Kungiliam	... ...TAM.
Ralla	....HIND.	Gugalam	... ...TEL.
Dammar...	... ...MALAY.		

The Rosin, or Common Resin of Europe, is obtained as a residuary matter in the process for obtaining the oil of turpentine, Turpentines are oleo-resins. In their natural state they are either solid or semi-fluid, the oil of turpentine being obtained by distillation of American turpentine with water. and is from the Pinus palustris; partly also from the Pinus tœda, and perhaps some other species inhabiting the southern states, from North Carolina and the south-eastern part of Virginia. A hollow is cut in the tree a few inches above the ground, and the bark removed for the space of about eighteen inches above it. The turpentine runs into this excavation from about March to October; more rapidly, of course, during the warmer months. It is transferred from these hollows into casks. Old and concrete American turpentine is often sold as frankincense.

Sir Richard Jenkins in his report on the Nagpore Territory, states, that the rall or rosin tree, as also other large wood is obtained in the forests of Kakair, (probably Conkair) and in the hills north of Ruttenpore, said to be a tree of large growth, and bearing some resemblance to the Saul: in the Pachmurra Range, a tree of the Saul family, is the "Vatica tumbuggaia" which the natives say furnishes a frankincense. This is probably the rall tree, though it does not in those jungles attain a large size. See Dammar; Gugalam; Gums and Resins.

ROSIN, COUNTRY, ENG. See Dammar.

ROSINEN, GER. Raisins.

ROSINGAIN, see Java.

ROSMARINUS OFFICINALIS.

Aklil ul jabal...	...AR.	Rosemary......	........ENG.
Hasalban-aohair ...	,,		

A shrub three to four feet high, densely leafy, an inhabitant of the southern parts of France, Spain, and Italy, the basin of the Mediterranean, and some parts of Asia Minor. The essential ingredient in the well known *Eau de la reine d' Hongrie* is the essential oil of this plant. The oil is stated most positively to possess the power of encouraging the growth of hair and of curing baldness. It is the colouring ingredient of green pomatums.—*O'Shaughnessy, page* 488.

ROSS. ENG. Horse.

ROSTELLARIA CURVIROSTRIS: a mollusc of the family Strombidæ.

ROSTELLARIA PROCUMBEUS, *Nees.*
Justicia procumbens.—*Linn.*

Nireiputi...	........TAM.	Naka putachettu...	TEL.

A shrub common on the Coromandel Coast of India, used in medicine.

ROTANG, a pass in the Himalaya in Lat. 32° 24' N. and L. 77° 10' E., is 13,200 feet above the sea. The Rotang pass near Dharmsala leads to the heart of Central Asia. The Beas river rises in a sacred pool, called "Vyas Rikhi" in the Rotang pass, at the head of the Kulu valley. The scenery of the river valley is very beautiful, and is unlike that of the Chenab or Sutlej. The river is fringed with trees, and studded with green islands. There is a good riding path close along the bank which does not exist upon any other river in the Punjab. Besides deodar in the Upper Beas valley, "kail" P. excelsa, elm, maple, oak and walnut are abundant; on the Parbati, box occurs; also olive and the twisted cypress (C. torulosa) are found in small quantity.—*Powell's Hand-Book, Vol I., p.* 530. *Lord Elgin.*

ROTAN. MALAY. Calamus rotang, *Linn. Roxb.*, the ratan.

ROTAN-JARNANG. MALAY. Calamus draco.—*Willde.*

ROTAS, an extensive fort, six miles west of the right or western bank of the Jhelum. —*Cal. Rev. Jan.* 1871, *p.* 80.

ROTASGHUR. See Kol.

ROTELLA. A genus of molluscs of the Family Turbinidæ.

ROTH, RUDOLPH, in 1844, published three dissertations on the literature and history of the Vedas, was editor of the Atharva Veda.

ROTH, A. W., Author of Novæ Plantarum Species, præsentim Indæ Orientalis.

ROTHIA TRIFOLIATA. *Pers. W. and A.*
Trigonella Indica.—*Roxb. Linn.*

Nurrey pithen kiray.	TAM.	Ubbukada	TEL.

An annual, native of the Coromandel Coast, with small yellow flowers. A small procumbent weed with trifoliate leaves, used by the natives as greens, abundant everywhere.—*Jaffrey.* See Vegetables of Southern India.

ROTHES SCHWEFEL-QUECKSILBER GER. Cinnabar.

ROTHITA SARASHUPA. SANS. Cress seed.

ROTI. HIND. Bread, the chapatti or flat cake. English bread is called "Nan, also roti." Roti is also sweetened wheaten cakes besmeared with sandal, but is properly unleavened bread. Roti raughandar are wheaten cakes with a superabundance of ghee in them.

ROTIFERA, wheel animalcules, animals with ciliated jaws. The following is a classification of the Articulata.

Articulata with little joints :—

1. Rotifera, wheel animalcules ; examples, animals with ciliated jaws.

2. Cirripedia, cirripeds ; examples, barnacles, sea acorns.

3. Crustacea, ten-legged, aquatic family ; examples, crabs, lobsters, shrimps, prawns.

4. Insecta, six-legged, air breathing, articulate animals ; examples, the wasp, the bee, the butterfly, the beetle, the flea.

5. Arachnida, eight-legged, air breathing, articulate animals ; examples, mites, spiders, scorpions.

ROTIKUBUNG. MALAY. Datura fastuosa.—*Mill*, *Roxb.*

ROTNJOT. HIND. KASHM. Jatropha curcas.

ROTTEN-STONE, a mineral, occurring massive; fracture, uneven, colour grayish, reddish, or blackish brown, dull earthy and opaque. Soft, soils the fingers, and is fetid when rubbed or scraped. It is found near Bakewell, Derbyshire ; and at Albany, in the state of New York. It is employed in polishing metal, &c. The analysis by R. Phillips gives, in 100 parts, alumina 86, silica 4, carbonaceous matter, 10.—Very fine silicious and magnesian earths, such as Rottenstone, Alkaline Loam and Armenian Bole, occur near Soondoor, Bangalore and Cuddapah.—*Eng. Cyc. Mad. Ex. Jur. Rep.*

ROTOCOMPSA LEUCOTIS, the white-eared bulbul is plentiful in Sindh and the Punjab.—*Adams.*

ROTTBOLLIA GLABRA.—*Roxb.*

Buska......................BENG.

A grass of the family Panicaceæ, acceptable to cattle.—*Voigt.*

ROTTBOLLIA EXALTATA.—*Linn.*

Stegosia Cochin-Chinensis, *Lour.*
Buru-Shunti... ... .BENGALI.

A plant of British India, Cochin China and N. Holland.

ROTTI or Rotto, See Timor laut.

ROTTLER, Dr. A., a Danish missionary long resident at Tranquebar in the South of India who wrote a Tamil dictionary and collected a herbarium. He was one of the fathers of Indian botany.

ROTTLERA, a genus of plants named in honour of Dr. Rottler. It is found in the tropical parts of Asia and throughout India, and contains handsome moderate sized trees. R. tetracocca grows in Silhet, and yields a hard and valuable timber. Rottlera digyna, *Thw.* (Chloroxylon digynum, *Wight, Ic.*) is a small tree growing at Caltura in Ceylon. Rottlera eriocarpa, *Thw.*, grows in Ceylon, in the hot and drier parts of the island, but is not very common, and Rottlera fuscescens, *Thw.*, another small Ceylon tree, is not uncommon up to an elevation of 2,000 feet. In Ceylon, also, is found R. muricata, *Thw.* ; R. oppositifolia, *Blume*, and R. rhombifolia, *Thw.*, all small trees. Other defined species of India are R. alba, R. barbata, R. ferruginea ; R. Indica *W. Ic.* R. laccifera, R. peltata, and three undetermined species grow in Burmah. One of these, the Ya-gi-ne of the Burmese is a moderate sized tree common on the low ground near streams, breaking weight from 153 to 170 lbs. A cubic foot weighs lbs. 35. In a full grown tree on good soil the average length of the trunk to the first branch is 30 feet and average girth measured at 6 feet from the ground is 6 feet. It sells at 4 annas per cubic foot.

The Mimasko, Qu : mimasho ? is a Tavoy species, represented as furnishing a timber.

The Keoun lae, BURM, a large tree, in Tavoy, the timber of which is used for rudders.

The otte of the Singhalese, another species of Rottlera is used for common house building purposes, the tree grows in the western province of Ceylon. It weighs 36 lbs. to the cubic foot, but is little durable, lasting only 10 years.—*Thw. En. Pl. Zeyl. p.* 272. *Dr. Brandis. Cal. Cat. Ex.* 1862. *Dr. Wallich. Mr. Mendis.*

ROTTLERA ERIOCARPA, is not very common but grows in the hot, drier parts of Ceylon.—*Thw. En. Pl. Zeyl. p.* 273.

ROTTLERA LACCIFERA. *Voigt.*

R. dicocca. ...ROXB. | Croton lacciferum, *Linn.*
Aleurites lacciferum, *Willde.*

Ank-Kush...	...BENG.	Konda Kasina	... TEL.
Wild-Arnotto...	... ENG.	„ veltu...	„
Konda jap'hara	... TEL.	Peyya rodda ...	„
Karu „	... „	„ rotta ...	„

A twining shrub of Coromandel and Bengal, figured by Wight, in his Icones, and said also to be a native of Ceylon, where a very superior quality of gum lac is obtained from it.—*Mr. Mendis. Roxb. iii.* 829.

ROTTLERA MURICATA.

Chloroxylon muricata, *W. Ic.* | R. Aureo-punctata ...*Dalz.*

A small tree with smooth leaves of the Central Provinces of Ceylon, grows at an elevation of 4,000 feet.—*Thw. En. Pl. Zeyl. p.* 273.

ROTTLERA RHOMBIFOLIA.

R. dicocca, ...*Roxb.* | Croton rhombifolium, ...*Willde.*

A small tree not uncommon in Ceylon up to an elevation of 1,500 feet.—*Thw. En. Pl. Zeyl. p.* 272.

ROTTLERA OPPOSITIFOLIA. *Blume.*

Plagianthera oppositifolia. *R. et Zoll.*

Common in Ceylon up to an elevation of 2,000 feet.—*Thw. En. Pl. Zeyl. p.* 273.

ROTTLERA TETRACOCCA. *Roxb.*

Boo-kanda-gass...SINGH.

Grows in Silhet, and, in Ceylon, is common up to an elevation of 2,000 feet. It yields a hard and valuable timber. *Roxb. Voigt. Thw. En. Pl. Zeyl. p.* 272.

ROTTLERA TINCTORIA. *Roxb.*

Croton coccineum. *Vahl.* | C. punctatum. *Retz,*

Kamil.............BEAS.
Tung... ... .BENG.
Tan tie den ... BURM.
Kinoon la... ... ,,
Memasho... ... ,,
Sarnakassary mara. CAN.
Shendri... ...DUK.
Monkey faced tree ENG.
Dyer's Rottlera. ,,
Kamul, kamila ? HIND.
Capala ,, ,,
Punag ,, ,,
Poonaga ,, ,,
Tukla .... ,,
Kapila... ... ,,
Rulya... ... ,,
Kembal ...JELUM.
Reun ; Reunah ...KANAWAR.
Sendri... ... ... MAHR.
Poonnagam... MALEAL.
Kambha ... SANS.
Punnaga...... ,,
Kesboor ... ,,
Hamparandelia-gass ...SINGH.
Kapilapodi ... TAM:
Corunga munjemaram ... TAM.
Chendurapu chettu. TEL.
Sinduri chettu... ,,
Kunkumapuvvu ,, ,,
Punnagamu ... ,, ,,
Vasanta gundu... ,, ,,
Veligaram... ,, ,,
Bendu rapu. ,,
Soondoro-gundi. URIA ?
Koomala-gundi... ,,
Bosonto-gundi ... ,,

It is called the monkey faced tree, from these animals rubbing their faces with the fruit. It is a large tree with alternate, ovate oblong leaves, of a ferruginous colour beneath ; flowers in the cold weather. Fruit size of a pea, covered with a red mealy powder, used as a dye. The tree is common in many parts of British India; the stellate pubescence covering the 3-coccous capsule of this large tree, is collected for sale in Mysore, where it is used for dyeing silk an orange colour. The colouring matter does not require a mordant, all that is necessary being to mix it, with water, containing about half its weight of carbonate of soda. On silk, the colour is a rich flame or orange tint of great beauty and extreme stability ; and the fact that the material supplied by commerce, contains between 70 and 80 per cent of real colouring matter, ought to induce silk dyers to turn their attention to it. Ainslie describes it as a fine, reddish brown, light powder, which the Natives employ for dyeing a beautiful pale orange colour : it is the red dust shaken from the dry fruit and is an export from Malabar. Dr. Honigberger mentions that the Kamila or Kamud of the Lahore bazar is taken to Lahore from the hills, in the form of coarse red powder. In Ajmir the dust from the capsule of the fruit, is used to dye silk yellow, alum being used as the mordant : it is considered in medicine as of a warm nature, also anthelmintic and given to children in "dai." Three or four masseh are a dose also used in ointments for herpetic eruptions, price two and a half seers for one rupee. It contains a yellow resin, rottlerine, soluble in carbonate of soda and precipitated by acids. It acts as a purgative, and very sure anthelmintic in cases of tape-worm in doses of from one to two drachms. It is in some districts used as an application to cutaneous diseases, especially for itch and fevers, and it is said to be also a purgative medicine and aphrodisiac." The oil which is obtained plentifully from the kernels of this fruit after the removal of the celebrated powder, promises to be of some importance medicinally as a cathartic oil. The Rulya, which is made from it, contains 78 per cent of coloring matter, it consists of hairs obtained from the outer part of the capsules. The powder is attached to the fruit capsule, and when the fruit is ripe, it is brushed off and collected. It is also found sparingly on the leaves, petioles, and flower stalks of the plant. The powder is of a dark brick red colour, with a peculiar heavy odour increased on its being rubbed between the fingers. Two varieties of it are sold in the bazars in the Punjab, the one having been passed through coarse cloth to free it from impurities, such as portions of the withered flowers, dust or insects, but the only appreciable difference is that this finer quality is cleaner than the other. To cold water the powder does not impart its yellow colour, but either floats on the surface or falls in small quantities to the bottom. Boiling water becomes slightly tinged by it. If the powder is boiled in water to which any of the alkalies have been added, a complete solution of the colouring matter takes place, and it is by means of this property that the natives of India avail themselves of it as a dye. Alcohol and ether dissolve it with equal facility. All these preparations of the powder have a dark red colour, and the yellow colouring matter is only separated on the addition of certain re-agents. Thus, when the mineral acids are added to the alkaline decoction or infusion, a thick flocculent precipitate of a gamboge yellow colour is thrown down, and the same effect is produced on the alcoholic and etherial tinctures on the addition of water or the mineral acids. Contact with the atmosphere seems to cause the development of this yellow deposit, as on exposing on glass, a thin film of either of the tinctures, before evaporation of the fluid is completed, the previously transparent coating becomes opaque and of a light yellow colour. The process of dyeing seems also to bear on this idea, as silk or cloth is merely dipped in a hot alkaline solution which is of a dark red colour, and on the drying of the cloth the characteristic yellow colour is developed. The resinous deposit, on which the active properties of the plant both as an anthelmintic and a dye depend, are obtained in a large quantity from an alkaline decoction of the powder by boiling eight ounces of the powder in two pints of water, along with one ounce of the bicarbonate of soda. Filter when cool, and to the filtered liquid add nitric acid till the solution becomes neutral. A considerable quantity of yellow matter then forms in the fluid, which is again filtered, and this yellow residue, when dry is found to weigh one and a half ounces; is of a dusky yellow colour, and adheres in lumps of considerable consistence. The substance probably exists in the plant as an essential oil, and the formation of the yellow coloured deposit, on the neutralization of alkaline solutions and the addition of water or the acids to the alcoholic and etherial solutions, or by the action of air, consists in the change of the essential oil to a resin, by the loss of hydrogen and the absorption of oxygen. In all parts of India the powder is extensively used as a dye, especially for silk, to which it imparts a fine yellow colour. It is also employed to dye cotton cloth. The following is the process of dyeing as pursued in Umritsir, the second city of the Punjab, where a large trade in silk is carried on. Barilla, a coarse preparation of carbonate of potash, obtained by burning a herbaceous species of salsola common in the uncultivated portions of the Punjab, is mixed with water, in the proportion of one ounce of barilla to four ounces of water. To this solution, when filtered, the kamila is added, and they are then boiled together. When the boiling has been continued long enough to extract all the colouring matter, a small quantity of lime is dissolved in the fluid. The dye is then ready for use, with the exception of the addition of few grains of alum, in order to fix the colour. In some parts of India, gum is occasionally mixed with fluid, but in the Punjab this is never considered necessary. The characteristic yellow colour is not developed in silk, &c. until after two or three immersions in the dyeing fluid. The kamila dye is sold in the drug mart of Umritsur at 18 Rs. a maund for the first quality, and 10 Rupees for the second. (This is at the rate of 2 lbs. for six pence). The drug is used by native practitioners made into an ointment as an external application in itch, and other skin disorders, and its use as a vermifuge is also known to them.—*Cleghorn's Punjab Report Kulu and Kangra. p.* 82. *The Ind. Annals Med. Science, No.* 1. *p.* 85. *Irvine's Gen. Med. Top. p.* 142, 211. *Hooker. Vol.* I., *p.* 14. *Ains. Mat. Med., p.* 146. *Honigberger's Thirty-five years in the East by Dr. Honigberger, p.* 337. *Powell's Hand-Book, Vol. I p.* 376. *Riddell's Gardening. Madras Ex. Jur. Rep.*

ROTTO OR ROTTI with Lando Islands are near Timor. Rotto, is about 45 miles long, and of moderate height, with undulating hills and its S. W. end renders to about lat. 11° 2′ S. and long. 122° 51′ E.

ROUCOU. FR. Arnotto.

ROUGE, a pigment of a beautiful rose-colour, procured from the red colouring matter of safflower. It is brought from China spread on small papers, or in pots. See Carmine.

ROUGE, used by jewellers for brightening gold is a per oxide of iron.

ROUGH ACHYRANTHES. ENG. Achyranthes aspera.—*Linn.*, *Roxb.*

ROUGHAN, also Dohun. PERS. Vegetable or Animal oil.

ROUGHAN-I-BADAM. PERS. Almond oil.

ROUGHAN-I-MOTYA and Chambeli. HIND. oil of jessamine from J. zambâc and J. grandiflora.—*Powell's Hand-Book, Vol. I., p.* 425.

ROUGH-CHAFF FLOWER. ENG. Achyranthes aspera.—*Linn.*, *Roxb.*

ROUGH WOOD SEED. ENG. Seed of Menispermum hirsutum.

ROUM or Room. A blue dye from a species of Ruellia. See Dyes.

ROUMIA HEBECARPA. *Poit.*

Katambilla...... .. SINGH.

A moderate sized Ceylon tree, at Condasalle. Maturatte, &c. A species of Roumia found in the Ceylon jungles is prized in Colombo, on account of its fruit, which are about the size of large cherries, somewhat acidulous, with a very agreeable flavour. – *Wight's Illustrations of Indian Botany, Vol. I, p.* 37.—*Thw. p.* 18.

ROWADAN. TEL. Dillenia pentagyna.

ROWANDUZ. The Kurd tribes of Rowanduz Bahdinan, Sekkir, Nur-ud-din, Shinki, Gellati, Bulbasi, Jass; Mikri, number in all 400,000 souls. See Kurdistan.

ROWI. MAHR. Calotropis gigantea. *Brown.*

ROWIL. HIND. Geranium nodosum.

ROWNEE. SINDH. A Fausse braie.

ROXANA, Alexander's queen, was a Turkoman woman. Alexander the Great's death occurred in the spring of the year 323 B. C. His empire though only of ten years' growth, was not transient. His colonies and their institutions, manners and language had a lasting action in Central Asia, the effects of which were felt for at least five hundred years after his decease. Though he left his brother

Aridæus and the posthumous child of Rushana or Roxana, called Alexander, neither of these succeeded him, for his military commandants, assumed sovereign power, and in B. C. 315 Antigonus assumed the regal title of king of Asia.

In B. C. 305, Seleucus gained a great victory over Niconor, a lieutenant of Antigonus, and followed it up by seizing and adding to his own government, the whole of Media, Hyrcania, Parthia, Bactria, and Aria, and all the countries as far as the Indus. In B. C. 303, he crossed that river to make war on Chandra Gupta, who, during these contentions had expelled the Grecian garrisons from the Panjab, and had so recovered that country for the native sovereigns of India. Seleucus being called to a final struggle with Antigonus made a hasty peace with Chandra Gupta, ceding the Panjab as far as the Indus. According to Strabo, Arachotia was also ceded, but this seems doubtful. Kuchchee to the Bolan Pass with the valley of the Indus may have been the region ceded. Seleucus drove Antigonus into Phrygia where he was defeated and slain in 301 B. C.

Seleucus Nicator subsequently was assassinated in 280 B. C. by Ptolemy Ceraunus, from which date the whole of Asia to the Indus and Jaxartes was under the Syrian king Antiochus Soter, who from 280 to 261 B. C. reigned undisturbed over the same territory and left it to his son Antiochus Theus.

In 256 or 255 B. C., Bactria declared for independence under Theodotus or Deodotus.

Parthia followed about the year 250 B. C. under the rule of Arsaces, who is variously described as a native of Soghd, as a Bactrian, and, by Moses of Chorene, as of Balkh, this last author adding that the dynasty was known as Balkhavensis or Pahlavian. He used Greek only on his coins and in his public letters and correspondence; ordinarily with the head of the sovereign on one side; only one coin has a lingual inscription. Great king of kings was a title first adopted by Mithridates II.

ROXBURGH, WILLIAM, M. D. A medical officer of the Madras Army, in the service of the E. I. Company, who was their Botanist in the Carnatic, and subsequently in charge of the Gardens in Calcutta. He entered the Madras Service 1766, and died in 1815. He was author of Coromandel plants, and of the Flora Indica. The former work was published by the order of the E. I. Company in three folio volumes, under the direction of Sir Joseph Banks, Bart, in 1793 and 1795, with three hundred coloured plates, and was the first contribution of the Indian Government to the illustration of botanical science. His Flora Indica remained in manuscript for some years after his death. Two editions of it have since been published since that period; one, which is incomplete, was edited by Drs. Carey and Wallich; it extends to the end of Pentandria Monogynia, but contains many additional plants not contained in Roxburgh's manuscript, the other, which is an exact reprint of the manuscript as left by its author, is in three volumes, and was published in 1832. He also published Hortus Bengalensis and Catalogue of the Calcutta Garden. He was the first to describe fully, accurately, and reduce to the form of Flora, according to the Linnean system, the riches of the East. During the earlier part of his career he resided in the Peninsula, particularly about Samulcottah, where he had ample opportunities of examining the botany of the neighbouring Circar mountains. In the autumn of 1793, from his great merit, he was removed to Calcutta, to undertake the superintendence of the Company's Botanic Garden there: here he remained till 1814, adding new descriptions to his manuscript, when "the illness which unhappily terminated in depriving the world of his labours, compelled him to undertake a voyage for the sake of his health, which he at first intended should have been only to the Cape. His declining state of health, however, induced him to proceed as far as St. Helena. During his stay in that island, he, ever attentive to the interests of science, improved the opportunity by describing most of the plants he found growing there. After his arrival in England, whether he was at length obliged to proceed, he entertained considerable hopes of being able to put the Flora Indica to the press; and once wrote to Dr. Carey of Serampore that, in preparing it for this purpose, he hoped to procure the assistance of Mr. Robert Brown. Death, however, soon prevented his accomplishing this object, which he had so much at heart." Dr. Carey and Dr. Wallich edited and published the first volume (including all from Monandria to the end of Tetrandria) in 1820; and the second (containing nearly all Pentandria-Monogynia) in 1824; both are enriched with many new species described by Wallich, no more of that edition has appeared, and afterwards his two sons induced Dr. Carey to bring out their father's book in three volumes But not only did Dr. Roxburgh describe the plants he observed, but he had at the same time splendidly coloured drawings made of them. These, upwards of 2,000 in number, he presented to the East India Company: from them a selection of 3,000 was allowed to be made and ordered to be published by the

Court of Directors, under the superintendence of Sir Joseph Banks : this magnificent work, entitled the Plants of Coromandel, was commenced in 1795, and completed in 1816, in three enormous volumes.—*Wight's Prodromus Flora, Vol. I. pp.* 13, 14.

ROXBURGHIACEÆ. Roxburgh-Worts, a natural order of Plants belonging to the class Dictyogens, natives of the hot parts of India. There is but one genus—Roxburghia, the roots of a species of which are prepared with lime water, candied with sugar, and taken with tea. The flavour is insipid. Dr. Wight gives Roxburghia gloriosoides. *Lindley, Vegetable Kingdom. Eng. Cyc.*

ROYAL OIL. The translation of Baal-Shemen, the origin of the word Balsam.

ROYAPURAM. A district of Madras on the north side.

ROYLE. John Forbes, of the Bengal Medical Service ; in charge of the Botanical Gardens, Seharunpore. Author of the Geographical description of the Flora of India, Rep. Brit. Ass. 1846, part 3, 74.—Illustration of the Botany, &c., of the Himalaya mountains, 1839. Productive resources of India. Lond. 1840.—On the Culture of Cotton in India. Lond. 1852, 1 vol. 8vo.—On the fibrous plants of India; Secretary of the Horticultural Society of London. Dr. Royle commenced his Indian career about A. D. 1818 and died in 1858. Shortly after his appointment as Assistant Surgeon on the Bengal Establishment, he was placed in charge of the Botanic Garden at Saharunpore, where he remained for nearly nine years. On his return to England in 1832 or 1833, he commenced the publication of his excellent work on the Botany of the Himalayan Mountains, which contains also an accumulation of valuable information respecting the economical, medicinal, and other vegetable products of India. In 1838 or 1839, he was appointed Botanical Adviser to the E. I. Company, after which he published a work on the Productive Resources of India, which contains a great amount of useful information culled from various sources, combined with his own experience and research and in 1851, a work on "the culture and commerce of Cotton in India and elsewhere."

On the breaking out of the Russian war in 1853, Dr. Royle wrote on The fibrous plants of India fitted for cordage, clothing, and paper, which attracted much attention on its publication in 1855.

In addition to these, Dr. Royle published on the Antiquity of Hindoo Medicine ; an Essay on Medical Education; a Manual of Materia Medica and Therapeutics ; besides contributions to other publications, such as Kitto's Cyclopædia of Biblical Literature, Holtzapffel's Turning and Mechanical Manipulation, to the Catalogue of the Great Exhibition of 1851, and very shortly before his death, a pamphlet, reviewing the measures which have been adopted in India for the improved culture of cotton. The districts investigated by Dr. Royle, and by his collectors were chiefly the Jumno-Gangetic Doab the upper part of the Gangetic plain, and the mountains of Garhwal, Sirmur, Kanawer, and Kashmir. His Illustrations of the Botany of the Himalayan Mountains, in two volumes quarto, with 100 plates, is still the only book except Dr. Wallich's Tentamen Floræ Nepalensis, devoted to the rich flora of the mountains ; and it further contains the first and only attempt to demonstrate the prominent features of the geographical distribution of Northern Indian plants in reference to the elevations and climates they in habit, and to the botany of surrounding countries.—*Hooker and Thomson's Flor. Indica. Indian Field.*

ROYLEA ELEGANS. *Wall.*

Ballotta cinerea, *D. Don.* | Phlomis calycina, *Roxb.*

A shrub of the Himalaya valleys with small white pale rose coloured flowers. It is deemed a febrifuge, by the people of the Himalaya, like some species of Teucrium in Europe.—*O'Shaughnessy, p.* 492. *Voigt.*

ROUZAT-UL-ATHAR, the title of work by a mahomedan author.

ROUZAT-US-SHAHADA. Book of the Martyrs.

ROYR-KA-PHAL. Duk. Zizyphus jujuba.

ROZ. Pers. Day.

ROZA, a fast. Roza-kafittra, fast offerings.

ROZA-RAK'HNA keeping, a fast, a point of the muhammudan religion.

ROZAH. Ar. A garden, is applied in India, by mahomedans to a burial place. There are many of these. The most known is that on the hill eight miles from Dowlatabad, where the emperor Aurungzebe is interred.

ROZANA —See Kaffir.

ROZAT. Hind. Triticum æstivum.

RTUT. Rus. Mercury.

RUB. Rus. See Fishes of eastern and southern Asia.

RUBA. Pers. Loadstone.

RUBA BARIK. Hind. Solanum dulcamara also S. incerta and S. nigrum.

RUBA TARBUK. Pers. Solanum nigrum.

RUBBI or Rabbi Hind. Winter Crop. See Agriculture ; Climate.

RUBEN DE SOI. Fr. Ribbon.

RUBI.——? Dioscorea.

RUBEE-UL-A-WUL, the third month of the mahomedan year.

RUBEE-US SANEE, the fourth month of the Mahomedan year.

RUBIA CORDIFOLIA.—*Linn. Wight and Araott: Wight's Icones.*

Rubia manjista, *Roxb.*
„ munjith, *Desv.*
Rubia secunda, *Moon.*

Runas... ... ... AR.
Aruna : Munjith... BENG.
Khuri... ... ...CHENAB.
Sheni... .. „
Runa ... ... „
Madder ... ...ENG.
Indian Madder „
Munjit... ... ... HIND.
Chomunjit... ...... „
Kukar-phali... ... JELUM.
Tinru ... ... „
Dandu of Kanawar.

Fahr-ghas ...KASHM.
Puat... ... MALEAL.
Runas .. ..PERS.
Mitu . ... RAVI.
Manjishta .. ...SANS.
Munzul... ...SUTLEJ.
Runang...... „
Sawil kodi... ... TAM.
Manjitti ver. „
Manjiti. „
Manjishtatige „
Tamravalli ... ...TEL.

Indian madder or munjistha, the Rubia cordifolia, has white flowers. It is a native of Siberia, is cultivated largely in the East, particularly in Assam, Nepaul, Bombay, Sinde, Quetta, China, &c., for its dye-stuff. A small quantity is exported from China and India about 338 indian maunds were shipped from Calcutta in 1840, and 2,328 in 1841. It fetches in the London and Liverpool markets from 20*s.* to 25*s.* and 30*s.* per cwt., duty free ; 405 tons were imported into Liverpool from Bombay and Calcutta, in 1849, and 525 tons in 1850, but none was imported in 1851 and 1852. In 1851, at the Great Exhibition, the jury remarked that some of the colors dyed with it are quite as permanent as those dyed with madder and even more brilliant botanists have been inclined to regard R. cordifolia and R. munjistha as distinct and in habit, form of stem, &c. ; there are differences sufficient to make them distinct species. R. munjistha, Dr. Gibson observes, 'is not such a large climber as the other ; Bancroft, was informed by Dr. Roxburgh that the stem of R. munjistha unlike the stem of R. tinctorum, seemed to be preferred to the roots for dyeing ; Roxburgh in his Flora Indica, adds that, not only the roots and the stems, but the large branches also are used to dye red with. Munjeet is brought into India from the west, as well as from Nepal. It is imported into Bombay, of an apparently inferior quality, from Muscat, and into the Punjab from Affghanistan, forming a considerable part of the large annual investments of the Loshanee merchants. From the Punjab, as well as from Affghanistan direct, it goes to Sind, and thence to Bombay, where it realizes 40 per cent. more than the Muscat article, and is exported to England. It is extensively used in the Punjab, in Sind, and in the North Western Provinces, as a dye stuff, and is found in every bazaar of any extent. Into Umritsur alone, upwards of 10,000 maunds were imported in the year ending 30th April 1855-56, and existing stocks must have been large, as in the same year the dealers exported more than 22,000 maunds, or upwards of 700 tons, valued at about Rs. 200,000.

The munjeet brought from Affghanistan answers exactly to the description given in Ure's Dictionary of Arts. It is either the true madder of Europe or is produced by a species of rubia found in almost all parts of India distinct from R. manjista.

The Nepal munjeet is valued in Calcutta at from Rs. 5-0 to 5-2 per maund, while the Affghan article realizes 8-4 per maund in Bombay. The Calcutta retail price is from 8 to 9 Rupees a maund. The price of Calcutta munjeet, in London, is from 7-8 to 17 Rupees per cwt. or 5-15 rupees per maund. Of French madder, at Marseilles, 15 to 18 Rupees per maund. 3,897 cwt. were imported into England from Calcutta, in the three years ending 1822, while 4,023 cwt. were imported in 1824. The trade fell off again to an average of 1,179 cwt. for the three years ending 1840, or 180 tons for the three years. The consumption of madder in England, in 1852, was 4,200 tons, and of madder roots 8,800 tons. In 1832 it was 3,000 tons of madder, and 2,500 tons of madder roots, showing an increase of 1,200 tons of the one, and of six thousand three hundred tons in twenty years.

Munjeet, to the extent of Rs. 68,941, representing about 7,000 maunds, was exported in 1855-56 from the port of Kurrachee, while in 1856-57, the export of the same article had increased by 539 per cent. to the value of Rs. 4,40,552, representing upwards of forty thousand maunds, or thirteen hundred tons. The larger portion of this large quantity must be conveyed direct from Affghanistan by Kilat or the Bolan Pass to Sind.

An infusion of it is given as a grateful and strengthening drink, to weakly women after lying in. Camel loads of madder are brought from Banu and Tonk, on the west side of the Indus, to Lahore.—*Mason. Irvine. Ains. Mat. Med.*, *p.* 82. *Dr. Honig. Thirty-five years in the East, p.* 337. *Mr. Henry Cope in the Indian Field*, 3rd *May* 1858. See Madder.

RUBIA CORDATA is used in Japan by the country people for dyeing, in like manner as madder (Rubia tinctorum) is in Sweden.—*Thunberg's Travels, Vol. III., p.* 63.

RUBIA MUNJISTA. *Roxb. Wight.*} Syn. of Rubia cordifolia.—*Linn.*

RUBIA MUNJITH. *Desv.* Syn. of Rubia cordifolia.—*Linn.*

RUBIA SECUNDA. *Moon.* Syn. of Rubia cordifolia.—*Linn.*

RUBIA TINCTORUM. Madder.

Madder... ... ...Eng.	Menjithe ...Hind.

Madder is the product of the Rubia tinctorum, and was employed in medicine even in the time of Hippocrates, but is valued chiefly as a dye. The tree has a diffuse brittle-branched stem, angular, very rough, with sharp hooks; leaves 4 or 6 in a whorl, lanceolate or oblong-lanceolate, mucronate, somewhat membranous with pinnated veins; flowers small and white; lobes of the corolla ovate-lanceolate, apiculate; anthers ovate-oblong; stigmas conical. It is a native of Europe and Asia Minor, is extensively cultivated in Holland and France; the culture has likewise been attempted, and successfully in Great Britain, but the English madder could not be sold so cheap as the foreign; it is therefore still largely imported, chiefly from Holland, France, Italy, and Turkey, though, since cochineal has become cheaper, it is much used for the same purposes. It is employed by dyers and calico-printers as a red and scarlet dye. It has also the singular property of turning red the bones and secretions of fowls and other animals fed on it.

Madder is the product of the long slender roots of the Rubia tinctorum, a plant of which there are several varieties. The principal supplies are obtained from Holland, Belgium, France, Turkey, Spain, and the Balearic Isles, the Italian States, India, and Ceylon. The plant is generally raised from seed, and requires three years to come to maturity. It is, however, often pulled in eighteen months without injury to the quality; the quantity only is smaller. A rich soil is necessary for its successful cultivation, and when the soil is impregnated with alkaline matter, the root acquires a red color; in other cases it is yellow. The latter is preferred in England, from the long habit of using Dutch madder, which is of this color, but in France the red sells at two francs per cwt. higher, being used for the Turkey-red dye. Madder does not deteriorate by keeping, provided it be kept dry. It contains three volatile coloring matters, madder purple, orange, and red. The latter is in the form of crystals, having a fine orange red color, and called Alizarin. This is the substance which yields the Turkey-red dye. The roots are creeping, the thickness of the little finger, very long and branching, provided with numerous articulations, and tough fibrils, epidermis thin, pale brown, bark and meditullium intensely red. The odour is weak and peculiar, taste bitter and styptic. According to Kuhlman's analysis the roots contain red colouring matter, (Alizarin, Robiquet,) yellow do, (Xanthine, Kuhl.) woody fibre, mucilage, gum, sugar' bitter matter, resin, salts, albumen, &c.' Alizarin occurs in orange red crystals, tasteless, inodorous, little soluble in cold, but soluble in boiling water also in alcohol, ether, the fixed oils, and alkalies. The alcoholic solution is rose coloured, the etherial golden, the alkaline violet or blue. A solution of alum added to a solution of alizarin, and precipitated by potash, gives a rose lake of the most charming tint. Xanthine is yellow, very soluble in water and alcohol, slightly in ether; the solution passes to orange-red by contact with alkalies, to lemon yellow by acids. It is devoid of odour, but has a sweetish bitter taste. The red colouring matter of madder tinges the bones, milk, and urine of animals if fed on the roots. The great consumption of madder is as a dye stuff for giving a red colour to wool, silk and cotton. In pharmacy the roots are sometimes used for colouring ointments.—*O'Shaughnessy, page* 378.

RUBINA. Once the most celebrated tribe in Arabia, is now a small broken clan. The Anazeh Arabs come of this race.—*Rich's Residence in Koordistan, Vol. II, p.* 258. See Khazerij.

RUBRUQUIS, Father William, made a journey in A. D. 1253, to Karakurum, in the reign of Louis IX. of France, and of Mangoo Khan, the grand-son of Jungeez Khan, of Tartary. The Khan referred to is called by Rubruquis, Sartach; but in the works of later French missionaries he is called Gayook Khan. He was the son of Batoo, at that time great Khan of the western tribes, and conquered territories of the Mongols beyond the Caspian Sea. Crossing the Euxine to the Crimea, Rubruquis found Sartach in the pastures between the Don and Wolga, which are now occupied by the Cossacks. By Sartach he was sent on to Batoo, who was then near the Wolga: from the report of Father Rubruquis, Nestorian Christians abounded at the courts and in the territories, as well of Batoo Khan as of his superior Mangoo Khan; that they had great influence with many at court, especially of the wives and daughters of these and other chiefs; Rubruquis relates that the reply of Mangoo Khan to the letter of king Louis, was written in the Mongolian language, but in the character of the Jugures or Chakars, which had been introduced by Nestorian Christians, and was derived from the Syrian, but written in lines down the page, commencing from the left. Mongolian is so written at the present day.—*Prinsep's Tibet, Tartary & Mongolia, p.* 1 *to* 17.

RUBUS, a genus of plants of the Order Rosaceæ, of which the following East Indian species are the better known, viz.:—

R. asper, Nepal.
R. biflorus, *Sm.* Punjab.
R. ellipticus, *Sm.* Nepal.
R. distans, Nepal.
R. gowreephul, *Roxb.*, Neilgherries and other mountains of India.
R. gracilis, *Roxb.* Nepal.
R. hexagynus, *Roxb.* Peninsula.
R. micranthus. Nepal.
R. moluccanus *L.* Tavoy, Moluccas, Khasia.
R. lasiocarpus, *Sm.* Neilgherries.
R. paniculatus, *Sm.* Nepal
R. pauciflorus, *Wall.* Nepal
R. parviflorus, *L. China.* Nepal.
R. rugosus, *Sm.* Peninsula.
R. Wallichianus, *W. and A.* Peninsula.

Griffith says there is a species of rubus in the Tenasserim Provinces, and Wallich found one on the Irrawaddy; but whether either produces an edible fruit or not, Mr. Mason was unable to say.—*Voigt. Roxb. Mason.*

RUBUS BIFLORUS. *Sm.*

Ankren	Beas.	Bumbal	Sutlej
Kantanch... ...	Chenab.	Insra	„
Khariara... ...	„	Batang	„
Karer	Ravi.	Kalkalin	„

Common from 5,000 to 10,500 feet up to the Indus in the Punjab Himalaya. It has a red coloured fruit.—*Dr. J. L. Stewart's Punjab Plants.*

RUBUS CONCOLOR is found in the Himalaya, and in Cashmere.—*Honig.*, *p.* 337.

RUBUS FLAVUS. *Ham.*

Bramble...	Eng.	Unsri	Punjabi.
Akhi; Kimachi...	Ravi.	Punkana; guracha.	Jel.
Guracha...	„		

This yellow fruited bramble is found in the Sutlej valley between Rampur and Sungnam at an elevation of 5,000 to 7,000 feet up to near the Indus. Fruit is very pleasant, used for preserves.—*Cleghorn's Punjab Report, pp.* 65, 81.

RUBUS FRUTICOSUS. *Linn.*

Akhi...	Beas.	Shali-dag-ganch	Kangra.
Yellow raspberry...	Eng.	Unsri...	Sutlej.
Alish......	Kangra.	Karwarei... ...	Tr. Ind.

Rubus fruticosus like R. idæus, grows at Cashmere, and in the N. W. Punjab from the plains up to 5,000 feet, has dark purple fruit, used to make a preserve on the hills.—*Thirty-five years in the East by Dr. Honig. p.* 337. *Dr. J. L. Stewart. Mr. Powell.*

RUBUS GOWREEPHUL. *Roxb.*

R. indicus. *Rottler.*

Wild raspberry......	Eng.	Gowreephul......	Hind.

A plant with small white flowers, grows in Ceylon, the Neilgherries, Kumaon, Khassya, Assam, Taong Dong, common amongst the woods betwixt Hurdwar and Sirinagar; also grows plentifully in Mysore and Wynaad.—*Ainslie, page* 225.

RUBUS LASIOCARPUS. *Sm.*

R. albescens, *Roxb.*		R. Mysorensis, *Heyne.*	
R. racemosus, *Roxb.*		Gowriphul...	Duk.
Blackberry...	Eng.	Pukuna........ ...	Hind.
Country raspberry.	„	Pakania.........	Kaghan.

A plant of Dehra Dhoon, Kaghan, Neilgherries, Dindigul, Mysore and the Bombay presidency, now cultivated generally in the Deccan, and believed to have been first brought from the Mysore Hills. It grows easily from seed; a few of the ripe fruit rubbed on a sheet of paper, and dried in the sun, will enable one to forward the seed to friends at any distance. The same with the strawberry. The plants should never be nearer than four or five feet, and may be cut down at the commencement of the rains, when they will throw out fresh shoots, bear fruit in abundance. As it requires little care, and only an occasional supply of water, this bramble forms a very perfect and secure hedge to a kitchen garden. The finest fruit is very inferior to a common raspberry.—*Drs. Riddell. Voigt. Cleghorn.*

RUBUS INDICUS. *Rottler*, syn. of R. gowreephul.—*Roxb.*

RUBUS MICRANTHUS, a native of Nepal

RUBUS PURPUREUS. Himalayan raspberry. Akhi of Kulu.—*Cleghorn's Punjab Report, Kullu and Kangra, p.* 81.

RUBUS RUGOSUS is described by Graham as found in Mahableshwar. *Riddell.*

RUBUS TILIACEUS. *Sm.*

Pulla........Kangra.

A black fruited species not uncommon from 4,500 to 8,500 feet, up to the Indus. The fruit is black and not much prized.—*Dr. J. L. Stewart, M. D.*

RUBY.

Yakut....Ar.... ...	Hind.	Merab; Manekam	Malay
	Pers.	Lanka-ratti	Singh.
Rubis...	Fr.	Ruby......	Sp.
Rubin...	Ger.	Kembu kalloo......	Tam.
Lal.......................	Hind.	Kempu Rai...	Tel.
Rubino...	It.	Yakut...	Turk.

Ruby and sapphire though differing so greatly in appearance, are chemically the same substance, pure alumina. The ruby of Pliny includes the ruby, the pyrope, the almandine and red jacinth. The ruby is not affected by the fire, acausti, but the garnet fuses into a dark globule of oxide of iron. The spinel ruby is a perfect octohedron, but the common garnet is a rhombic dodecahedron. The best come from India, Burmah and Ceylon, Bohemia furnishes an inferior article, they are found in Ava, Siam, the Cupelam mountains, ten days journey from Syrian, a city in Pegu, Ceylon, India, Borneo, Sumatra, on the Elbe, on the Espailly in Auvergne and Iser in Bohemia. Ruby or red sapphire is the most valuable of all gems when of large size, good colour and free from flaws. The ruby, in colour varies from the highest rose tint to the deepest carmine, but the most valuable tint is that of "pigeon's blood" a pure deep rich red. The spinel ruby and Balas ruby belong to the spinel class of minerals as also are several of the gems sold as Ceylon rubies. Tourmaline, when of a red colour is called Brazilian ruby, and this term is also applied to the artificially coloured topaz star rubies are asteriated corundrums. The ruby brings a higher price than he diamond, ranges as under;

Carat... ...	1	1½	2	3	4
£	14	25	70	200	400
	20	35	80	250	450

Tourmaline is sometimes mistaken for the ruby, and the pink topaz for the Balas ruby. Spinel and Balas rubies are found in Ceylon, Ava, Mysore, Beluchistan—the spinel ruby is comparatively of little value, but they are often sold for a true ruby and the true ruby is occasionally parted with as a spinel ruby. The best have the redness of the alchermes dye: the Balas ruby is of a more diluted colour or of a lilac: the spinel is of the richest crimson tinged with blue. Both the spinel and the balas ruby possess the property of becoming electric in a very high degree, to the same extent as the sapphire and the Brazilian topaz: the almandine garnet is non-electric. The Oriental ruby is surpassed in hardness only by the diamond and sapphire. Green ruby is a rare variety of the precious corundum and ought properly to be called an emerald. Ruby is less hard than the sapphire: spinel is even softer. In Ceylon, the ruby, amethyst, topaz, sapphire and cinnamon-stone are found in great abundance, but not emeralds: sapphire, spinel, chrysoberyl and corundum are also found in Ceylon. The sapphires which are red, purple, yellow, blue, white and starstone, are met with at Matura and Saffragam, and rubies and sapphires at Badulla and Saffragam. The corundum is very plentiful at Battagamana, on the banks of the river Agiri Kandura. The great bulk of the gems, however, come from Ratnapura, which means the city of gems, the river near which is regularly worked. Ceylon affords all the varieties of quartz; as rock-crystal, amethyst, rose-quartz, cats'-eye, and prase: rock-crystal occurs in abundance, both massive and crystalized, of various colors, good quality and in large masses. Amethyst also is pretty abundant. *Ceylon Ruby*, is a term applied in England, to the garnets and carbuncles which come from Siam through Ceylon and also to peculiar tinted alamandines. The stones are of a rich red tinged with yellow. They are superior to those of the mine of Zobletz in Silesia from the Tyrol and from Hungary. Under the designation "Ceylon rubies" jewellers obtain a large price for them from the ignorant. A stone of a fine rich tint, free from flaws, of a certain size, will range from £8 to £10. Gems are found in the flat country around Ballangodde S. E., of Ratnapoora, on the western plains between Adam's peak and the sea; – at Neueraellia, in Oovah, at Kandy, at Matelle in the Central Province, and at Ruanelle near Columbo, at Matua, and in the beds of the rivers eastward towards the ancient Mahagam. But the chief gem district is in the plains at the foot of the stupendous hills of Saffragam. Next in rank to diamonds according to the ideas of the native jewellers of India, come rubies. They must be hard and transparent, "shafaf." The most esteemed kind is the yakut rumani, "whose color is like the seed of a pomegranate." There are inferior kinds of rubies, classed as "lalri," and garnets' tambra, &c. They enumerate among rubies the "dudi' or tansala, which is a kind of "smoky" cairngorm, and the "naringi," which is supposed to be the jacynth also called gulmidak, and which English jewellers sometimes erroneously call "cinnamon ruby." The kinds distinguished by the appellation, "zafrani," and "zard," or phokraj, are pale and dark topazes. Included as a sort of rubies, also, come sapphires, called by the epithets, "kabud," "asmani," "surmai" color of antimony, blue grey. A native jeweller informed Mr. Powell that they came from "Jazirah Pigu," by which he meant Burmah. The blue rubies are sapphires and are brought from Ceylon.

Balas Ruby is a term used by lapidaries to designate the rose-red varieties of spinel. It should be carefully distinguished from the oriental ruby, the sapphire, a gem of much greater variety and value.

Badakshan had been famed since the time of Maroo Polo as the country producing the true Balas ruby, but is not now known to produce any: it still produces the Lapis lazuli. A ruby worn on the finger is supposed to protect the wearer from nightmares in his sleep and from evil dreams.

Rubies of Badakhshan are found in limestone. Spinel, sapphire, corundum and chrysoberyl occur in Ceylon, in gneiss or granitic rock: spinel is comparatively rare. Dr. Davy got small and very beautiful crystals of it, which were said to have been brought from the interior, and he found it in specimens of clay iron-ore, from a part of the Kandyan country where gneiss is the prevailing rock. Sapphire is much more common, it occurs in considerable abundance in the granitic alluvion of Matura and Saffragam, and in the neighbourhood of Avisavelli, and on the Neuraellyiapatam. The corundum of Battagammana is frequently found in large six-sided prisms, is commonly of a brown colour, whence it is called by the natives "Curundu galle" cinnamon stone ; occasionally it is to be met with partially or entirely covered with a black crust, which is merely the stone with an unusual proportion of iron. In the beds of the rivers south and east of the mountain chain in Ceylon, the sands are so rich in comminuted fragments of mica, quartz, sapphire, ruby and jacinth, as in some places to be used by lapidaries in polishing the softer stones and sawing elephant's grinders into plates. Dr. Gygax considered the original matrix of these rubies to be a stratum of decomposed grey granite at Ylima Pohura on the south-eastern decline of the Pettigalle Kanda. Rubies have, from time to time, been discovered in many of the corundum localities of Southern India, associated with this gem, particularly in the gneiss at Viralimodos and Sholasigamany. It occurs also in the Trichingode talook and at Mallapollaye, but it is, comparatively speaking, rare.

The ruby mines of Burmah are separated from the valley of the Irawadi, by a noble range of mountains, which are only occasionally visible from the town of Male, owing to the constant fogs and mists that hang around, and snow lies on them for four months of the year, beginning with the middle or end of November. They are situated north-east from Mandalay and distant about sixty or seventy miles. The principal road to them leaves the Irawadi at Tsinguh-Myo, and passes through Shuemale. There are other roads, from Tsampaynago and other villages to the north. The mines lie nearly due east from the village, being separated from the valley of the Irawadi by the lofty range of the Shuedoung mountains. The villages in the immediate neighbourhood of the mines are Kyatpen, Mogouk, and Katheyuwa. The precise limits within which the gems are found are unknown, but they are, or have been, procured over an area of probably 100 square miles. The mode of seeking for them is simply sinking pits until the gem-bed or ruby earth is met with, this is then raised to the surface and washed. The gem-bed is met with at various depths, sometimes not more than two or three feet from the surface, and occasionally not at all. When the layer of earthy sand containing the rubies is met, lateral shafts are driven in on it, and the bed followed up, until it either become necessary to sink another pit in it or it become exhausted. It varies in thickness from a few inches to two or three feet. The rubies are, for the most part, small, not averaging more than a quarter of a rutti, and when large are generally full of flaws. Well marked crystals occasionally occur, but the vast majority of stones are well rounded and ground down. It is very rare to find a large ruby without flaws : and Mr. Spears states that he had never seen a perfect ruby weighing more than half a rupee. The same authority mentions that the sapphires are found in the same earth with the rubies, but are much more rare and are generally found of a larger size. Stones of ten or fifteen rutti without a flaw are common, whereas a perfect ruby of that size is hardly ever seen. The largest perfect sapphire he ever saw weighed one tikal. It was polished, but he has seen a rough one weighing twenty-five tikal. For every five hundred rubies, he does not think they get one sapphire. You see very small sapphires in the market, while small rubies are abundant and cheap. The value of the gems, rubies, and sapphires, obtained in a year may be from 1¼ to 1½ lac, from £12,500 to £15,000. They are considered the sole property of the king and strictly monopolized, but, notwithstanding the care that is taken, considerable quantities are smuggled. There are about twenty lapidaries or polishers of these stones at Amarapoora ; they are not allowed to carry on their trade at the mines. For polishing, small rubies and worthless pebbles brought from the mines being pounded fine and mixed up with an adhesive substance, and then made into cakes, some ten inches long by four broad, are employed to rub down the gem. After it has been brought to the form and size required, another stone of finer grain is employed. The final process is performed by rubbing the ruby on a plate of copper or brass until it is thoroughly polished, when the gem is ready for the market. Rubies of Burmah are not exported to any large extent, and then only stones of inferior value. But a pink spar found in the ruby district is a more important item of export. It is believed to be used for one of the classes of distinctive mandarin cap-knobs. All attempts of Europeans to visit the Burmah mines have hitherto been frustrated by various impediments thrown in their way by the Burmese authorities, who are very zealous of too close a scrutiny into the source of wealth on which they so much pride themselves. Great numbers of these gems are brought down to Rangoon for sale, but a heavy price is always demanded for them, and it requires an experienced eye to purchase them with a view to profit. Topazes are also found in the vicinity of the rubies and sapphires, but they are scarce, and fetch a higher price in Burmah than they would realise in England.

Spinel Ruby. Mr. Mason says that by far the larger proportion of the rubies offered for sale, are, it is believed, spinelle rubies. He had a small specimen which every native who had seen it, regarded as one of the best kind of rubies, or red sapphire, but its natural crystalline form is easily recognized, as a regular octahedron ; while that of the oriental ruby is a six-sided figure, or some of its modifications. The spinel is seen of all shades blood red, the proper spinelle ruby ; rose red, the balas ruby ; orange or red rubicelle ; and violet colored or almandine ruby. It is not an easy task to distinguish, accurately, the true character of the different stones offered for sale as rubies. Both Europeans and Natives often make great mistakes. An English officer bought a "ruby" in Maulmein a few years ago, for fifteen rupees, his friend bought one for five rupees : and the rubies were thought to be of nearly equal value ; but on walking into a jeweller's shop in Calcutta, a year or two afterwards, the jeweller offered four hundred and fifty rupees for the one but refused to give two rupees for the other characterizing it as " a worthless garnet.

Tavernier gives the figures of a ruby that belonged to the king of Persia. It was in shape and bigness like an egg, bored through in the middle, deep coloured, fair and clean, except one flaw in the side. They would not tell what it cost, nor what it weighed ; only it had been several years in the treasury. He likewise gives the figure of a Balleis ruby, sold for such to Giafer Khan, uncle of the Great Mogul who paid 9,50,000 rupees =1,425,000 livres for it. But an old Indian jeweller affirming, afterwards, that it was no Balleis Ruby, that it was not worth above 500 Rupees, and that Giafer Khan was cheated ; and his opinion being confirmed by Shah-Jehan, the most skilful in jewels of any person in the empire, Aurengzeb compelled the merchant to take it again, and to restore the money back. Tavernier gives also the figure of a ruby belonging to the king of Visapour. It weighed fourteen mangelin, or seventeen carats and a half ; a Visapour mangelin being but five grains. It cost the king 14,200 new pagodas, or 74,550 livres. Also he figures a ruby that a Bapia showed him at Beuares, it weighed 58 rutti or 50$\frac{3}{4}$ carat ; being of the second rank in beauty ; in shape like a plump almond bored through the end. He offered 40,000 rupees, or 6,000 livres for it , but the merchant demanded 55,000 rupees.

The largest oriental ruby known was brought from China to Prince Gargarin, governor of Siberia ; it afterwards came into the possession of Prince Menzikoff and now constitutes a jewel in the imperial crown of Russia." *Eng. Cyc. p.* 151. *King, p.* 56. *Emmanuel, Tavernier's Travels, p.* 149, 150. *Ainslie's Mat. Med. p.* 166. *Calcutta Cat. Exhib. of* 1862. *Newbold in Madr. Journ. Lit. and Science. Mason's Tenasserim. Madras Central Museum. General Edward Ferrier's Journey, p.* 252, 253. *Davy's account of Ceylon, Mr. Powell's Handbook of the Panjab.*

RUBYU. BENG. Dellenia speciosa.

RUCERVUS DUVAUCELLI. *Cuv.*

Cervus Duvaucelli ...*Cuv.*	Cervus elaphoides *Hodgs.*
Rucervus elaphoides *Hodgs*	
Buraya... ....HIND.	Bara Singha ......HIND;

See Deer ; Mammals.

RUCERVUS ELAPHOIDES. *Hodg.* Syn. of Rucervus duvaucelli. *Cuv.*

RUCH. AR. Sulphuric acid.

RUCKTA-CHANDUN. HIND. Saunders wood ; Pterocarpus santalinus. *B & H.* Adenanthera pavonina.

RUCTA KANCHAM. BENG. Bauhinia variegata.

RUCTANALA. SANS. Chenopodium album. *Linn.*

RUCTA SIMUL. HIND. Bombax Malabaricum.

RUCTA-NUMBULA. BENG. Nymphæa rubra.

RUCTA-PADMA. *B. & H.* Nelumbium speciosum.

RUCTA-UTEPALA. SANS. Nymphæa odorata.

RUDAK, a district in the N. W. Himalaya. Benedict Goez, a Portuguese monk, went from Lahore, by Kabool to Kashgar, and across the sandy desert, into China, where he died in A. D. 1607 ; his route was far north of Tibet. Anthony Andrada, a Jesuit passed through Kumaon to the Manasarawa lake, and thence went on Rudak, on the western confines of Tibet. His journey was made in 1624, and is discredited by commentators and geographers, because of his mentioning this lake as the source of the Ganges and Indus, instead of the Sutlej. There is no doubt, however, that the voyage is genuine, though we have no details of it.—*Prinsep's Tibet, Tartary and Mongolia, p.* 12. See Rudok.

RUDAKI, about the close of the 9th century, translated the fables of Bed-Pai from Arabic into Persian and received 80,000 dirhams for his labours.

RUDBECKIA FULGIDA, a showy plant, grows in any common soil, attains a large size, and is adapted for a shrubbery; the colours of the species are chiefly yellow, and orange propagated by seed or by dividing the roots.—*Riddell.*

RUDDER FISH. Caranx Rottleri ?

RUDDHUA. See India.

RUDDY SHELDRAKE. Casarca rutila.

RUDHI also Vriddhi. TEL. The two different names of the ashta varga or eight roots celebrated in the Indian Materia Medica. They are only from Nepal or Northern India and have never been identified.—*As. Res. xiii.* 410, *4to. edition.*—See Kakoli.

RUDOK, a district in the neighbourhood of Lake Tso Mognalari L. 38 N. and L. 80 E. See India; Ladak; Pangkong Lake; Rudak.

RUDRA, in the Rig-Veda, is spoken of as an inferior god: one of a kind of semi-divine beings (eight in number,) now usually regarded as manifestations of Siva, but in the earlier ages of hindu mythology connected with the worship of Vayu or the wind. The eight Rudra are thus enumerated in the Vishnu Purana,—Rudra, Bhava, Sarva, Isana, Pasupati, Bhima, Ugra, Mahadeva, most of which are merely other appellations for Siva. Brahma, assigned to them as their respective stations the sun, water, earth, air, fire, ether, the ministering brahman, and the moon. These are their types or representatives in this world. In other places the Rudra are described as eleven in number, and as children of Kasyapa and Surabhi.—*William's Story of Nala, p. 40. Vishnu Purana, p.* 58. See Hindoo; Siva; Indra; Inscription.

RUDRA DAMA. See Inscription; Junagurh.

RUDRA DEVAH. See Inscriptions.

RUDRA-BHUMI. TEL. The place of incremation of deceased hindus.

RUDRACHA or BADRACHA. TAM. Elæocarpus tuberculatus.

RUDRA-CHALLU also Rudra-kai. TAM. Fruit of Elæocarpus prinoides.

RUDRA JADA. TEL. Ocimum basilicum.

RUDRAKAYA. BENG. DUK. TEL. Elæocarpus prinoides.

RUD KHANA. See Khozdar.

RUDRAKSHA. The fruit of the Elæocarpus made into a rosary and worn by the Saiva hindoo as very sacred.

RUDRAKSHA CHETTU. TEL. Guazuma tomentosa, *Humb.* Commonly called the "bastard-cedar." Introduced by Dr. James Anderson with a view to supply food for cattle, for which purpose its foliage is much used in Mexico, whence Willdenow's name Bubroma guazuma.

RUDRAKSHA KAMBA or Kadamba TEL. Nauclea cadamba, R.? The fruit of this tree bears some resemblance to that of the true Rudrakahsa or Ganitrus sphæricus, a tree peculiar to the mountains of Northern India, hence the application of the name.

RUDRAKSHA PENDALAM. TEL. Dioscorea crispata, R.

RUDRA KUDAPA. TEL.

Rudra cuddapah ...TEL. | Roodra kurpah ...HIND.

RUDRA SAH. See Inscriptions; Junagurh.

RUDRA SAMPRADAYI, or Vallabha-Chari, a sect of vaishnava hindus, founded by Vallabha Acharya, who originated the worship of Bala Gopala, the infant Krishna. This worship is very widely diffused amongst all ranks of India society, but is perhaps best known as the religion of the Gokulast'ha Gosains, the title of its teachers. Vallabha was son of a Telinga brahman. He taught that privation was not sanctity, and that it was the duty of the teachers and his disciples to worship their deity, not in nudity and hunger, but in costly apparel and choice food; not in solitude and mortification, but in the pleasures of society and the enjoyment of the world. The gosains or teachers, like Vallabha, are always married men, always clothed with the best raiment and fed with the daintiest viands by their followers over whom they have unlimited influence. The followers of the order are especially numerous amongst the mercantile community, and gosains are constantly travelling over India under the pretence of pilgrimage, but reconcile to themselves on these occasions, the profits of trade with the benefits of devotion. Zealous disciples devote to the guru the threefold Samarpana, *Tan*, *Man*, *Dhan*, or body, mind, and wealth. The temples and houses of the sect have metal, often gold, images, of Gopal, of Krishna and Radha, and other divine forms connected with the incarnation. The idol is richly decorated and sedulously attended in daily ceremonials. Besides their public demonstrations of respect, this sect keep pictures and images of Gopal in their houses; and before sitting down to any of their meals, they take care to offer a portion to the idol. Those of the disciples who have performed the triple Samarpana, eat only from the hands of each other, and the wife or child that has not exhibited the same mark of devotion, can neither cook for such a disciple nor eat in his society. Vittala Nat'h was the son and successor of Vallabha, Vittala had seven sons, all of whom were teachers, and their followers, though in all essential points the same, form separate communities. Those of Gokulnath, however, look on their own Gosains as the only legitimate teachers of the faith. The worshippers of this sect are very numerous and opulent, the merchants and bankers, especially those from Guzerat and Malwa, belonging to it. Their temples and establishments are numerous all over India, but particularly at Mathura and many hundreds at Bindrabun. But at Sri Nat'h Dwar, at Ajmir, is the most celebrated, most highly venerated, and most richly endowed of all the Gosain establishments. It is a matter of obligation with members of this sect to visit Sri Nat'h Dwar at least once in their lives, and the head Gosain presents them with a certificate to that effect. The indecent and immoral character of this sect was notoriously brought before the public of *India*, in the trial for libel instituted in 1862, at Bombay, by one of the teachers of the sect, and known as the "Maharajah case." It was shown by the evidence then adduced that the women of the wealthiest of this sect deemed it an honour to receive their priest's attentions for which the priest withdrew with the woman of his selection, selected in the midst of, and from amidst hundreds of her fellow worshippers and it was also in evidence that the *Maharajah* allowed people to see him associating with his selection. In 1868, in Bombay, during the holi, indecent pantomimes were shown by this sect before a concourse of men and women. It is the Bania and Bhattya races who chiefly support this sect.—*Wilson. Times of India.* See Hindoo; Vallabha Acharya.

RUDRA SENA. See Inscriptions.

RUDRA YAMALA. See Tantra.

RUE.

Rue	FR.	Ruta	IT. LAT.
Raute	GER	Ruda	SP.
Suddap	DUKH.	Sadab	MALAY.
Saturi	HIND.	Arooda	TAM.

In India, this name is given to the herbs of **Ruta angustifolia** of R. graveolens and of R. **indica**. R. graveolens is an evergreen shrub, grows freely in any good soil, propagated by cuttings in damp weather, used for fowls in the roup. Leaves dried and burnt are much used in Southern India for the purpose of fumigating young children suffering from catarrh, also used fresh bruised and mixed with arrack as an external remedy in the first stages of paralytic affections. When dried in the shade and powdered the vytians prescribe this substance in conjunction with certain aromatics in cases of dyspepsia, they likewise entertain the same notion regarding it that Dioscorides did of old, viz. that it is inimical to the fœtus in utero when given together with camphor and the sugar of the palmyra toddy. In making confection of rue, the herb of dried rue, the sudab of the bazars of N. W. India, may be substituted.—*Jaffrey. Ains. Materia Med. p.* 38. *Beng. Phar. p.* 273.

RUELLIA, a genus of plants, of the natural order Acanthaceæ, of which several species occur in the south and east of Asia. Roxburgh and Wight name the following species, but several have been transferred to other genera;

balsamica.
bracteata.
cernua.
comosa.
dependens.
pasciculata.
flagelliformis.
flava.
hirsuta.
hirta.
imbricata.
infundibuliformis.
latebrosa.
longifolia.
maculata.
obovata.
patula.
pavala.
punctata.
racemosa.
ringens.
salicifolia.
sarmentosa.
suffruticosa.
triflora.
uliginosa,
and
zeylanica.

From one wild species, called in Assam, room, a very valuable dye is prepared after the manner of indigo. This plant (or a species very nearly allied to it) is also cultivated with the same object in Pegu and other parts of the Burmese empire, under the name of Mai-gyee. It is believed that the room contains indigo allied to that produced by species of Isatis and Wrightia. The source of this dye has been referred to Ruellia comosa. That produced at the hills occupied by the Miri and Duflah tribes, of North Assam, and produced at the hills occupied by the Mishmee and Abor tribes, Suddyah, Luchimpore, Upper Assam, is of value 1½*d.* per lb. The room is employed in its raw state by the Khampti and Singpho to dye their clothes of a deep blue. It is described by the late Dr. Griffiths as a valuable dye and highly worthy of attention. It might perhaps be usefully employed as the ground for black dye.

RUELLIA CERNUA, *Roxb.* grows in Mysore R. Comosa, *Roxb.* is a plant of the Moluccas. R. hirta, *Vahl* grows in Telingana R. indigofera, *Griff* is the My-gye, of the Burmese.—*Voigt. Roxburgh. Wall. Hooker.*

RUELLIA INDIGOFERA. The Burmese cultivate a low Ruellia plant as a substitute for indigo which is the "room" of Assam, from which country it has probably been introduced. It forms a blue dye not inferior to that produced by the true indigo plant.—*Mason.*

RUELLIA INDIGOTICA, in one part of the Chekiang province, of China, and also amongst the Fung hwa mountains to the westward of Ningpo, there are large quantities of a blue dye produced, which is in fact the indigo of that part of the country. Fortune, in his 'Wanderings in China,' published in 1846, gives an account of a valuable kind of indigo, made from a species of woad (Isatis indigotica) which is cultivated extensively in the level country a few miles to the westward of Shanghae. The kind in Chekiang is equally valuable, if not more so. It is made from a species of Ruellia, which until it gets a better name, may be called Ruellia indigotica, the same plant, apparently, has been discovered in the Assam country in India, where it is also cultivated for the blue dye it affords; alongside of the Chinese kind, they bear a most striking resemblance. This Ruellia seems to be easily cultivated, it grows most luxuriantly, and is no doubt very productive. Having evidently been found indigenous a little further to the south, in a warmer latitude, it is not hardy in the province of Chekiang any more than cotton is about Shanghae; but, nevertheless, it succeeds admirably as a summer crop. It is planted, in the highland valleys, in the end of April or beginning of May, after the spring frosts are over, and is cleared from the ground in October before those of autumn make their appearance. During this period it attains a height of a foot or a foot and a half, becomes very bushy and is densely covered with large green leaves. The Chinese method of preserving plants for next year's crop is most ingenious and well worth notice. Being somewhat tender, the roots which are left in the ground after the gathering season are all destroyed by the first frosts of winter, and to the formation and preservation of cuttings the Chinese cultivator directs his attention. When the stems are cut down for the manufacture of indigo, a sufficient quantity have their leaves stripped off, and are afterwards taken into a house or shed to be properly prepared. The leaves thus stripped from the cuttings are thrown into the tanks with the other stems and leaves so that nothing is lost except what is actually required for the purposes of propagation. The stems are now tied up firmly in large bundles, each containing upwards of 100, and the ends of each bundle are cut across, so as to leave them perfectly neat and even both at top and bottom. These bundles are each about a foot long, and, of course, nearly round. Having been thus prepared they are carried to a dry shed or outhouse, where, in some snug corner, they are packed closely and firmly together, and banked round with very dry loam. A portion of the dry soil is also shaken in between the bundles, and this being done the operation is complete. Should the winter prove unusually severe, a little dry straw or litter is thrown over the surface of the cuttings, but nothing else is required. During the winter months, the cuttings remain green and plump; and although no leaves are produced, a few roots are generally found formed, or in the act of forming, when the winter has passed and the season for planting has come round. In this state they are taken to the fields and planted. The weather during the planting season is generally showery, as this happens about the change of the monsoon, when the air is charged with moisture. A few days of this warm showery weather is sufficient to establish the new crop, which now goes on growing with luxuriance, and requires little attention during the summer; indeed none, except keeping the land free from weeds. In the district where this dye plant is grown, there are numerous pits or tanks on the edges of the fields. These are usually circular in form; one measured eleven feet in diameter, and two feet in depth. About 400 catties of stems and leaves are thrown into a tank of this size, which is then filled to the brim with clear water. In five days the plants are partially decomposed, and the water has become lightish-green in colour. At this period the whole of the stems and leaves are removed from the tank with a flat-headed broom made of bamboo twigs, and an admirable instrument for the purpose. When every particle has been removed, the workmen employed give the water a circular and rapid motion with the brooms just noticed, which is continued for some time. During this part of the operation another man has employed himself in mixing about thirty catties of lime with water, which has been taken out of the tank for the purpose. This is now thrown into the tank and the rapid circular motion of the water is kept up for a few minutes longer. When the lime and water have been well mixed in this way the circular motion is allowed to cease. Four men now station themselves round the tank and commence beating the water with bamboo rakes made for this purpose. The beating process is a very gentle one; as it goes on the water gradually changes from a greenish hue to a dingy yellow, while the froth becomes of a beautiful bright blue. During the process the head workman takes a paleful of the liquid out of the tank and beats rapidly with his hand. Under this operation it changes colour at once, and its value is judged of by the hue it presents. The beating process generally lasts for about half an hour. At the end of this time the whole of the surface of the tank is covered with a thick coating of froth of the most brilliant colours, in which blue predominates, particularly near the edges. At this stage, it being desirable to incorporate the froth with the liquid below it, there is made a most beautiful chemical operation and shows how universally must be the knowledge of the effect of throwing " oil upon the waters." A very small portion of cabbage oil—only a few drops, is thrown on the surface of the froth, the workmen then stir and beat it gently with their flat brooms for a second or two, and the whole disappears as if by some enchanter's wand. And so small a quantity of oil was necessary for this purpose that even when the cup has been emptied, and has only the oil that is necessarily adhering to its edges, it was thrown into another tank, and produced the desired effect. The liquid, which is now darker in colour is allowed to stand quiet for some hours, until the coloring matter has sunk to the lower stratum, when about two-thirds of the surface is drawn off and thrown away. The remaining third part is then drawn into a small square tank on a lower level, which is thatched over with straw and here it remains for three or four days. By this time the colouring matter has separated itself from the water, which is now entirely drained off—the dye occupying three or four inches of the bottom in the form of a thick paste, and of a beautiful blue colour. In this state it is packed in baskets, and exposed for sale in all the country towns in this part of China. What its intrinsic value may be when compared with the indigo of commerce, there are no means of ascertaining but it is largely used in China, where blue is the most fashionable colour, judging from the dresses of the people, and it is possible that with European knowledge of chemistry a colour of this kind might be greatly improved. After being grown and manufactured, it is sold at rates varying from 50 to 100 cash a catty, say from 2*d*. to 4*d*. per lb. Some is sold as low as 30 cash, but this is very inferior, the greater part produced is sold at from 60 to 80 cash a catty, and it must be of a very superior quality if 100 cash is paid. Like the Shanghae indigo made from Isatis indigotica, it is called " Tien-ching" by the Chinese. During the season of its preparation every mountain stream is colored and polluted with the refuse liquid drawn off from the tanks and the stench which fills the air is almost unendurable.—*Fortune's Residence among the Chinese, page* 189. *Fortune's three years Wanderings in China Fortune's Residence.*

RUELLIA LONGIFOLIA.—*Roxb.* Syn. of Astracantha longifolia.—*Nees.*

RUELLIA RINGENS.—*Linn.*

Upu-dala. HORT. MAL.

The juice of the leaves of this plant, boiled with a little salt is supposed, on the Malabar coast, to correct a depraved state of the humours. *Rheede's Hortus Malabaricus, Part 9th, p.* 125.

RUELLIA INTRUSA. *Vahl.* R secunda, *Vahl.* R. zeylanica *Roxb* are Syns. of Asystasia coromandeliana.—*Nees.*

RUELLIA STREPENS.

Whorl Flowered Ruellia.

Kirendinyagum...TAM. | Grendio Tagarum...SANS.

The small purple coloured leaves and berries of this low growing plant are subacid and bitterish to the taste. When bruised and mixed with castor oil they form a valuable application in cases of children's carpang.—*Ains. Mat. Med. p.* 83.

RUFAEE, an order of the mahomedan devotees styled darvesh or faker.

RUFFICKEE, a plant, from the fibres of its bark the Lepeha near Darjeling make remarkably light and strong fishing nets.

RUFU-KARI, or Raffu-Kari, HIND. Darning.

RUG. DAN. Rye.

RUG. The principal site of the manufacture of the woollen rugs was long the town of Ellore, in the Northern Circars of the Madras Presidency, but they are now made in Mysore and of any size, to order, they are usually three feet broad and six feet long, and much employed as sleeping rugs, and rugs for the drawing room. They have latterly been exported largely to England where they are employed as hearth rugs: they are of various colours, prettily arranged, and sell from four to fourteen rupees according to size.

RUGTRORA, in the Bombay side of India, a vernacular name of several plants the Tecoma undulata, *Don*; Rhamnus Wighti, Soymida febrifuga; Mabainigrescens, *Dalz*; and Polygonum glabrum.

RUG VEDA, properly Rig Veda, the first of the inspired Vedas; Rig, signifying the science of divination, of which it principally treats, it also teaches Astronomy, Astrology, Natural Philosophy, and gives a particular account of the formation of matter, and the creation of the world. Sama Veda, is the 3rd of the inspired Vedas, and treats of all religious and moral duties; it also contains many hymns in praise of the Supreme Being, as well as verses in honor of the gods.

RUI. HIND. Cotton. Gossypium herbaceum

RUIBARBO. PORT. SP. Rhubarb.

RUJGIRI KI BHAJI. DUK., properly Raj giri See Moolay keeray.

RUJHERA, a streamlet near Moradabad.

RUJUB, the seventh mahomedan month. Rujub salar ki Kundori, a mahomedan ceremony.

RUJUNEE-GUNDHA. Beng. Tuberose polyanthus, Polianthus tuberosa.

RUHMUTAR, the night of mercy.

RUHUM PINDEEAN, a ceremony.

RUKAIAH BEGUM, Akbar's first wife. She died at 84 years of age about a year and a half before Jahangir's death.—*Cal. Rev. for Jan.* 1871.

RUKAT DOGANA, two rukat prayers.

RUKATANNA GASS. Singh. Alstonia scholaris, *R. Br. Don.*

RUKAWIZII. Rus. Gloves.

RUKCHU in L. 33° 14′ N. L. 77° 50′ E., in Ladak, a pasture ground in an old lake basin between the Lacha Lung and the Takelang pass. The mean height of the lake basin is 15,764 feet above the sea. Rukchu is the most elevated district of Ladak, and one of the loftiest inhabited regions of the known world, the mean height of its plains being 15,634 feet. *Schl.* See Ladak. Pangkong Lake ; Shaw-goat.

RUKH. Hind. Tamarix dioica, T. orientalis.

RUK'H. Hind. A shikar-gah, a reserve, properly Rakh.

RUKHAN. Hind. Sizygium jambolanum.

RUK-HARA. A saiva religious sect of mendicants, similar to the ukhara, but do not carry a stick nor wear the Rudraksha ear-rings, but in their place metallic ones. See Ukhara.

RUKHENG, the name given to the language of Arracan. See Mru or Tung Mru.

RUKHAJ. More properly Rukhkhaj, from which, preceded by the Arabic article as (al Rukhaj) comes the Arachosia of the ancient geographers. Rukhaj one of the dependencies of Sijistan, the chief town of which bearing the same name, was situated on the Hindmaud or Helmand.

RUKHTA CHANDANA. Hind. Pterocarpus santalinus.—*Linn. Roxb.*

RUKHTA-KANCHUN. Bauhinia purpurascens, var. of B. variegata.—*Roxb.*

RUKHTA SHIMLU. Beng. Bombax Malabaricum.

RUKHTUNEE. A douceur, a vail or vale, a perquisite.

RUKMINI. The only lawful wife of Krishna, daughter of Bhishmaka, raja of Vidarbha, carried off by Krishna. See Kama.

RUKNABAD. A brook near Shiraz, celebrated by Hafiz. It is an insignificant stream.

RUKN-UD-DOULAH, Hassan ebn Buiah, See Kanat.

RUKR. Hind. Jhilam district, bad soil.

RUKTA CHANDUN. Beng. Adenanthera pavonina.

RUKT CHANDUN. Mar. Pterocarpus marsupium, also Adenanthera pavonina.

RUKTA SIMUL. Beng. Hind. Bombax Malabaricum. Salmalia Malibarica *Schott.*

RUKTO CHANDANA. Hind. Beng. Pterocarpus santalinus.—*Linn.*

RUKTO CHITRA. Beng. Plumbago rosea.—*Linn.*

RUKTO PUIN. Beng. Basella rubra.

RUKTOPUL. Beng. Red water lily, Nymphæa rubra.

RUKT REORA, also Rakt Rora. Mahr. Bignonia undulata.—*Roxb.*

RUKTU-BUN-POOIN. Beng. Basella rubra.

RUKTU-CHITA. Beng. Rose-colored lead wort, Plumbago rosea.

RUKTU-CHUNDUN. Beng. Red Saunders wood, Pterocarpus santalinus, also Adenanthera pavonina.

RUKTU-GURAN-YA-ALOO. Beng. Dioscorea purpurea.

RUKTU-KUMBUL. Beng. Nymphæ rubra.

RUKTU-KURUBER. Beng. Nerium rubro-simplex.

RUKTU-KANCHUN. Beng. Red mountain ebony Bauhinia purpurascens.

RUKTU-KAMLUTA. Beng. Quamoclit rubrum.

RUKTU-PADMA. Beng. Nelumbium rubrum.

RUKTU-PIT also Ruktu-Pittu. Beng. Ventilago Madraspatana.

RUKTU-POOIN. Beng. Red Malabar night shade, Basella rubra.

RUKTU-SHIM. Beng. Lablab purpureum.

RUKTU-SHIMOOL. Beng. Salmalia Malabarica.

RUKTU-SELENCHI. Beng. Pailotrichum ferugineum.

RUL. Hind. Hippophae rhamnoides.

RULLA KITH MARA. Can. Ficus glomerata.

RULYA, also Rum. Hind. the Red powder from fruit of Rottlera tinctoria.

RUM. A spirit distilled from the sugar-cane.

RUM. Amongst all Eastern mahomedans, this name is applied to Constantinople and European Turkey. See Mesopotamia.

RUMA or Bula Ranbut, or Tailhan Malay Hair.

RUMAGA. Rus. Paper.

RUMAKRA. Guz. Toys.

RUMAL Pers. Hind. Handkerchief; Head-cloth.

RUMANIA BAITUL. also Rumania Paigo, Malay. Syn. of Boueia macrophylla.

RUMAR. Hind. or Rumal in Kangra. Ficus glomerata.

RUMBAL. Hind. Ficus cordifolia also F. glomerata, and F. oppositifolia.

RUMBHA. Beng. Plantain, Musa paradisiaca.

RUMBOWE. See Kedah or Quedah.

RUMBY-A. Malay. The Sago palm.

RUMEX ACETOSA.

Sorrel.................Eng.	Kautli ....Hind.
Chuka ...Hind.	

It is cultivated in Ajmeer, the seed is considered cooling and astringent. It is found in the Sutlej valley between Rampur and Sungnam at an elevation of 6,000 to 8,000 feet also in Kaghan. It is widely distributed.—*Cleghorn's Punjab Report, p.* 67. *Gen. Med. Top. p.* 130.

RUMEX ALPINUS, or Monk's rhubarb, is found on the European Alps, the Crimea, and Mount Caucasus. The roots are large and purgative like rhubarb, and the whole plant so resembles the Rheum that Linnæus himself mistook one for the other.—*O'Shaughnessy, p.* 522.

RUMEX OBTUSIFOLIUS vegetates in Cashmere, and is eaten by the natives. Its root, under the name of Radix Spathiacuti, was formerly used as a purifier of the blood in chronic cutaneous diseases, but is now obsolete, both in India and in Europe its active principle, Lapatin, must, however, have peculiar properties. From the decoctions of the dried roots of various sorts of sorrel, by the addition of alum, can be obtained a fine red color, at a low price, and valuable to painters. Rumex undulatus, *Royle,* is Himaz or Pulkee.—*Thirty-five years in the East, by Dr. Honig. p.* 338.

RUMEX VESICARIUS. *Linn. Roxb.*

Ambari chuka ...Bombay.	Choka........ ... ... Hind.
Chukka ki baji .. Duk.	Turshah...............Pers.
Humbsejt .. ..Egypt.	Chuko ....Sind.
Bladder Dock... ... Eng.	Suri...... ... .Singh.
Sorrel.................. ... ,,	Sukhagu kire......Tam.
Country Sorrel... .. ,,	Sukan kiray...... ,,
Chok ;Chuk ;paleng Hind.	Chukka kura... ...Tel.

Cultivated for greens, &c., grows plentifully about Madras in the fields during the rains ; it has obtained the name of sorrel from the British in India, owing to its great resemblance to the Rumex acetosa in taste and other natural qualities. It is an article of diet and is considered by the Natives as cooling and aperient. This, where water is abundant may be had for eight months in the year ; it is sown in drills or on the edges around other beds ; the leaves are sold in bundles from one to two pice a seer. There is also another species called the Indian Red Sorrel.—*Riddell. Ains. Mat. Med. p.* 257.

RUMI-KHAN. The Portuguese early endeavoured to obtain possession of Diu. Their first effect was defeated by Rumi Khan, commander of the Guzerat army. In 1535, however, Bahadur Shah of Guzerat permitted them to erect a fortress there.... It was completed in 1538, from which time the Portuguese became the terror of the sea, and were able to resist the efforts made to subdue them by the emperor of Turkey, the kings of Bejapore and Ahmednuggur and the zamorin of Calicut.

RUMI MUSTAKI. Hind. Tam. Mastic.

RUMINANTIA, the ruminants or ruminating animals, such as camels, deer, horned cattle and sheep. The ruminants are a tribe of mammals of the order Ungulata, which may be thus shown,

Order UNGULATA. Feet with hoofs, the Pachydermata and Ruminantia of *Cuvier.*

Tribe. Proboscoidea. *Cuvier.*

Fam. Elephantidæ.

Elephas indicus, *Cuv. Bly. Ell.*

Indian elephant...Eng.	E. asiaticus, Blumebach..
Hathi,...............Hind.	Ani, Can. Mal. Tam. Tel.
	Yenu.................. Gond.

Forest parts of all India.

Elephas sumatranus, *Schl.* Sumatra.

Elephas Africanus, *Schl.* Africa.

Tribe. Perissodactyla, *Owen.*

Fam. Rhinocerotidæ.

Gen. Rhinoceros Indicus, *Cuv. Bly.*

R. unicornis, *Linn.*	R. inermis, *Less.*
R. asiaticus, *Blum.*	
Great Indian Rhinoceros	Ganda, Genra... Hind.
Gonda, Genda ... Hind.	

Terai from Bhutan to Nepal, Assam and Bhutan Dooar.

Rhinoceros sondaicus, *Mull. Bly.*

Lesser Indian Rhinoceros. { R. javanicus, *F. Cuv. Hors.*

Sunderbans, Mahanuddy river ; Rajmahal hills, to Burmah, Malayana, Borneo, Java, Assam, Arakan, Sumatra, Chin-India.

Rhinoceros sumatranus. *Mull. Bly.*

Two horned rhinoceros, Eng.

Assam, Sumatra.

Rhinoceros crossii, *Gray.* ? ?.

Qu. R. Sumatranus ? Mull.

Fam. Hyracidæ.

Tribe. Lamnunguia, *Wagner.*

Hyrax syriacus, Coney of Scripture. Palestine, Arabia.

Fam. Tapiridæ. The Tapirs.

Tapirus Malayanus. Malayan peninsula. S. Tenasserim.

Fam. Equidæ. Horses, Asses and Zebras, the Solidungula and Solipedes of authors.

Equus asinus, the Ass.

Equus onager, *Pall. Bly. Owe.*

E. Hemionus of India,	Asinus Indicus, Sclater.
Wild Ass............Eng.	Koulan...........Kireis.
Gor-khar......... ...Hind.	Ghour...............Pers.

Cutch, Guzerat, Bikaner, Jeyselmir, Sind, west of the Indus, Beluchistan, Persia, Turkestan.

Equus hemippus. *Is. Geoff.*

Wild ass of scripture Eng.	E. asinus of the ancients.
Onager of the ancients.	Asinus tæniopus Heug.

Syria, Mesopotamia, North Arabia west of the Onager. Wild horse of Col. Chesney.

Equus hemionus, *Pallas.*

Kiang, Dsightai ... Tib.	Wild Horse, *Cunning.*

Tibet and Central Asia.

Artiodactyla, *Owen.*

Tribe. Chærodia, *Bly.*

The pig and hippopotami.

Fam. Suidæ. Pig.

Gen. Sus Indicus, *Schinz.*

S. cristatus,......*Wagn.*	S. scropha, *Linn. Bly.*
S. vittatus,...... *Schl.*	*Ell.*
Indian Wild Boar...Eng.	Mikka, ... Can.
Sur............ ... Hind.	Jewadi, ,,
Bura janwar, ,,	Pandi,......... ......Tel.
Dukar, ... Mahr.	Paddi, Gond.... Mhar.
Handi...... ... Can.	Kis, ... Bhagulpore.

Ceylon, all India up to 12,000 feet.

Sus Bengalensis, *Bly.*

Qu. *Var.* of S. Indicus, *Schinz.*

Sus Neilgherriensis, *Gray.*

Qu. *Var.* of S. Indicus, *Schinz.*

Sus Malayanus, *Blyth.* Tenasserim.

Sus Zeylanensis, *Blyth.* Ceylon.

Sus Andamanensis, *Blyth.* Andamans.

Sus babyrussa, *Blyth.* Babyroussa. Malayana.

Sus Papuensis, *Blyth.* New Guinea.

Porculia salvania, *Hodgs. Horsf.*

Pigmy Hog.......... Eng.	Chota Sur......... Hind.
Sano-Banel,......Nepaul.	

Nepal and Sikkim Terai, Assam, Bhotan.

Tribe. Ruminantia. Ruminating animals, camels, deer, horned cattle, sheep, in five, groups,

1*st Group.* Camelidæ, camels, Ancerata. *Bly.*

Camelus dromedarius, *Linn.*

Dromedary...... Eng.	One humped camel... Eng.

N. Africa, Arabia, India.

Camelus Bactrianus, *Linn.*

Bactrian or two humped camel, Eng.

Central Asia.

2*nd Group. Fam.* Camelo-pardidæ camel-leopards.

Camelopardus giraffa. *Linn.*

Cameleopard, ...Eng.	Giraffe .... Eng.

Africa.

3*rd Group. Fam.* Cervidæ. The Deer Tribe.

Sub-Fam. Cervinæ. True Stags.

Cervus Wallichii, *Cuv. Bly. F. Cuv.*

C. pygargus,......*Hardw.*	C. elaphus of Asia, *Pallas.*
C. Caspianus...*Falconer.*	C. nareyanus, young
C. Cashmiriensis...*Fal.*	*Hodgs.*
Kashmir Stag ......Eng.	Bara singha... ... H.
Hangul, Honglu, Kashm.	Maral,.......... Pers.

Euxine Sea, Western and Central Asia Persia, Caucasus, Altai mountains, Lake Baikal, Kashmir up to 9,000 and 12,000 feet, Western and Central Asia, Black Sea. Approaches the red-deer of Europe.

Cervus rusa, *S. Muller.*

Russa tunauc, *Vigors.*

Sumatra.

Cervus affinis, *Hodg. Bly.*

Sikim Stag, ... Eng.	Shou, Sia,.......... Tibet.
Irbisch.......... Siberia.	Alain of Atkinson.

Eastern Tibet, Choombi valley in Sikkim, The great stag of N. China.

Cervus Moluccensis *S. Muller.* Moluccas.

Cervus sika, *Schlegel.* Japan.

Cervus peronin, *Gray.* Timor.

Cervus mantchuricus, *Swinh.* Mantchuria.

Cervus taiouanus, *Swinh.* Formosa.

Sub-Fam. Rusinæ, includes the swamp deer, the samber, spotted deer, and kakur or muntjac, all peculiar to tropical Asia and its Archipelago.

Rucervus duvaucelli, *Jerdon.*

C. elaphoides ...Hodgs.	C. euryceros, Knowsley.
C. bahraiya, ,,	Swamp deer... ......Eng.
Bara-singha.......... ...H.	Potiya-harn... Monghyr.
Baraya...Nepal Terai.	Goen, goenjak C. India.
Maha .... Himalaya.	Gaoni (female) ,,
Jhin-kar Kyarda Doon.	

Bengal, Oudh, Central India, Forests at foot of Himalaya, Assam, islands of Brahmaputra or Eastern Sanderbuns, Midnapore, Assam, Nerbudda, Nagpore, Goomsur.

Panolia eldi, *Gnth. Blyth.*

Cervus frontalis, *McClell.*	C. dimorphe ... *Hodg.*
Burmese deer... ...Eng.	Brow antlered deer, Eng.

Burmah, Nepal.

Rusa dimorpha, *Gray* ?

Sung nai.............Hind.	Sing-nai ....Hind.
Tha-min ....Burm.	Ghoa ?
Te min,................. ,,	Seving?
Ghour?	

Nepaul, Munnepore, Burmah Siam.

Rusa Aristotelis, *Jerdon*.

Cervus hippelaphus, *Cuv.*
C. equinus,............ ,,
C. Leschenaultii,... ,,
C niger, *Blaim.*
Samber stag ... ...Eng.
Sambar .... H. Mahr.
Jarai, jerrao... ... ...Him.
Ma-ao ....Gondi.
Kadavi ....Can.
Kadaba .... ,,
C. jarai ... ...*Hodg.*
C. heterocercus,... ,,
C. saumur ......*Ogilby.*
Meru ....Mahr.
Kannadi..............Tel.
Ghous ....Beng.
Gaoj .... ,,
Bhalongi (female) ,,
Maha,............ Terai.

All India, forests up to 10,000 feet. Ceylon, Assam, Burmah, Malay Peninsula.

Axis maculatus, *Gray*. *Bly*. *Cuv.*

Cervus axis... Erxleben.
C. nudipalpebra... Ogilby.
The spotted deer .. Eng.
Chital, chitra, chitri, Hind.
Jhank, (male).......... ,,
Chatidah .. Bhagulpore.
Boro-khotiya .... Beng.
Axis major Hodgson.
Axis medius, ,,
Buriya Goruckpore.
Saraga ....Can.
Dupi ....Tel.
Lupi....................Gond.

A larger kind in E. and W. Ghats, Panjab, Central India. Smaller, Malabar, Ceylon? ? Neilgherries.

Axis oryzeus, *Kelaart*?

Ceylon spotted deer.. Eng. | C. medius ......Hodgs.

Axis porcinus, *Jerdon*. Hog-deer.

Cervus oryzeus, *Kel. Bly.*
C. dodur ....*Royle.*
Hog deer ... .Eng.
Para .... .Hind.
Khar laguna ... ...Nepal.
C. niger, *Buch. Ham.*
Sugoria ....Nepal.
Nuthrini harn...Beng.

Bengal to Panjab, Assam, Silhet, Burmah, Central India rare, Malabar.

Cervulus aureus, *Ham. Sm.* Rib-faced or Barking deer; jungle-sheep or red-hog-deer.

C. vaginalis Boddaert, Blyth.
C. ratwa ....Hodgs.
C. styloceros Ogil. Roy.
Siku, Sikku..........Lep.
Muku ....Lep.
Rakur .... H.
Saya ....Beng.
Katwa ....Nep.
Karsiar ....Bhot.
Gutra; Gutri, ... Gond.
C. albipes, Wagler. Hodg.
C. muntjac, ..., Elliot.
C. moschatus, Bla. Hors
Muntjacus vaginalis. Gy.
Bekra, Bekur .....Mahr.
Kan-kuri ....Can.
Kuka-gori...... ......Tel.
Jangli bakra......Dukh.
Jungle sheep of Madras.
Red-hog-deer ...Ceylon.

All forests and jungles of India.

Cervulus vaginalis, *Sclater*, Java, Sumatra?

Cervulus reevesii, *Ogilby*. China.

Fam. Moschidæ, the Musk deer.

Moschus moschiferus, *Lin. Bly.* Musk deer.

M. saturatus .. ...*Hodgs.*
M. chrysogaster...... ,,
Kastura, kasture......H.
Rous or Roos ...Kashm.
La.................. .....Tibet.
M. leucogaster, *Hodgs.*
Lawa,..................Tibet.
Rib-jo,.............. Ladak.
Bena......... Kunawar.

Himalaya, at great elevations.

Fam. Tragulidæ.

Tragulus kanchil, Malayana.

Memimna Indica, *Jerd.* Mouse-deer.

Moschus memimna Erxleben, Elliot.
Pisuri, Pisora, Pisai, H. Mahr.
Mirgi ....,,
Jitri haran...... ......Beng.
Moschiola mimenoides, Hodgs.
Gandwa, ...Uria.
Kuru-pandi ...... Tel.
Yar .... Kol.

Central India

Fam. Bovidæ. Antelopes, goats and cattel.

Sub-Fam. Antilopinæ, Antelopes.

Sub-Fam. Tragelaphinæ, *Blyth*. Bush Antelopes.

Portax pictus. *Jerdon*. Nilgai.

Hippelaphus of Aristotle
Antelope tragocamelus, Pallas. Blyth.
Damalis risia, H. Smith Elliot.
Ros, Rojh, ...H.
Rui, ... H. Mhar
Tragelaphus hippelaphus. Ogilby.
Antelope pictus, ..Pall.
Gurayi, Guriya,...Gond.
Maravi, ... Can.
Nil-Lil, ...Hind.
Manu-potu,... ...... Tel.

All India, but rare in extreme North and South.

Tetraceros quadricornis, *Jerdon*.

4 Horned Antelope, Eng.
Antelope chickara Hardw.
T. striaticornis ...Leach.
T. iodes, ... Hodgs.
Chouka. ....Hind.
Chou-singha,.... ...Hind.
Bekra,......... ... Mahr.
Bhirki .... Saugor.
Bhir-Kuru, Bhir, Gondi.
Bhirul,......... ....Bhil.
T. paccerois, Hodgs.
A. Sub-quadri-cornutus............Ell.
H. quadricornis, ..,Bl.
Kotri.............. Bastar.
Kurus. .... Gond.
Kondguri,......... Can.
Konda-gori'......... Tel.
Jangli bakra...Dekkan.

All India, not Ceylon nor Burmah, nor valley of the Ganges.

Antilope bezoartica, *Jerdon*. Indian antelope.

A. cervicapra, Pall. Ell.
Mirga,.... . Sansc. Hind.
Harn, Harna, Harnin. (*m.* and *f.*) H. Mahr.
Harin,............ ..Beng.
Kalwit, (Black buck) H.
Phandayat,...... Mahr.
Goria, Goria, Tirhoot.
Kalsar, Baoti, (*m. f.*) Behar.
Hardw. f. Cuv.
Bureta....... Bhagelpur.
Barout, Sasin, ...Nepal.
Chigri,......... ...... Can.
Irri, (*m.*) Ledi, (*f.*) Tel.
Jinka,..................... ,,
Alali, (*m.*) Gandoli. (*f.*) Baori.

All India.

Gazella Bennettii, *Jerdon*. Ravine-deer.

Antilope Arabica, *Ell.*
A. dorcas, *var. Sundevall.*
A. Benettii,.........*Sykes.*
Goat antelope,...... Eng.
Indian Gazelle,...... ,,
Chikara, ... H.
Kal-punch,............ H.
Kal-sipi,...... ......Mahr.
Tiska,.... ....Can.
A. hazenna, *Is. Geoffroy. Jacque.*
A. Christii? ...... *Gray.*
Budari, ,,
Mudari, ,,
Burudu-jinka,...... Tel.
Porsya (*m*) .... Baori.
Chari,.................... ,,

All India.

Gazella subgutturosa? Baluchistan, Sindh, Punjab, Persia, Afghanistan.

Gazella dorcas. *Blyth*.

Antilope Arabica ... *Bly.*
Gazella cora, *H. Smith.*
Gazella kevella...*Himt.*
G. corinna. ,,

A. dorcas, *var.* Persica, *Rupell*

Arabia.

Kemas Hodgsonii. Chiru of Tibet, the Kemas of Ælian.

Procapra picticaudata, *Hodg*.

Goa,.................... Tibet. | Ra-Goa,.......... Tibet

Tibet.

Procapra gutturosa. Auctorum.

Antilope gutturosa, *Pallas*.

Central Asia, China.

Saiga tartarica.

Saiga antelope... Eng.

Eastern Europe, Tartary, Central Asia.

Sub-Fam. Caprinæ, Goats and Sheep. 1st Capricorns or Antelope Goat or Mountain Antelope.

Nemorhœdus bubalina, *Jerd.* The Serow or Forest Goat.

Antilope thar. *Hodg.*
„ bubalina, „
Serow ....Eng.
Forest goat........ „
Thar .... Nepal.

N. proclivus,.........*Hodg.*
Sarao, Serou, Sarraowa. ...Himal.
Eimu .... Sutlej.
Ramu ....Kashm.

Central Himmalaya from 6,000 to 12,000 feet.

Nemorhœdus goral, *Jerd.* Gooral or Himalayan Chamois.

A. Duvaucelei, *H. Smith.*
Pijur.............Kashm.
Sah, Sarr ....Sutlej.

Goral ....Him.
Suh-ging ....Lep.
Ra-giyu...... ... ...Bhot.

Gooral, Himalayan Chamois. All the Himalaya at 3,000 to 8,000 feet.

Nemorhœdus crispus. Japan.

Sub-Fam. True Goats.

Hemitragus jemlaicus, *Hodgs.* The Tehr or Himalayan Wild Goat.

Capra jharal......*Hodgs:*
Tehr ....Eng.
Himalayan Wild Goat. ...Eng.
Tare, Tehr, Tahir, ...Hind.
Jehr...................Simla.
Jharal ....Nepal.

Hemitragus quadrimammis ....*Hodgs.*
Kras, Jagla ...Kashmir.
Kart ....Kulu.
Jhula, Thar, Tharni, ...Kunawar.
Esbu, Esbi ...Sutleg.

All the Himalayas.

Hemitragus hylocrius, *Jerd.* Neilgherry Wild Goat. Ibex.

Capra warryato, *Gray.*
Kemas...*Ogilby, Blyth.*
Neilgherry Wild Goat.

Warra-adu ; Warri-atu, ...Tam.
Ibex of Neilgherries.

Neilgherry and neighbouring hills S. to Comorin, Animally.

Capra megaceros, *Hutt.* *Bly.* The Markhor.

Ma Falconeri ...Hugel.
Marrkhor ....Eng.
C. khor, orsnake eat e.

Ra-che ....Ladak.
Ra-pho-che,............ „

Pir Panjal, Hazara hills, Wurdwan hills, Sulimani hills, Kashmir; Jhelum.

Capra ægagrus. *Gmel.* Persia, Central and Western Asia.

Capra sibirica, *Meyer. Blyth.* Himn. Ibex.

C. sakeen,.........*Blyth.*
Ibex-himalayana ... „
Himalayan Ibex...Eng.

C. Pallasii ......*Schifts.*
Dan-mo, (*f.*)......Tibet.
Buz ....Sutlej.

Skin, Skyin, Sakin, Iskin. ......H. Tibet.

Kyl ....Cashmere.
Tangrol ....Kul.

Throughout Himalaya.

Ovis cycloceros, *Hutt. Sclater. Blyth.*

Ovis Vignei, *Blyth.*

Uria, Oorial ......Hind.
Punjab Wild Sheep

Uria...... ......Hind.
Urial .... „
Koch, kuch, Sulimani.

Salt range, Hazara, Peshawar.

Ovis Vignei, *Blyth*

Ovis montana, *Cunningham.*

Sha, of... ...Ladak.
Sha-pao, of ....Tibet.

Hindu Kush, Pamir range, Ladak,

Ovis nahura, *Hodg. Blyth.* Burhel.

O. nahoor ......Hodgs.
O. burhel .... „
Burhel ; blue Wild-sheep ... ...Eng.
Bharal. ....H

Menda, *m.* ....H.
Bharur, Hind. of Himal.
Wa, War, H. of Sutlej.
Nervati ....Nepal.
Na, Sna, Ladak. Tibet.

Sikkim, Bhotan to near Simla, Kamaon, Garhwal.

Ovis ammon, *Linn.* Gnow of Tibet.

O. argali.........Pallas.
O. ammonoides, Hodgs.

O. Hodgsonii......Blyth.

Hyan, Nuan, Nyan, Niar, Nyund, Tibet.

The Tibet side of Central Asia above 15,000 feet.

Ovis polii, *Blyth.* The Rass or Roosch of the Steppe of Pamir, east of Bokhara, 16,000 feet.

Ovis nivicola, *Eschscholtz.* Kamtschatka.

Ovis Gmelini, *Blyth.* Armenia.

Ovis cylindricus, *Blyth.* Caucasus.

Sub-Fam. Bovinæ.

Gavæus gaurus, *Jerd.* Gaur.

Bibos cavifrons, Hodgs. Ell.
The Gaur Bison...Eng.
Gour ....Hind.
Gauri-Gai............ „
Jangli-Khulga...... „
Lod of ....Seoni.
Gaoiya ....Mahr.
Ban-parra of Mundlah.

Bos gour.......... Traill.
B. assel............Horsf.
Kar-Kona ... ...Can.
Vana-go ...Beng.
Ban-gau .. .. „
Peroo-maoo ... ... Gond.
Katu Yeni............Tam.
Bison of Madras sportsmen.

All the large forests of India.

Gavæus frontalis. *Gayal* or *Mithan* of the Hilly tracts E. of the Burhamputra.

Gavæus sondaicus, the ban-teng, is the Burmese wild cow of Chittagong, Burmah, Malayana.

Bubalus Arni, *Jerd.* Wild buffalo.

Bos buffelus......Blyth.
Wild buffalo.........Eng.
Arna, *m.* Arni, *f.* H. Mah.

Jangli Bhains.......Hind.
B. bubalus ... Auctor.
Mung... ...Bhagulpore.
Gera erumi...........Gond.

Var. a. Macrocercus, *Hodgs.* Assam, Terai, Tirhut, Central India, South to the Godavery, Ceylon.

Var. b. Spirocercus, *Hodgs.*

Mr. B. Hodgson notes on some of the Ruminantia as under ;

Cervidæ.—Mrigadi ; Haranadi. The Sanscrit postfix adi, meaning et cætera, is the probable etymon, and certain equivalent of the Latin idæ and inæ. Hoofs cloven. Postal plane of scull forming an obtuse angle with frontal. Horns solid, falling annually, proper to males only, (save Rein Deer) inserted, superiorly and proximately, below the frontal crest. Front teeth in the lower jaw 8. None above ; canines normal and constant, found in both sexes, or in the males only. Molars $\frac{6}{6}$. Mufle normal and constant (save only in Rein Deer and Elk). Teats 4, normally and constantly, Eye-pits constant. Groin pits vaguely defined or wanting. Feet-pits usually present, in all 4 feet or only in the hind.

Cervus ; *Stags.*—Mriga ; Haran. Horns in males only much branched, 2 basal, one central, and several terminal snags. Mufle large covering the front of upper lip. Eye-pits moderate and moderately mobile S shaped. Feet-pits large in all 4 feet. Groin-pits none. Calcic gland tuft posterior and external. Teats four. Canines in males only. Types, Cervus elaphus of Europe Cervus affinis of Saul forest or Mul Barah Sinha and Geana or Cervus wallichii of Tibet. These animals are further characterised by a very short tail, a large disc or pale space round the tail, and no proper mane. The Indian ones are confined to vast primitive forests on the plain.

Rucervus.— Baraiya orBarah Sinha. Horns in males only, with one basal snag and no central one, but their summits many branched as in the true Stags or Elaphus. Mufle large, covering front of upper lip. Eye-pits moderate, mobile moderately. Feet-pits ? Groin-pits none. Calcic gland and tuft ? Teats four. Canines in males only. Type Cervus elaphoides vel duvaucelli. This is the Baraiya or Barah Sinha. It inhabits reedy marshes and islands of great rivers along the whole Eastern and Northern skirt of Bengal and Hindostan. Never enters the mountains or forests. Herds enormous in the Islands of Brahmaputra. These animals are further distinguished like the true stags, by the absence of the heavy mane of the Rusa, and by a short tail which however has no true caudal disc and is longer than in the stags proper ?

Procervus. Gour or Gower and Ghos.— Horns in males only, small, smooth, greatly divergent, and much bent in the beam, like Bos and furnished with only one? snag which is basal and forward, another subterminel ? Eye-pits medial, vertical. Feet pits none. Groin pits none. No calcic tuft nor gland ? Teats four. Tushes in males only. Type Cervus dimorphe. The Gour, or Ghos. Habitat Saul forest. Further subordinate marks of this genus are :—Tail short. No caudal disc. A mane. The Gower are not gregarious. They are confined to the Saul forest so far as appears. With their rutting season and gestation, unacquainted. Intestines 56 feet, small 29, great, 27, Cæcum, 19 inches by 4, diameter of small gut ¾ inch. Liver 3-lobed and a lobulus. Lungs 4-lobed Gall-bladder.

Rusa.—Samber, Jarai, (vulgo Jerrow.) Horns in males only, trifurcate : 1 basal and 1 subterminal snag. No central one. Mufle large, covering the front of upper lip. Eye-pits very large and completely reversile. Feet-pits large in all 4 feet. Groin-pits none. Calcic gland and tuft, posterior and external. Teats four. Canines in both sexes.

Type, Hippelaphus or the Sambur, and Aristotelis or the Jarai : both continental species of India. Also, in the Islands, Equinus Peronii, Etam, and Marriannus : but they want testing all of them. Habitat, all the great forests of India and of its islands, and to a certain extent, the mountains above them, where the other large Deer are never seen. These animals are not gregarious : they have a long bluff tail like that of a docked horse, no disc round it ; but a heavy mane over the whole neck. One anomalous species, thence called Heterocerus, has no upper snag to its horns. Another large deer of the Indo Chinese ranges of Hills is Panolia Eedii, the Cervus frontalis of Mr. McClelland. Not found West of the Brahmaputra. The Rusa rut in spring and then drop their horns. Their females gestate 8 months and produce young in winter, occasionally so early as the end of October, and one at a birth. In confinement the horns are usually dropt in April and take six months for their perfect replacement. The horns are not complete in form till the 4th year nor in size till the 8th year. Small gut 52 feet. Large 31. Cœcum 15 inches by 4½.

Axis. Chittal, *Chittra*, *chitiri.* Horns in males only, with one basal and one subterminal snag as in Rusa, but the beam more bent and the horns paler and smoother, and closer grained in structure.

Mufle large, covering front of upper lip. Eye-pits large, very mobile. Feet-pits large, in hind feet only. Groin gland large ; sinus vague. Calcic gland and tuft, posteal and external. Teats four. Canines in both sexes. Types, 1, Axis major vel maculata vel nudipalpebra, or common spotted Deer or Chittal ; 2 Axis medius or lesser spotted Deer or Jhow Laghuna ; 3, Axis porcinus vel niger, or Hog Deer, or Para or Khae Laghuna, or

Sugoria. Habitat, general over the plains of India whence the progress of cultivation has long since driven the larger Deer or Barah Sinha and Rusas and Gower recte Gour. These animals have a smooth, generally spotted, coat, no mane, and a long tail reaching to the back and ending in a point It is singular that H. Smith should question their having eye-pits and canine teeth. The spotted deer are gregarious, the herds being often very large : the Hog Deer are less so, dwelling more in families. Their breeding season is May, June : their rutting season December, January. They gestate 6 mouths. Intestines of lesser spotted species 65½ feet, whereof the small are 40 and the great 25½. Cæcum 9½ inches by 3¾ and 5 inches of gut below it, of same calibre ; rest equal and narrow. Intestines of Hog Deer 41½ feet whereof the lesser are 24½ and the larger 16¾, Cæcum 8½ inches by 2¾. They rut and breed like the spotted species.

Stylocerus, or Stilthorn or Muntjac. Daria-Mriga ; Ratwa, Kaker.—Horns in males only, small, raised on high hairy pedicles, and having only one snag which is basal. Females with bristly tufts ending in knobs instead of horns. Eye-pits very large and extremely mobile. Facial creases, large, mobile, glandular, placed along inner side of horn pedicles towards their very forward salient bases. Feet-pits large, in hind feet only. No groin-pits. Mammæ four. Canines in males only ? large trenchant, and exserted, as in the musks. No calcic gland nor tuft. Sty. vaginalis or the Kijang of Indian Islands. Sty. Ratwa or the Kaker of Indian Continent. Habitat, general in India mountains and in forests at their bases. Never elsewhere. Seldom seen above 7,000 feet in the Sub-Himalaya. The Muntjac are not gregarious though 6 or 8 are occasionally found together. They prefer the dells to the tops and the close to the open cover. Copse or brushwood of the Chinese bambu is a favorite retreat. They bark all the year but particularly in winter when the males are wanton. January, February is the common rutting, and June, July the common breeding season : the gestation being 6 months, but they breed occasionally at any season though only once a year, and have one or two young at a birth. The males' horns fall in May and are perfect again in August. Intestines male 61 feet, whereof the small are 44 and large 17 feet. Cœcum 15 inches by 2¼ inch and 9 inches of gut below it of same size. Rest, ½ to 6¾ inch wide. Intestines female, 14 feet, whereof small 34 feet and great 15. Cœcum 12 inches by two, 12 inches of gut below it of like diameter.

Moschidæ : the musks.—Kasturadi ; Mushkadi. Feet cloven : no horns ; front teeth and below, none above. Molar teeth $\frac{6}{6}\frac{6}{6}$ Canines large : cranium cervine with the two planes gradually blended.

Moschus, kastura ; Mushk Hirn. Mufle large, as in deer. No eye-pits. No feet-pits. Large caudal gland with lateral pores. No inguinal pits. Calcic tuft and gland external posteal. Large preputial gland and sac secreting the substance called musk, proper to males only. Teats four. False hoofs very large, acute, and touching the ground. Canines in both sexes : of males, large and exserted ; of females, small. Types, 1, Moschiferus ; 2, Chrysogaster ; 3, Lueogaster. Inhabit the great snowy mountain barriers of high Asia from the Himalaya to the Altai, and from Beluttag to the Peling and Gajar. The Musks are confined to the snowy region and glassy precipices which they leap with a power and security far more than Caprine, though owing to the unequal length of their legs they can descend slopes only with difficulty and falling are caught. They cannot climb at all, as goats do, and are solitary. They rut in winter and produce young in summer (May, June) gestating 160 days. In 6 weeks the young can shift for themselves and the mother drives them off. They can procreate ere they are a year old and live 10 to 15 years. One usually is produced at a birth in the cavities of the rocks. Intestines 33 to 36 feet, whereof the small are 23 to 24 and the great 10 to 12 feet. Cœcum simple 8 to 9 inches by 1 ; mean diameter of gut 1 inch. Gall bladder constant ; Prof. Owen doubts this, but Hodgson tested it a dozen of times since Dr. Campbell and he made the first examination in Nepaul.

Meminna : Pizora, Pise Pisai.

Mufle large. No eye-pits. No feet-pits. No groin-pits. Calcic gland nude and external. No preputial bag. Four teats. False hoofs, ordinary, small. Canines not exserted, and confined to males. Type, Meminna Indica Pisora and Pisai. Inhabits the forests of India in all parts, near to, but without, the various ranges of Hills.

Cavicorniæ minores.—Lesser hollow horned Ruminants or Flocks. Hoofs cloven. Occipital plane of scull forming a small or large angle with frontal plane. Horns hollow, sheathed persistent, with thin and dense or thick and porous cores. Mufle small, for the most part, or wanting. Front teeth 8 below. None above. Canines present or absent. Molars $\frac{6}{6}$ or $\frac{5}{5}$. Teats 4 or 2. Eye, feet, and groin, pits, present or absent.

Antelopidæ.—Antelope kind, Sasinadi; Occipital plane of scull forming an obtuse angle with the frontal plane. Core of the horns thin, consisting of dense bone often with a clear sinus at the base within. Horns seated on the superior surface, below the crest of the frontals, and apart at bases. Canines frequent. Mufle present or absent. Teats normally 4 or 2. Feet-pits in all 4 feet or only in the hind ones. Eye-pits present or absent. Groin-pits present or absent. These animals have also occasionally maxillary, intermaxillary and post orbital sinuses, the number and high development of these organs being one decided characteristic of the family.

Tetracerus.—Chousinha, Chouka. Horns in males only four in number. Two inter-orbital; and two behind eyes, but below crest of forehead. Mufle large, as in deer. Eye-pits medial, linear, longitudinal. Feet-pits in hind limbs only or none. No inguinal pits. No calcic tuft or gland. Teats four ? two ? Canines in the males. Types 1, Chekara ; 2, Quadricornis ; 3, Subquadricornutus ; 4, Jodes ; 5, Pacceroois. (See Calcutta Journal Natural History for May, 1847.) Inhabit the forests of India generally. Avoid mountains and open plains. Not ; gregarious. Rutting season, Summer. Breeding season, winter. Gestate 6 months, most young born in January, February. They are very shy, and when hunted is close or go off far ahead bounding like a common antelope, and hence one of their names, from chouk, a leap.

Antelope.—Antelopes Proper ; Sasin. Horns in males only. No mufle. Eye-pits, medial, very mobile linear, vertically oblique. Feet-pits large in all 4 ? feet. Inguinal pits, large and clearly defined. Calcic tufts ? Mammæ two Type Cervicapra. Black Antelope. Barant and sasin. Very gregarious on the open dry plains of India generally.

Gazella.—Ghazal. Horns in both sexes. No mufle. Eye-pits distinct mobile. Feet-pits very large in all 4 extremities. Inguinal pits large and distinct. Calcic tufts ? Mammæ two. Type Dorcas. Foreign to India.

Tragops.—Chikara, Kalsipi. Horns in both sexes. No mufle. No eye-pits. Feet-pits large in all 4 feet. Inguinal pits distinct. Calcic tufts posteal. Mammæ two. Type, Antelope bennetti vel christii, found generally amid ravines of dry plains of India, called Chikara and Kalsipi by natives ; Ravine Deer by Europeans. Not gregarious. These animals have the lyrate horns common to both sexes, the knee tufts, lines along the flanks and ovine hairy nose of the Gazelles : but they are wholly void of eye-pits. The dark lustre of their large eyes is as striking as in the two last groups. This is one of the marks by which the Antelopine family may be distinguished from the small pale-eyed Goats or Caprine family. Gazelles differ from Antelopes in that their horns are lyrate, and that the females also carry them. The Tragops differ from both by the total absence of the sub-orbital sinuses, or eye-pits.

Pantholops.—Chiru. Molar teeth $\frac{5}{5}$ Horns in males only. No mufle. No eye-pits. Feet-pits large in all 4 feet. Inguinal sacs, purse-like, large, pendent. Calcic tufts ? Mammæ, two. Large intermaxillary sacs like doubl, nostrils. Type, Antelope hodgsonii, Abel. The Chiru. Habitat open plains of Tibet. Gregarious, rutting season, winter. Breeding season the summer. Gestate 6 months. One young a birth. They are very pugnacious and jealous, and in their contests often break off one of their long horns. Hence the rumour of Unitcorns in Tibet.

Procapra.—Goa and Ragoa. Horns in males only. No mufle. No eye-pits. Feet-pits small in all 4 feet. Post cornual sinus, large. No inguinal pores. Calcic tufts posteal. Mammæ two. Type, P. picticaudata. Goa of Tibet. Inhabits ravines on the open plains of Tibet in small herds or families.

Kemas.—Goral. Horns in both sexes. Mufle media No eye-pits. Feet-pits medial in all 4 feet. No groin-pits. Calcic tufts ? Mammæ four. Type, Antelope Goral. The Goral ; inhabit the Sub Himalaya, as far towards the snows as the great forests extend, to which exclusively these animals adhere. Dwell in families 4-6 together. Breed amid crags and rocky recesses. Young mostly born in May, June : gestate 6 months. Rutting season January, February. Produce one young at a birth.

Nemorhœdus or Capricornis.—Sumatrensis is Col. Smith's type and Mr. Ogilby says this is identical in structure with the Thar, Mr. O.'s type of capricornia. If so Col. Smith's generic name will have priority ; if not, it will be the type of Nemorhœdus and the Thar of Capricornis. Col. Smith's several species of Nemorhedus are as heterogenous as Mr. Ogilby's of Kemas.

Thar or Saraw. Horns in both sexes. Mufle medial. Eye-pits round and furnished with a very large gland. Feet-pits extremely large in all 4 feet. Groin-pits none. Calcic tufts none nor gland. Mammæ four. Type, Antelope thar, the thar or Saraw. Habit the Sub-Himalaya as far north as the great forest extend. Also, Antelope Sumatrensis of the Islands of India. The Goral and Thar have the round black and ringed horns of the Antelope, which otherwise they little resemble being short clambering mountain animals, but not, as supposed, affined to the Bovines. The Goral differ from the Thar by wanting the very glandulous eye-pits of the latter, and both are sundered from the Hemitrages by their large feet pits, Antelopine horns, and absence of Caprine odour. The Thar are not gregarious at all. They rush with fearful precipitancy down the steep mountains they inhabit. Rutting season, February, March. Young (one) born in September, October. Gestate 8 months. Small gut 65 feet. Great 32 feet Cœcum 15 inches long by 3 wide, and simple. Gall-bladder constant.

Capridae.—Goats and sheep; Bakaradi. Occipital plane of scull forming an ecute angle with frontal plane. Cores of horns thick, porous and cellular. Horns seated superiorly on the crest of the forehead and by their union covering the top of the head. Canines wanting. Teats normally but two, rarely 4. Mufle abnormal and almost invariably absent. Feet-pits in all four feet or only in the fore-feet, or none. Eye and groin pits present or absent.

Hemitragus.—Jharal or Tehr. A small mufle. No eye-pits. No feet-pits. No inguinal pores. Calcic tufts. Four teats. Strong caprine odour in males. Types. 1, Capra jemlaica, 2 Capra jharal vel Quadrimammis. 3, Capra waryatu, whose female is Hylocrius. Habitat the loftiest mountains of India: the Sub-Himalaya near the snows and the highest part of the Nilgiris. A very remarkable type tending to connect the keeled, compressed hollow-horned and odorous goats with the deer family which want these marks, but possess the mufle and 4 teats of the Hemitrages, marks of which the true goats (and sheep) are void. The Jharal's retreats are among the most inaccessible bare crags of the Hemachal, close to the perpetual snows, beyond the forests. They feed in the open glades below such crags at early morning and evening, retiring in the day to their awful fastnesses. They are gregarious and the flocks often amount to 40 or 50 animals, but generally do not exceed 20 or 30. If alarmed when feeding they go off at speed with a noise like thunder, but anon halt to gaze on the intruder, whose shot sends them off again under the guidance of an old male whom they all follow blindly. The rutting season is the winter. The females gestate 6 months and produce usually but one young in the months of June, July. The habitat and manners of the wild sheep are very similar to those of the jharal, only the latter are still more dauntless and skilful climbers. If they can but touch a rough edge or crevice now and then they will run up nearly perpendicular precipices of many feet elevation and they will stand on a bit of rock not larger than one's palm looking confidently down over sheer space with not a shrub to break the awful absence of rest for the foot. In February 1842, a male jharal in possession of the court of Nepaul had intercourse with a female Axis, which in July produced a young hybrid of mixed appearance, but more like the mother than the father, and which lived and grew up a fine animal. Hodgson saw it last in October 1843, and notes the circumstance as a strong corroboration of that affinity of the Hemitrages to the Deer (not Bovines as Mr. Ogilby supposed) which is indicated by the 4 teats and moist muzzle of the former, notwithstanding that the Hemitrages in all other parts of their structure as well as in their rank odour and in their manners are such perfect goats. From the true goats however they differ, besides grand points noted, by the total absence of beard and of feet pores. Nor could he ever get any progeny from the goats by the jharal. They copulated freely and he was told would breed. Hence the erroneous statement in the Journal for September 1835, disproved by experiments, though a male of the latter species had commerce with goats of several breeds, repeatedly, during the 6 years he was kept, quite tame and going abroad with the sheep and goats. Small intestines 53 feet. Large, 25-78 feet. Cœcum 1 foot long and 2¼ inches wide. Small gut $\frac{5}{4}$ inch in diameter; great gut 2½. Cœcum simple, that is, not banded nor sacked.

Capra.—Bakra, Goats. Horns in both sexes. No mufle. Feet-pits in the forefeet only or none. No inguinal pores. Mammæ two. Odour intense in males. Calcic tufts none. Type, Capra ægagrus. Habit Persia. Foreign to India, and not therefore subject to Hodgson's examination, but the several tame races of Tibet and the sub-Himalaya (Chandra, Chyapu, Sinal) and also the common Goats of the plains (Duga and Jamnaparia) are all typical. These animals are further distinguished by horns inserted very obliquely, not angular, compressed, and presenting a sharp keeled edge to the front, whereby they may be distinguished at once from all kinds of sheep and also from the Ibexes. They have likewise invariably a true beard, common to both sexes, as have also the Ibexes, but the sheep never: and, lastly, the Goats have callosities on the chest and knees or knees only. Eminently bold, saucy and scandent. Gregarious. Rut in winter, Procreate in summer. Gestate under 5 months? Produce 3, 2 or 1 young at a birth.

Ibex.—Skin. Kin. Horns in both sexes. No mufle. No eye-pits? Feet-pits none? No inguinal pores? Mammæ two. Odour in Males?

Calcic tufts ? Types. Europea caucasica. Jaela: Sakin Sibirica. Habitat, the loftiest mountains of Europe, Asia, and Africa. Found in the Himalaya close to the snows. These animals with the general manners, the odour and the beards of goats, are distinguished invariably by angular horns presenting a distinct surface, instead of a mere edge, to the front, thereby differing from the goats proper and approximating to the sheep. The front of the horns is likewise remarkably nodose, and the horns are of great size and sickle-like curved. Their structural peculiarities want testing and will doubtless show deviation from the type of Œgagrus. Rut in autumn. Breed in spring. Gestate 5½ months. Produce 2 or 1 kids. Gregarious, bold, and scandent.

Ovis.—Bhera. Sheep. Horns in both sexes. No mufle. Eye-pits large but immobile. Feet pits small but present in all four extremities. Inguinal glands distinct. Pores vaguely defined. Calcic tufts and glands none. Mammæ two. No odour in males. Types, Ovis Ammon or the Argali of Siberia, and Ovis Ammonoides or the Argali of Tibet. Habitat the snowy barriers of high Asia, Ammon being confined to the remoter, and Ammonoides to the nearer ranges. These animals are further distinguished as a group by angular, compressed, heavily wrinkled horns turned almost into a perfect circle, and their flat points directed forwards and outwards; by very short disced tails; and by the absence of beard. The wild sheep proper, or Nyen of the Tibetans, never mix with the Nahoor. They are far more hardy, active and independent than any tame breeds of their kind, as may well be supposed from their terrific abode amid the snowy peaks of Hemachal. They are gregarious, feed in the glens, seek refuge on the tops, and leap and run with deer-like power, though as climbers inferior to the Hemitrages, and as leapers to the Musks. They are often snowed up for days without perishing, unless their breathing holes should betray them to man, a more terrible foe, than the direct unclemency of the seasons! They rut in winter, breed in early summer and gestate, it is said, 6 months, probably not above 160 days. The Nyen or Ban Bhera (that is, wild sheep) seldom or never cross the Hemachal, the Indian side of which range is the special habitat of the Nahoor, while to the north and west beyond Tibet, our animals are replaced by other species, so that Tibet may be considered as the special habitat of one species and the plateaux north of Tibet as far as the Altai as that of the other species, above cited as types of the true ovine form, and it may here be added that the six sorts of tame sheep of Tibet and the Sub Himalayas, all, without exception, exhibit the essential characters of that form.

Pseudois, [*B. A. S. Jour. No.* 173].—Nahoor-Horns in both sexes. No mufle. No eye-pits. Feet-pits small in all four feet. Inguinal glands distinct. Pores vague. Calcic tufts none. Mammæ two. No odour in males. Types, Ovis nahoor and Ovis barhel. Habitat, the Himalaya. These animals are contradistinguished, besides the want of eye-pits, by rounded uncompressed smooth horns directed upwards and backwards with great divergency and their round points again bent inwards; by short-deer like tails, but longer than in the last and undisced; and, lastly, by the absence of anything like mane or beard. The Nahoor rut in winter, breed in summer and gestate 5½ months. Their manners, so far as known, resemble those of the Nyen; but the two never commingle nor approach each other, nor will the males, how long and completely soever they may be tamed have sexual commerce with domestic sheep. Great gut 24 feet. Small gut 50 feet. Cæcum 17 inches, by 2½ wide. Large gut near it, of same diameter. Liver 2 lobel each subdivided and a lobulus. Ribs 13 pairs.

Caprovis.—Moufflons. Horns in the males only. No mufle. Eye-pits small but distinct. No interdigital pits. Inguinal gland ? pore ? No calcic tuft ? Mammæ two. No capline odour. This is the only form not verified by Mr. Hodgson, he was indebted to the Prince of Canino for its characters. Further distinguished by horns bent into a half circle over the back, heavily wrinkled, angular and compressed, by deer-like tails, no beard nor mane nor caudal disc. Type, Ovis musimon. The Moufflon. Habitat Corsica. Sardinia. The 'Mufle' is the naked moist skin round the end of the upper lip and nostrils seen in perfection in the ox. The eye-pits are slits or punctures on the cheek, just below the eye. They are round or linear and elongate: and, if the latter, are curved or straight and can be turned almost inside out, are partially or wholly immobile. The 'foot pits' are punctures in front of the pastern, in the cleft between the two bones. The 'groin-pits' are fissures in the groin more or less defined in out line, and furnished with glands which secrete a fragrant viscid substance very like the secretion of the other sinuses. The calcic glands are placed on the stifle, inside and outside, or only the one, and are often naked and tumid externally. There is a whorl or callous nude spot in many quadrupeds at its side. The tail gland of the musks is very large and covers the whole tail nearly, and has a linear longitudinal pore on each side and an abundant secretion. The preputial gland of the musks is analogous to that of the civets and screwtail (Paradoxurus, vulgo, Malwa). It is placed on the prepuce, the penis opening in the midst of it. This organ is clearly subservient to sexual purposes, and so probably are several of the others, though the eye-pits have been variously referred to the facilitation of breathing and of smelling. The supposed end of the interdigital gland and pore or feet-pits, viz., the lubrication of the foot and preservation of the hoof in hot sandy deserts, is clearly erroneous, since the Thar has these organs of an enormous size in all 4 extremities, though it be the tenant of moist cool mountain forests. It is probable that the secretion from the foot pores enables these animals to find one another in those wildernesses of vast forest trees and dense undergrowth which constitute their range. The shape of the orifice and of the gland, and the nature of the secretion from the latter as well as the periodical augmentation thereof, should be closely attended to—and that generally, or with reference to all these pits or sinuses. The distinctive form of the upper outline of the scull, and character of the core of the horns in the Antelopidæ or Antelope kind, and in the Capridæ or goat and sheep kind, and again in the deer kind and ox kind, sketches will be better understood ; and Mr. Hodgson suggests particular attention to this point as a key, as well to the mutual affinities as to the differential characters of all these groups. The Antelopes are thus clearly separated from the goats and sheep, and distributed into two groups of their own, one that of the typical genera which class with the flocks ; the other, that of the abnormal genera, which range with the herds. —He does not discuss the last named group or Bovine Antelopes (Bos dorcidæ): but in regard to all the others, inclusive of the Musks whose Cervine affinities are, he thinks, palpable, he directs special attention to the signal and abrupt fall of the posteal plane of the sculls in the Caprine and Bovine Families ; and its gentle slope in the Cervine and Antelopine Families. The Antelopine scull depicted is that of the Thar, and it will be seen at once that this type (as well as Kemas) which agrees with Nemorhœdus in this important point) is an Antelopine not Bovine type. [The agreement is not close, so that Goral is osculant towards the Capridæ. The characters of both were printed by me (Journal, September 1835) a year and quarter before Mr. Ogilby, December 1836, Zool Jour.] In like manner that is by attending to the form of the scull and the consequent position of the condyles—you may obtain demonstration of the caprine affinities of Hemetrages ; and, in fact, the whole genera of these perplexing families may thus be set in order. The Bovine or ox-kind.

Cavicorniæ majores, or Bovidæ or herds.—Gaudrisha, Hoofs cloven. Occipital plane of scull forming a large angle with frontal plane. Horns hollow, persistent, sheathed with a thick cellular core springing laterally from the apex of the forehead. These marks of the family may be supposed exclusive to the sub family : but Mr. Hodgson apprehends that they will serve usefully to sunder the antelopes allied to Bos and those not so allied, or Antelopidæ and Bos dorsininæ. Mufle large. Front teeth, above, none. Below 8 canine none ? Molars $\frac{6}{6}$. Teats four. Dewlap present or wanting.

Bovinæ or Ox-kind.—Gauadi. Occipital plane of the skull forming a large angle with the frontal plane. Core of the horns massive and very porous or cellular. Horns in both sexes, inserted laterally on the apex of the frontal crest. Canines none ; Mufle very large. Teats invariably 4. Dewlap in most, normally. No eye-pits. No feet-pits. No groinpits.

Bos. Oxen.—Gau. Cranium moderate, compressed, proportional or with excess in the cerebral or facial region. Frontals shorter than the face, flat, and not border than long. Occipital plane of the skull square, never arched along the ridge line nor indented by the temporal pits, smaller than the frontal plane and forming an acute angle therewith. Condyles of great foramen and of lower jaw, elevated greatly, and the jaw much curved. Horns attached to the highest line of the forehead, rounded, curved up or down or forward ascendantly. Orbits not salient. Thirteen pairs of ribs. No true dorsal ridge, but sometimes a fleshy hump. Mufle very large and square. Dewlap great. Type Bos domesticus. Gau.

Gaveus. Gavi or Gabi.—Cranium large, having the ample flat forehead as long as the face and broader than long, but not ridged nor curved along its crest. Occipital plane equal to the frontal plane and moderately indented subcentrally by the temporal fosses, square, and forming an acute angle with the frontal plane. Condyles of great foramen and of lower jaw low, and the jaw little bent. Orbits not salient. Horns attached to highest line of forehead, more or less depressed, and angular, and directed upwards and outwards with little curvature. A true dorsal ridge but confined to the withers. Mufle moderate. Dewlap moderate. Thirteen pairs of ribs. Type. Bos frontalis vel Gaycœus vel Sylhetanus. The Gavi or Gabi. Habitat, trans. Brahmaputra, the forests under the ranges extending from Assam to the sea. The Senbar or Phain may probably be a second species : and Bos Sondaicus or the Benteng, a 3rd and the insular species ; but these want testing. The first is more than half redeemed from the wild state like the yak of Tibet. The others are entirely wild. Mr. Hodgson possessed no memoranda of the soft anatomy or intestines, nor of the breeding season and gestation.

Bibos.—Gaur or Gauri Gau. Cranium large, massive, with the frontal and cerebral portions preponderant over the facial. Frontals as long as the face, broader than long, concave and surmounted by a salient arched crest. Occipital plane spheroidal, very large, larger than the frontal plane deeply indented centrally by the temporal pits, and forming an acute angle with the frontal plane. Orbits salient. Condyles of great foramen and of lower jaw low, and the latter straight. Horns attached below crest of forehead, sub-depressed, sub-angular, and curving ascendantly. Thirteen pairs of ribs. Dorsal ridge co-extensive with the ribs and of great elevation. Mufle small. Dewlap small. Type Bos gaurus vel cavifrons. The Gaur or Gauri Gau, Cæsar's wild Bull of Europe, and Aristotles of Persia, are two other species of Bibos or of Gaveus, which might be respectively called classicus vel Cæsaris et Aristotelis. The Gaur cattle inhabit the primitive forests of India generally, under the great ranges of mountains, such as the sub-Himalaya, the Vindhia, the Satpura, the Ghaut, Eastern and Western and their links with the Vindhia, and with the Nilgri. Beyond the Brahmaputra, Bibos is replaced by the last type, of which there would seem to be two species in the Indo-Chinese countries, one of them extending to Ceylon, if the Lanka wild ox be not rather a Bibos ; Mr. Hodgson supposed that there might be at least two species of Bibos, as of Rusa, inhabitants of India between Cape Comorin and the sub-Himalaya or B. Gaurus and B. Cavifrons. In Nepaul the period of gestation was always stated to exceed that of the common ox : but Mr. Elliot, will not allow this. The Gour rut in winter and procreate in autumn, producing usually but one young at a birth. The herds are ordinarily rather numerous 20, 30, 40, and sometimes even double these numbers, being found together, but in the breeding season, not above 10 or 15 cows with a single mature vigorous bull, who jealously expels every young and old male from his herd. The sub-Himalayan species entirely avoids the open Tarai on the one hand, and the hills on the other, adhering to the most solitary parts of the Saul forest, close to and between the salient spurs of the hills where the periodical firing of the under growth of the forest never reaches. In the Deccan, these animals are said to penetrate into the hills in the hot weather very partially, or else they must then lack cover on the plain, for they are not a mountain race at all. They feed early and late, in the more open glades of the forest, posting sentinels the while and manifesting in their whole demeanour a degree of shyness unparalleled among the Bovines. They never venture, even in the rains, when there is abundance of most rank vegetation to cover their approaches, into the open Tarai to depredate on the crops, as the wild buffaloes constantly do, nor do they ever associate, or have sexual commerce with the tame cattle, though immense numbers of the latter every spring are driven into their retreats to feed, and remain there in a half wild condition for three or four months when the wild buffaloes frequently have sexual intercourse with the tame ones of their kind, of which likewise vast numbers are depastured there. Old males of the Gaur are often found solitarily wandering the forests they frequent especially in winter : but these have probably been recently expelled the herds by their more vigorous juniors, and re-unite themselves with some herd after the season of desire and contention has passed. It is exceedingly difficult to rear the Gauri Gau in confinement. Nor had Mr. Hodgson ever known a successful experiment, though the attempt had been, for 50 years past, constantly made by the Court of Nepal, which finds no difficulty in rearing wild buffaloes and causing them to breed in confinement with the domestic species, which is thus greatly improved in size and qualities. From the excessive shyness of the Gaur, when approached, they will retreat so long as they can : but if compelled to stand and defend themselves, they do so with a courage and determination not to be surpassed. Their beef is unequalled for flavor and tenderness : but to the aborigines only it is illicit food, though not to all tribes of them, nor are any of them allowed to kill the Gaur in hindu kingdoms. The Gaur stands from 5 to 6½ feet high at the shoulder, and is either of the ruddy brown, called tan, or of a black colour, the forehead and limbs below the mid flexures being pale, and the forehead and knees tufted. Capt. Tickell believes that there are two species of Bibos in the Chota Nagpore territories alone !

Bison.—Yak or Chouri Gau. Cranium moderate, depressed, with the facial portion exceeding the frontal and cerebral parts. Frontals broader than long, convex and forming an obtuse angle with the occipital plane. Occipital plane smaller than the frontal plane, trigonal or semi-circular, and ridged by the pariates. Orbits salient. Condyles of great foramen and of lower jaw low ; and jaw straight. Horns attached below; the curved or bent inter—cornual ridge, rounded and curving out of the horizontal line. Ribs 14 or 15 pairs. A true dorsal ridge, confined to the withers. Mufle small. Dewlap none. Types, Americanus et Pœphagus. The latter is the Yak or Chouri Gau. It inhabits all the loftiest plateaux of High Asia between the Altai and the Himalaya, the Belut Tag and the Peling mountains, and is found wild as well as tame. It cannot live on this side the Himalaya beyond the immediate vicinity of the snows, where the tribes of the Cachar or Juxta-nivean region of the sub-Himalaya rear large herds and cross-breed with the common ox. The yak ruts in winter and produces young in autumn, after the usual period of Bovine gestation. Small intestines 107 feet. Large 33 feet. Cœcum 2½ feet Width of small gut 1½ inches; of great, 2 inches; of Cœcum 4 inches. Cœcum simple, that is not sacced not banded.

Bubalus.—Bhainsa or Arna Cranium large, elongated, compressed, exhibiting great excess in the facial over the frontal and cerebral portions. Frontals short, narrow-convex, forming an obtuse angle with the occipital plane. Occipital plane larger than the frontals, spheroidal moderately indented. Condyles of the foramen and lower jaw low and the jaw little curved. Horns attached to the highest line of frontals, depressed, angular, and horizontal. Thirteen pairs of ribs. No true dorsal ridge nor hump. Mufle very large and square. Dewlap medial. Types. Bubalus buffelus or the Bhainsa, and Bubalus Arna or the Arna. B. Bornouensis and Brachycerus are to Mr. Hodgson, no buffaloes, and their united horns form a character at variance not only with the genus but the family. Hence he denominates them from this feature Syncerus. They are foreign to India, the land of the true buffaloes. Habitat of the tame, universal; of the wild, also every place where adequate cover and swamp exist. The haunts of the Arna or wild Buffalo are the margins rather than the interior of primeval forests. They never ascend the mountains, and adhere, like Rhinoceroses, to the most swampy sites of the district they frequent. There is no animal upon which ages of domestication have made so small an impression as upon the buffalo, the tame species being still most clearly referable to the wild ones at present frequenting all the great swampy jungles of India. But in those wildernesses as in the cow houses, a marked distinction may be observed between the long-horned and curve-horned Buffalo, or the B. Macrocerus and B. Speirocerus, *Hodgs.*—The length of the horns of B. Macrocerus is sometimes 6½ feet each. The Arna ruts in autumn and the females produce one or two young in summer after a gestation of 10 months. The herds are usually numerous and sometimes exceedingly so, though at the rutting season the most lusty males lead off and appropriate several females with which they form small herds for the time. This noble species is, in the Saul forest and Tarai, a truly stupendous animal, as tall as the Gaur and longer considerably, and of such power and vigour as by his charge frequently to prostrate a well sized elephant. The wild animals are fully a third larger than the largest tame breed, and measure from snout to vent 10½ feet, and six to six and half feet high at the shoulder. The wild Buffalo is remarkable for the uniform shortness of its tail, which extends not lower than the hock; for the tufts which cover its forehead and knees, and, lastly, for the great size of his horns and the uniform high condition of the animal, so unlike the leanness and angularity of the domestic buffaloe's figure, even at its best.

The Bovine Antelopes form another subfamily of the Bovidæ. But those animals,—with one exception, and that a doubtful one, viz. Portax picta or the Nilgau—are wholly foreign to India and the Nilgau itself rarely found on the left bank of the Ganges, how common soever across that river all the way to the Carnatic.—*Mr. B. Hodgson in Beng. As. Soc. Journ. Beng. As. Soc. Journ. Nos.* 2; 27; 45; 87; 118; 173; *Beng. Sporting Magazine, June* 1847. *Gleanings of Science No* 34. *Jerdon's Mammals.*

RUML. Arab. Sand. The method of divination by it is scattering a quantity on a board, over which certain ceremonies have been performed, and then reading the characters. The person thus officiating is called Rummal. Qoorua or Kooruh means a lot, and means a form of divination. It is practised in different ways, but most frequently by bones of a dead man cut in the shape of dice, and marked with hieroglyphic characters. These are thrown by the person wishing to know his destiny, and the fortune-teller explains the result.—*Pottinger's Travels, Beloochistan and Sind, p.* 154.

RUMMAS. Port. Pomegranate.

RUMMEL OOL JUMAR. The throwing of a gravel, a ceremony.

RUMNAH. Hind., A grass preserve.

RUMNAH GRASS. See Graminaceæ.

RUMNAY-WALAY. Mohurrum feqir.

RUMOM PAIO. Malay. Punica granatum.

RUMPH, George Everhard, native of Hanau, a small town of Hesse Cassel, was born in 1626 and died in Amboyna, in 1693. He studied medicine and went to Batavia, when 28 years old and entered the service of the

Dutch East India Company at Amboyna, where he passed the remainder of his life. At the age of 42, when contemplating a visit to his native country, he suddenly became blind, and, therefore never left his island home. But he continued to prosecute his favourite studies in Natural History till his death in 1693, when he had attained the age of 67. His great work on the shells of Amboyna was not published till 1705. His chief work, however, was the Hortus Amboinense which was only rescued from the Dutch archives and published some years after his death. D'Amboinische Rareteit Kamer, folio, 1705 has passed through several editions. It has never been translated into English. It contains all connected with the plants of that region. Another account states he was born at Hanau in 1637, and died 1706 and he lost his sight at the age of 43. Drs. Hooker and Thomson say the materials of the Herbarium Amboinense of George Everhard Rumphius, a native of Hanover, a physician and a merchant, and afterwards consul of Amboyna, were principally collected by himself, and drawings and Latin descriptions made at the time. Having afterwards become blind, he obtained the assistance of some young men in completing the work, and translated the descriptions into Dutch: it was finished in 1690. Rumphius died in Amboina in 1706, from which time the manuscript remained upwards of thirty years in the possession of the Dutch East India Company, but was at length rescued from oblivion by professor John Burmann of Amsterdam, who not only edited it between the years 1741 and 1754, but has illustrated it with several remarks and synonyms, besides giving a translation into Latin, for Rumphius' original one appears to have been lost. This work consists of 6 volumes, with a supplemental or seventh one not published till 1757, and contains 696 plates, representing more than twice that number of plants. The plates are much less valuable than those of Rheede, but the descriptions on the contrary are much superior. Most of the plants are to this day very little known, a most elaborate commentary on the Herbarium Amboinense was commenced by the late Dr. Francis Buchanan Hamilton, in the transactions of the Wernerian Society of Edinburgh; what is printed only extends to the middle of the 2nd volume, but the remainder of the manuscript was presented to the Society before his death, he had at the same time prepared a commentary on the Hortus Malabaricus, which we believe is in the possession of the Linnean Society of London: that on the four first volumes is all which has yet appeared in their transactions. From both these commentaries much useful information may be derived, particularly from the latter, from Dr. Hamilton having himself explored a considerable portion of Malabar, as well as the contiguous province of Mysore.—*Wight's Prodromus Flora, Vol. I. p.* 8.

RUMPHIA. A genus of plants named by Linnæus in honour of George Everhard Rumph. Messrs. Wight and Arnott remark, that as each apparent stamen may be composed of several filaments, this doubtful genus would be brought near Byttneriaceæ.

RUMPA, a tract of country situated on a part of the northern frontier of the Rajahmundry District. It is very thinly populated, wild, and mountainous, and the climate, during most part of the year, unhealthy. It formed part of the old Kottapille taluk which, under the new territorial arrangement of the District, was included under Rajahmundry, with a Sub-Magistrate, however, resident, not far from the Rumpa border.

RUMPAT-RUMPAT. MALAY. Spices.

RUMUL. HIND. of Kaghan; Ficus Roxburghii, F: macrophylla.

RUMZAN. The ninth month of the mahomedan year, during which these religionists fast from sunrise to sunset. Breakfast is from 2 to 4 A. M.; and during the fast, eating, drinking, and conjugal intercourse are interdicted, as also chewing betel leaves, smoking and snuffing.—*Herkl.* See Eed; Mahomed; Month.

RUMZAN KI EED, or Eed ool fitr, the feast of the Ramzan.

RUMZAN KA ROZ, or the mahammadan Lent.

RUN. HIND. See Rui.

RUNA, also Runang. HIND. Rubia cordifolia.

RUN. A group of small islands, consists for the most part of high rocky ground. Some of the cliffs lying close to it are completely bare.—*Jour. of the Ind. Arch. June* 1852, *p.* 324.

RU-NAS. PERS. Madder.

RUND. A plantation reserve. See Rakh.

RUNDUR or Kyampo, lawless tribes of independent robbers in the middle districts of Tibet.

RUNEKA. See Rama.

RUNGA.—? Glass.

RUNG-BERREE KAK'HANA. The dinner for the bridegroom sent from the bride's house.

RUNGIA REPENS. *Nees.*

Justicia repens, *Linn.*
Dicliptera retusa, *Juss.*
Dicliptera repens, *Ro. et Sch.*
Kadag Saleh ... .. TAM. ..

A plant used in medicine growing in peninsular India. Its leaves resemble those of thyme in taste and appearance. R. parviflora, *Nees*, also grows throughout British India.

RUNG KHELNA. Hind. The bespattering with colours ; a ceremony.

RUNG-MAKHUN-SHIM. Beng. Canavalia erythrosperma, flore rubro.

RUNGPOOR NEBOO. Beng. Citrus bergamia.

RUNGPUR taken from the Burmese, 21st February 1825, is a marshy district to the south of Kooch Bahar. It produces silk corahs, Megilli cloths made of pat (Corchorus olitorius) ginger (the best in Bengal), and tobacco of an excellent quality : from the neighbouring country of Bhotan, is imported the beautiful long glossy hair of the tail of the yak of which chowrees are made.—*M. C. C.* See China grass; Kooch.

RUNGRU. Hind. Kalanchoe varians.

RUNGUN. Beng. Ixora bandhuca.

RUNJAṆA. Sans. Sanders wood.

RUNJIT SINGH, the greatest leader of the Sikhs, His rise commenced after the departure of Shah Zeman, and from 1801 he gradually extended his power. He made Lahore his capital. In 1806, he first entered into a vague but friendly alliance with the British. Before the close of his long life, in A. D. 27, June 1839, he had succeeded in moulding into one nation the various conflicting interests and peoples over whom his conquests extended. Runjeet Singh was of small stature. When young he was dexterous in all manly exercises but in his old age he became weak and inclined to corpulency. He lost an eye when a child by the small pox, and the most marked characteristic of his mental powers was a broad and massive forehead, which the ordinary portraits do not show. From tracts of country which the Sikhs subdued but did not occupy Rokkee, literally, protection money, was regularly levied. The Rokhee, varied in amount from perhaps a fifth to a half of the rental or Government share of the produce. It corresponded with the Mahratta Chout, or fourth, and both terms meant black mail, or, in a higher sense, tribute.—*Cunningham's History of the Sikhs p.* 113.

RUNJUDEB. Pers. Sarcocolla.

RUN-KA-DOLA, lit. the war-bier a ceremony.

RUN-KA SHARBAT, lit. the war-lemonade.

RUN-KA TABOOT, see Runka Dola.

RUNKINI, an incarnation of Kali, when she ran away from Pochete.

RUNN, a flat tract of morass lying between Sind and Cutch, which is inundated with brackish water during the three monsoon months. It varies in breadth from 5 to 8 miles and is covered by salt incrustations when dry. Salt is manufactured on it at Janjorra and Patri. The Run or Rinn, is a remarkable feature of the Rajputanah desert. It is 150 miles broad, into it the Loni or Looni or salt river enters and then runs on to the sea. The Looni rises in the Aravalli. In Merwar it separates the fertile land from the desert, afterwarde runs through the Choham territory, dividing it into the eastern part called Raj-Bah or Sooi-Bah, and the western part called Parkur or "beyond the Khar or Looni." The Caggar rises in the Siwalik Hills, flows under Bhutnair walls and once emptied itself between Jessulmeer and Rori Bukkar. The Runn of Cutch during the monsoon is a shallow brackish lake from four to sixty miles broad, but it dries up during the hot season and is then covered with grass. The climate of the outposts is dry and in the hot season stimulates to irritability. The thermometer rises to 100° in the shade ; part of Cutch is an irregularly hilly tract completely isolated by the Runn and the sea. On the southern coast the country is a dead flat covered with rich soil, but the northern part has three distinct ranges of hills running from east to west. The central of these ranges consists of sandstone, beds of coal, limestone, and slate clay ; the hills north of it consist of marine remains, and those on the south and all the face of the country near them, are covered with volcanic matter. Cutch is 165 miles long and from 15 to 52 miles broad and, not including the Runn, has an area of 6,100 square miles. Its immense salt-marsh, the Runn, upwards of one hundred and fifty miles in breadth, is formed chiefly by the Looni, which, like the Rhone, after forming Lake Leman, resumes its name at its further outlet, and ends as it commences with a sacred character having the temple of Narayn at its embouchure, where it mingles with the ocean, and that of Brihma at its source of Poshkur. The word Runn, or Rin, is a corruption of Aranya, or 'the waste ;' nor can any thing in nature be more dreary in the dry weather than this parched desert of salt and mud, the peculiar abode of the Khur-gudda, or wild-ass, whose love of solitude has been commemorated by an immortal pen. That this enormous depository of salt is of no recent formation, we are informed by the Greek writers, whose notice it did not escape, and who have preserved in Erinos a nearer approximation to the original Aranya than exists in our 'Rin' or 'Runn.' Although mainly indebted for its salt, to the Looni whose bed and that of its feeders are covered with saline deposits, it is also supplied by the overflowings of the Indus, to which grand stream it may be indebted for its volume of water.—*Tod's Rajasthan, Vol. II. p.* 289, 295, 330. See Cutch ; India ; Jut.

RUPA. Hind. Silver, but generally used to mean alloyed or impure silver, debased by the addition of copper or zinc, or both.

RUPA-MATI, was born at Sarungpur, a town in Malwa 55 miles N. E., of Oujein and 80 miles west of Bhilsa. Malcolm describes her as a dancing girl, and famed more for her good sense than her beauty. Malwa for a short time in the middle of the 16th century became independent under Baz Bahadur, and he made Rupamati one of his wives, and they passed through seven years of great happiness, hawking in the day, with poetry and music at night. But in A. D. 1560, Akbar sent Adam Khan to re-occupy Malwa, and Baz Bahadur deserted by his soldiers fled. Rupamati destroyed herself by poison or the dagger. Her songs are in the hindi dialect of Malwa. Their style is simple and natural and are the outpourings of a fervent heart and many of them are still sung by professional songsters and musicians all over the province of Malwa. They are composed in the Malwa dialect of Hindi. She had more than a common share of the poet's power.—*Tr. of Hind., Vol.* II, *p.* 198.

RUPAMAKHI. HIND. Iron pyrites. See Sona Makhi.

RUPASIDDHI. See Pali.

RUPEE, a coin of India, value about 2*s*. The Sicca rupee, the Madras or Arcot rupee and the Bombay rupee have been displaced from British India by the Indian rupee of 1834.

Assay Reports of Shah Jehan, Mooltanee, Cabooleе, and Dooraneewall Rupees:—

Description of coin.	Weight.		Touch.		Pure Metal.		Value of 100 in Company's Rupees.	
	Grs.	*Decls.*	*P. Ct.*	*Decls.*	*Grs.*	*Decls.*	*Rs.*	*Decls.*
Melted bar of 95 Shah Jehan. Rs.	177	15	97	76	173	181	104	958
Melted bar of 95 Mooltanee. Rs.	171	89	94	90	163	123	98	862
Melted bar of 95 Cabooleе. Rs.	144	80	93	63	135	576	82	167
Melted bar 95 Dooraneewall. Rs.	145	17	78	80	113	668	68	889

RUPIABA. See Naga.

RUPPELLIA TENAX. Cancer tenax, *Ruppell*, has the upper border of the orbit marked by two fissures separated by a small tooth; there is a fissure at its external angle, and two teeth at its lower borders. Length about two inches. It is a native of the Red Sea.

RUPPELL, described the Hortus of the Red Sea and southwards to Mozambique and the fishes near the Cape.—*Dr. Smith.*

RUPSHU. See India; Maryul or Lowland.

RURA. See Bitter Indurjuo.

RURA KANUR. BENG. Crinum asiaticum.

RURKI, 29° 53'; 77° 55', in Hindostan, has a College of Civil Engineers, situated in the doab between the Jumna and the Ganges. The Thomason College is 997 feet above the sea.—*Schl.*

RUSA. HIND. Andropogon iwarancusa. See Grass Oil.

RUSA ARISTOTELIS. *Gray*, the elk, jarai or jerrow of the great forests of India, and of Ceylon, is the Cervus Aristotelis of Cuvier.

RUSA-BUNGA, of Malay Peninsula, Axis maculatus. *Ham. Smith. Gray.*

RUSA-KA. TEL. HIND. Grass oil of Nemar. Oil of Andropogon calamus aromaticus. Rusa Oil. See grass Oil; Oil.

RUSA KUMBANG. MALAY. Rusa equina.—*Cuv. Ham. Smith.*

RUSA LYRATUS. *Schinz.* Panolia acuticornis. *Gray.*

RUS-CAPUR. GUZ. HIND. Corrosive sublimate.

RUSA ETAM. Sumatra. Rusa equina.

RUSA HIPPELAPHUS. SYN. of Rusa equina. *Cuv. Ham. Smith.*

RUSHES, Grasses and Sedges are extensively used in India for the manufacture of mats, ropes, baskets, and thatching. The Cyperus textilis, and a finer kind of grass called kooray or koaray are used for making mats. The celebrated mats of Palghaut and Cochin are of several species of Typha, Juncus, and Saccharum which abound and are applied to useful purposes. The Phrynium dichotomum of Bengal is used for making the sital patee mat.—*M. E. J. R.*

RUSH LEAVED CYPERUS. Cyperus juncifolius.

RUSH STEMMED HEDYSARUM. Hedysarum junceum.

RUSKAPUR, also Rusa Karpur. GUZ. HIND. Mercurial preparations. Corrosive sublimate.

RUSKAR. HIND. Delphinium Brunonianum.

RUSHOON. also **RUSHOONA.** BENG. Garlic. Allium sativum.

RUSOT. HIND. Extract of Barberry.—

Berberidis extractum—extract of the bark and wood of the Barbery, (Berberis) several species; deep yellow colour, totally soluble in water. It is the Lykionendikon of Dioscorides.—*Beng. Phar.*

RUSS. See Kashgar.

RUSSA-PUSPUM, one of the mercurial preparations of India.

RUSSELL. Dr. Patrick, a Madras medical officer, in the service of the E. I. Co. who succeeded Koenig as Botanist to the E. I. Co. He devoted much time to the investigation of snakes and fishes, and edited Roxburgh's Coromandel Plants. Prior to that, in 1802, there had appeared Dr. Patrick Russell's boo k in two volumes, containing the descriptions and figures of 200 fishes collected at Vizagapatam on the coast of Coromandel.

RUSSELIA. This plant, with rush like branches, one of Scrophularineæ bears a deep scarlet trumpet shaped flower, hanging in long axillary peduncles down the stalk. It blossoms during the greater part of the year, and is highly ornamental, growing luxuriantly in a rich soil. It is propagated by layers or cuttings.

RUSSI. HIND. Cordage. rope.

RUSSIA, a great dominion in Europe and Asia, ruled from St. Petersburgh. The historical and geographical future of Russia impels her farther and farther towards the south, in spite of all obstacles; and yielding to these natural impulses, she has advanced, on one side, from the Irtysh to the upper course of the Syr-Daria or Jaxartes and Amu Daria or Oxus; on the other, from Orenburg to the Sea of Aral, thus incorporating within her boundaries the greater portion of the steppes dividing Europe from Asia Proper. A necessity arose for connecting her Central Asia settlements firmly together, and with this object roads were constructed, stations erected, steamers introduced, as on the Amur and Syr-Daria, and even telegraphic lines established, as at present from the Chinese frontier to St. Petersburg. The Amu-Daria is for many reasons of greater importance to Russia than even the Syr-Daria. It disembogued at one period into the Caspian, and its bed to that sea still remains. Some are of opinion that the course of the river can be again directed to its ancient bed, while others consider it impossible to do so. The importance of this connection will readily be understood when it is remembered that a water route, in continuation of the Volga, will be thus created, which will extend for 3,000 versts into the interior of Asia, and that the extreme points of this uninterrupted water-way will be St. Petersburg and the Northern slopes of the Hindoo Koosh, almost reaching the boundaries of the British possessions, and very closely approaching the Indus. The number of Turkman, Kirghiz, Kasak and other nomad hordes in Central Asia is computed at three millions and the settled population at more than five millions. The quantity of gold obtained in the khanats of Bokhara and Kokan is so small that the inhabitants of the different Central Asiatic states are compelled to have recourse to Russia for the precious metals of which they stand in need. The total value of Russian goods now annually disposed of in Central Asia does not exceed five millions roubles (£750,000.) and deducting that of the Kirghiz-steppe, the whole trade will not amount to more than two millions (£300,000.) The diet of the wandering tribes consists almost entirely of meat, milk, and cheese-curd; bread being very sparingly used, and confined to a few of the wealthiest chiefs. Russia has pushed forward her outposts to within 300 miles of the British frontier on the north. But there intervenes between the Russia in Asia and British India, the mighty barriers of the Hindoo Koosh, and the Kuen Lun, which rise like a wall, 17,000 feet high, with scarcely a crest or depression throughout their entire extent—none certainly practicable for an army with the material and appliences of war as waged by the 19th century civilization. The settlement of the Amoor was effected in much the same manner as Mahommed Toghluk once attempted to transfer the population of Delhi to Dowlatabad in the Deccan, but with a more successful issue. Whole colonies of Cossacks, men, women, children and household gods were moved from their homes and settled at distances varying from 100 to 500 miles. The settlements are placed from ten to thirty miles apart, with a view to affording convenient coaling depots for steamers rather than to the suitability of the soil or locality for settlers. The houses are arranged with military precision. Some of the villages have been accidentally settled in fine agricultural districts and magnificent grain crops are raised. So successful have the settlers proved in growing grain, that Government consider that the local supply will equal the demand for naval and military purposes. In 1866 there were twenty-two steamboats in actual service, and two or three new ones nearly ready. In A. D. 1870 the settlements include a population of about forty thousand, of which one-eighth is at Nicolayevsk, the oldest and most important town; valuable forests are there of cork, mahogany, birch, pine, spruce and elm with masses of vines and thick underwood, but seem to possess greater attractions for the hunter than the woodsman. A species of tiger, is often met with even as far north as 53° North latitude.

Deer and other four footed game are also found in great abundance. *Russians in Central Asia, Capt. Valikhanof. M. Venikof, pp.* 397, 402, 403, 456, 458, 484. *J. R. Michell, p.* 4. See Bokhara, India Kalka ; Pekin ; Oxus.

RUSSIA LEATHER.

Cuir de Russie	Fr.	Jachta	Pol.
Juften	Ger.	Juft .Youf	Rus.
Balghar	Hind.	Moscovia	Sp.
Cuojo di Russia	,,		

The tanned hides of oxen, manufactured in a peculiar manner. The leather is soft, has a strongly prominent grain, a great deal of lustre, and a powerful and peculiar odour. The colours are principally red or black ; the former is much esteemed for binding books, and making articles where a fine durable leather is required, the latter is chiefly in demand in Russia for shoe and boot making.

Russia leather occasionally comes to Peshawur. Another kind of leather having a metallic lustre, called "kimsana;" is imported also from the north-west ; also a beautiful leather, used in the manufacture of the bright blue green shoes from Kashmir and Peshawur, which is called "kimakht." This is not made in the Punjab. Peshawur sword scabbards are often covered with a black leather, looking like morocco, it is probably an imitation. Russia leather is said to be made of horse's skin, it is thick but pliant, and of most grateful fragrance. The skins are much valued for the preservation of merchandize, as insects will not attack them. —*Faulkner.*

RUSSIAN DIAMOND. See Diamond.

RUSSIAN LIQUORICE. Glycyrrhiza echinata.

RUSSOOL Ar. A messenger, a prophet Russool-nooma, (lit. displaying the messenger,) a class of faquirs.

RUSSOOLSHAHI, a class of faquirs.

RUST. Hind. of Spiti also Lajward ; or Lapis lazuli.

RUST. Red Rag. Red Robin, Red Gum. Uredo rubigo and U. linearis are fungi which attack wheat in England. —*Hassell.*

RUSTAM. A king of Persia, he was born in Segestan, B. C. 1072, established the Sooraja dynasty at Kanouj, where the worship of the sun was introduced, the dynasty survived 386 years.—*Prinsep, p.* 283.

RUSTY ACACIA. Acacia ferruginea. *D. C. W. & A.*

RUSTY MIMOSA TREE. Acacia ferruginea.

RUSTY SOAP NUT. Sapindus rubiginosus.

RUSUN-JHANJI, Beng. Vallisneria alternifolia.

RUTA ALBIFLORA, white-flowered rue, is common on the Himalaya, at an elevation of 5,000 to 8,000 feet, is sometimes cultivated and very common truly wild at elevations of 3 to 7,000 feet ; it is generally used for all diseases of fowls, mixed with their food.

RUTA ANGUSTIFOLIA. *Pers. W. & A.*

R. graveolens, L.		R. Chalepensis	*Vil*
Narrow leaved rue,	Eng.	Katmal	Hind
Sudab	Hind.	Arudu ; Sadapa	Tel

Met with in gardens in India, and used medicinally, its seeds being officinal and given in colic, those of Euphorbia dracunculoides ? are sometimes substituted. The leaves contain a quantity of an acrid volatile oil and bitter extractive matter. Used by natives in a peculiar rheumatic pain, called "rhi," caused by exposure to draught. It also acts as an emmenagogue, and in pregnancy causes abortion. — *Dr. J. L. Stewart. Powell's Hand-Book. Vol.* 1. *p.* 335.

RUTACEÆ. *D.* The Rue tribe of plants, comprising 5 Gen. 8 species, viz., 3 Ruta, 2 Cyminosma, 1 Aplophyllum, 1 Evodia, 1 Dictanonus.

RUTA GRAVEOLENS. *Linn.*

Sudap	Ar.	Satari	Hind
Peganon of Scripture.	Eng	Sadab	Malay
Herb of grace	,,	Sudap	Per.
Rue of Luke 11 and 42	,,	Aruda	Tam

This rue is a plant of Europe.

RUTA SYLVESTRIS. Syn. of Harmala ruta.

RUTH or Rat'ha. Hind. A car from which no doubt has been derived the word chariot, the rath is sometimes ornamented, its scarlet screens and canopy hung with fringes.—*Tr. of Hind. Vol. II. p.* 89.

RUTH SAPTAMI, from ratha, a car and saptami, the 7th day of the month, is dedicated by hindoos to the worship of the sun. This is held about the 11th February and is regarded as the beginning of the Manwantaram or period embracing the age of Manu. The Holi or Hutasavi festival, in Sanscrit Holikha or Phal gotsava, is called also dola or dolavatra, the swinging festival, and supposed to relate to the vernal equinox and to be similar to the Persian New year. It is held about the 19th March, or 15 days before the full moon of Phalgun. It is in honor of Krishna and is quite a saturnalia, red powders are thrown and red fluids squirted at passers by and licentious songs sung. At the close of the festival, a pile is lighted, and a wheaten cake or poli, offered on it.

RUTHOG. See Kailas or Gangri Rang. Shawl-goat.

RUTCILLA ERYTHROGASTRA, *Gould* R. Tricolor, *Gould*. A specimen of this fine and very rare Himalayan bird was obtained at the side of a mountain stream near Landour, — there were a pair of them, apparently alike in colour.

RUTICILLA PHŒNICURUS or Phœnicura ruticilla, the Redstart of Europe, West Asia, Siberia (Schlegel), Japan, (Temminck,) and N. Africa; it is migratory, replaced in Sindh and Afghanistan by R. phœnicuroides, which is probably the R. phœnicurus noted from Nepal. There are numerous Himalayan species; and one R. rufiventris is generally diffused over India.

RUT JUGGA. HIND. Nocturnal vigils, a mahomedan ceremonial on several occasions. —*Herkl.*

RUTNAGHERRY, in lat. 16° 18′ N., and long. 87° E., is a straggling open town 160 miles S. of Bombay. Rutnagherry, on the Konkan coast, in lat. 16° 59′ N., long. 73° 15½, E., is a fortified neck of land, on the south side of which is a large bay into which a river disembogues.

RUTNAR, a river near Najibabad in Bijnur.

RUTSU. HIND. Polygonum, *p.*

RUTTI. HIND. Hedychium spicatum, *Royle.*

RUTTI. HIND. Seed of Abrus precatorius. Used as a weight—1·875 grains troy. —*Linn.*

RUTTUNJI. GUZ. HIND. Sanders wood.

RUTTUN PURUS, DUK. Ionidium suffruticosum, *Ging.*

RUTTUN-PURUSH. BENG. Viola tricolor.

RUVIYA. BENG. Dillenia speciosa.

RUY GONZALEZ DE CLAVIJO. The account of his journey in his embassey to the court of Timur, at Samarcand, is the oldest Spanish narrative of travels of any value. These ambassadors were present at the battle of Angora, between Timur and the Turk Bayazid, in the year 1402.—*Markham's Embassy, p.* 3.

RUZAEE. HIND. A quilt.

RWÆ-GNAY. BURM. Abrus precatorius.—*Linn.*

RYAN. Arab. According to mahomedanism, one of the eight gates of Heaven

RYANÆA. See Flacourtiaceæ.

RYBI. See Fishes of eastern and southern Asia.

RYE.

Rug... ...	...DAN.	Secale Cereale......	LAT.
Rogge; Rog...	...DUT.	Rosb, Sel, Jar......	RUS
Segala,; Seigle ...	FR.	Centeno... ...	...SP.
Rocken; Rogken	...GER.		

The grain of Secale cereale comes nearer in its properties to wheat, than any other grain. It is the bread corn of Germany and Russia; being of less value to the English farmer than barley, oats, or peas, it is, in consequence, very little cultivated in Great Britain. The seeds are met in the market, deprived of husk. Rye flour is said to be somewhat laxative. The roasted grains are not unfrequently employed in the adulteration of coffee. Rye flour does not form a paste like wheat flour.—*Hassell. Faulker. McCulloch.*

RYG. DUT. Barley.

RYHAN. See Tasbeeh.

RYOT. AR. HIND. PERS. A cultivator, a client, subject, but is more especially applied to the agricultural population.

RYOTWARI. A revenue term applied to the system under which the land taxes of the Madras Presidency are collected. In the Bengal Presidency during the administration of Lord Cornwallis, in the provinces of Bengal, Behar and Benares, the Government settled, permanently, the persons' names, and the amount of tax to be raised, solemnly engaging never to increase it. The persons thus raised to a social position similar to the landlords of Europe, were termed zemindars. There is no doubt that many of them were persons of hereditary influence and status in the country, and that their connection with the land, of which they were then recognized as the proprietors, had in general been of a permanent character. But their position, nevertheless, was essentially that of middle-men; collecting the revenue, not for themselves, but for the Mogul government; accounting to that government for their receipts, and remunerated by a per centage of the collections. It is now, however, universally admitted that they never had the power of disposing arbitrarily of the land. There were, everywhere, at least large classes of tenants, whom they could not lawfully eject, except for non-payment of revenue, and from whom they could not lawfully exact more than the customary payments. The ryotwar system of Madras was principally followed out by Colonel Reade and Sir Thomas Munro. Under this system, the peasant himself, the cultivator or farmer, is regarded as the proprietor of the soil, subject to the payment of the Government demand. The position which the Madras ryot holds is somewhat similar to that of the fewars of Scotland, whose feu is held in perpetuity, subject to a permanent feu duty; with this difference that in Scotland, the rent, or tax, or feu is permanent or for a long lease of 999 years, but in Madras, the amount charged is settled annually. And this has given rise to the term annual settlements in Madras, as the system introduced by Lord Cornwallis has been named permanent settlements, the latter, leaving the farmer entirely at the mercy of the landlord. The Madras ryot can increase or diminish his holding annually; and has thus all the benefits of a perpetual lease, without its responsibilities inasmuch as he can at any time, throw up his lands, but he cannot be ejected so long as he pays his dues. He also receives assistance by remission of assessment, in unfavourable seasons. The practical disadvantages of the ryotwar system consist in the annual metdling and supervision required on the part of government for valuation of cultivated lands. The advantages are this, that as the land furnishes in India the great bulk of the revenues, and as the taxes of a country must ever be regulated by the wants of the state, the annual collection affords the best opportunity for realizing monies for state purposes. In the North Western Provinces, the lands were acquired principally in consequence of Lord Wellesley's Mahratta wars, but the settlement of their land revenues was commenced and completed between 1834 and 1844, principally by Mr. Robert Mertens Bird. It is called the village system or settlement, and has been acted on, in the belief that the village community consist of the descendants or representatives of those by whom the village was, at some remote time, conquered or reclaimed from waste. In most cases, these are a part, and in some, form the whole of the agricultural population of the village; but the ordinary peasants or cultivators are descendants of persons who have settled in the village with the permission of the proprietors. But some of them have by grant or prescription acquired a fixity of tenure, while others have remained tenants at will. The village proprietors formed prescriptively, the municipal government of the village; a fact of great importance, village government being the only institution properly so called, which the hindus possessed. The time occupied in thus settling the North Western Provinces was about ten years, and the expense incurred in it was upwards of £500,000. It comprehended a detailed survey of a country about 72,000 square miles in extent, containing a population of more than 23,000,000, producing a land revenue exceeding £4,000,000. The proprietary rights as ascertained and recorded at the survey, were confirmed in perpetuity; but the Government assessment was fixed for twenty, and in some cases for thirty years. The Punjab settlement was on leases for terms of years, usually shorter than in the N. W. Provinces, and the cess does not exceed one-fifth of the gross value of the produce in rich tracts, and one-sixth or one-eighth or even less in poor. In the Bombay Presidency, the Madras ryotwar system was introduced after the Mahratta wars terminating in 1818, but since the recent survey, the land, cultivated and waste together, is divided into fields of an extent cultivable by one yoke of bullocks, and on each field the Government demand is fixed for a period of years, at a very moderate rate. While the contract is binding on the Government, the ryot, on his side, can throw up his engagement at pleasure, and he is not required to pay the assessment for any year, on any field which he has not cultivated or undertaken to cultivate in that year. In the Madras Presidency, a great improvement was introduced in the year 1837, by ruling that the land tax should not be increased, because on such land a more valuable article was cultivated, and in 1855, an entire revision of the Madras cess was undertaken and carried out during the administration of Lord Harris. Nearly two-thirds of the revenue of India consist of the rent, or cess, or tax on land, the second in amount is from opium, a third is from salt. The land in the South of India, belongs firstly to the family, secondly to the village community.

Joseph bought up the whole land of Lower Egypt for the king; every man sold his field; and the whole soil, except that which belonged to the priests, into which class he had himself been adopted by marriage, then became the property of the crown. He then made a new division of the land, allotted out the estates to the husbandmen to cultivate; and gave them seed to plant, and required them for the future to pay one-fifth part of the crop, as a rent, to the royal treasury. Thus did the Asiatic minister, copying the customs of the east, make the king the landlord of the whole country except the estates of the priests; and the land was then held by what is now known in Asia as the Ryot tenure. In Asia, generally, the landholders are tenant proprietors at a changeable rack-rent of about one-half of the crop; whereas the Egyptians paid a fixed and low rent of one-fifth. The Egyptian landholder was therefore rich enough to have peasants or slaves under him, while the Indian ryot is himself the peasant-proprietor. This rent was in the place of all direct taxes.

Throughout the Boondi territory, by far the greater part of the land is the absolute property of the cultivating ryot, who can sell or mortgage it. There is a curious tradition that this right was obtained by one of the ancient princes making a general sale of the crown land, reserving only the tax. In Boondi, if a ryot become unable, from pecuniary wants or otherwise, to cultivate his lands, he lets them; and custom has established four annas per beega of irrigated land, and two annas for gorma, that dependant on the heavens, or a share of the produce in a similar proportion, as his right. If in exile, from whatever cause, he can assign this share to trustees; and, the more strongly to mark his inalienable right in such a case, the trustees reserve on his account two seers on every maund of produce, which is emphatically termed "huk bapota ca bhom," the "dues of the patrimonial soil."—*Tod's Rajasthan, Vol. II. p.* 540. *Sharpe's History of Egypt, Vol. I. p.* 36.

THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

form 410

15 JUL 1915

THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

form 410

[illegible] Dec [illegible] 1915

THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

form 410

[illegible]

THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

form 410

DUE 1915